University of Regina

DEPARTMENT OF COMPUTER SCIENCE

ACADEMIC UNIT REVIEW SELF STUDY REPORT

2016-2017

Contents

1. BACKGROUND

The unit started as a Computer Centre in 1965 and was approved as a campus department in 1968, offering 8 credit classes. It has since grown and provides programs of study related to computing, information technology and software design and application. These programs involve interdepartmental, multi-institutional and inter-institutional collaboration and have attracted faculty members, undergraduate and graduate students from all over the world. Students may pursue full-time or part-time study leading to a Certificate in Computer Science or to B.Sc., M.Sc., or Ph.D. degrees.

The Department currently offers B.Sc., B.Sc. Honours, B.Sc. Computer Science/Mathematics, B.Sc. Honours Computer Science/Mathematics, B.Sc. in Software System Development degrees in its undergraduate program, and M.Sc. (thesis-based, co-op based and course-based options) and Ph.D. degrees in its graduate program. It also offers a two-year certificate program in computer science, for training or continuing education.

The Department operates a program in cooperative University education in the four-year degree programs. Following the first two semesters of University courses, students spend alternate four-month periods taking courses and working in fully salaried computer science related jobs with participating employers. Such a program may improve the student's motivation and performance, and the practical experience gained may aid the student in choosing future areas of interest. To meet the future needs from the rapidly developing IT industry and the fast growing provincial/national economy, the Department has developed and will continue to develop innovative programs in collaboration with other faculties.

The Department has identified three principal areas of focus, namely: Artificial Intelligence, Digital/Multi Media and Software Systems Development. These areas provide the framework for recruitment and program development (teaching and research) in the Department and are consistent with the strategic areas of emphases in Energy and Environment, Informatics and Health Research, described in the University of Regina Strategic Research Plan.

The Department is committed to promote excellence in research and teaching and to follow the three strategic priorities at the University of Regina: Student Success, Research Impact and Commitment to our Communities. The Department aims to build a vibrant research and training environment for our undergraduate and graduate students. It encourages research collaboration both internally and externally, and conducting nationally and internationally recognized scholarship. The Department is making a special effort to strengthen its relationship with industry by developing collaborative projects and consultation on curriculum development. Due to the increased demand from the IT industry in Saskatchewan and elsewhere, the Department has experienced considerable growth in enrolments since 2010 (the total number of undergraduate students majoring in Computer Science has more than doubled in the past 6 years).

2. STAFFING AND RESOURCES

2.1 Staffing - faculty, instructors, lab instructors, technicians, and support staff

Name		Position and Rank	Notes
Cory	Butz	Professor	Associate Dean Research
Lisa	Fan	Associate Professor	Graduate Co-op Coordinator
David	Gerhard	Professor	External Relations Committee Chair
Howard J.	Hamilton	Professor	Research Grants Advisor
Daryl	Hepting	Associate Professor	Participant Pool Coordinator
Orland	Hoeber	Associate Professor	Graduate Coordinator
Robert	Hilderman	Associate Professor	Undergrad Co-op Coordinator
Malek	Mouhoub	Professor	Department Head
Samira	Sadaoui	Professor	
Boting	Yang	Professor	
Xue-Dong	Yang	Professor	Curriculum Committee Chair
JingTao	Yao	Professor	
Yiyu	Yao	Professor	
Sandra	Zilles	Associate Professor	
Alex	Clarke	Lab Instructor	
Guili	Liu	Lab Instructor	
Nova	Scheidt	Lab Instructor	
Catherine	Song	Lab Instructor	
Robert	Cowles	Research Systems Administrator, Science	
Maxim	Ivanov	Systems Administrator	
James	Kraushaar	Programmer Analyst (CS, MSDNAA)	
Pheonix	Sparvier	Administrative Assistant	
Connie	Renwick	Program Coordinator	

2.2 Resources

2.2.1.1 Teaching Space

Room	Capacity	Function
CL 105	12 Dell Dimension XPS + 1 Instructor Machine	Labs for CS 201, 301,210,408 and CS 409
CL 115	8 Dell OptiPlex 7010, 15 Dell Optiplex 780 + 1 Instructor PC	Intermediate C++ Programming (CS 115) Web-application development with Database Systems (CS 215) Software Engieering (CS 372, CS 476) Operating Systems (CS 330, CS 430)
CL 135	16 White iMacs + 1 Instructor Machine	Used for multimedia and film courses (FILM 486AJ, FILM 208, CS 325/FILM 385AB), user interfaces (CS 305) computer audio (CS 327) and computer graphics (CS 315, CS 425).
CL 135.4	23 Dell Optiplex 780	Labs for CS 110
CL 136	25 Dell Optiplex 3020 + 1 Instructor System	Labs for CS 100

2.2.2   Research Space

Room	Function	Principal Investigators	Funding agency
LB 143	The Rough Music and Audio Digital Interaction Lab (aRMADILo) provides facilities to researchers and visiting artists focusing on usability and interaction with artistic pursuits. This research focuses on computational interaction with information-rich human data such as music, speech, vision and movement, combining signal processing, pattern classification, information retrieval and sensor-based physical computing techniques with multimedia, speech recognition, computer music and human-computer interaction.	David Gerhard	
CW 308.20	Animation Software Design Lab is a centre for research on computer animation and computer games	Howard J. Hamilton	
CL 124.1	Computer Graphic Laboratory is a centre for research on computer graphics and image processing	Xue-Dong Yang	
CL 122	The Computational Learning Theory Lab is dedicated to research on the theoretical aspects of machine learning, an area of study often called Computational Learning Theory.	Sandra Zilles	Laboratory equipment was purchased with a grant from the Canada Foundation for Innovation (CFI). Additional research support is

			obtained from NSERC, through its Discovery Grant program, & the Canada Research Chairs program.
CL 129.9	The Constraint Processing Lab is a centre for research on the theoretical and practical aspects of constraint solving and optimization.	Dr. Malek Moujoub	NSERC Discovery and Engage Grants
CW 230.1	The Data Mining Lab is a centre for research on data mining	Dr. Howard J. Hamilton	
CW 308.4	The Granular Computing / Web Based Support Systems Lab is a centre for research on granular computing and web based support systems	Dr. Jingtao Yao	
CW 308.19	The Online Auctions Lab is a centre for research on fraud detection and winner determination in online auctions.	Dr. Samira Sadaoui	NSERC Discovery and Engage Grants
RI 115	The Regina Integrative Cognitive Experimentation (RICE) Lab combines expertise in Psychology and Computer Science to do research in experimental psychology and human-computer interaction. It is a resource for businesses in Regina that want to examine cognitive aspects of their software, including studying perceptual tasks or user testing of software.	Chris Oriet, Psychology Daryl Hepting, Computer Science Katherine Arbuthnott, Psychology	
	Rough Sets Technology Lab	**Directors**: Dr. Wojciech Ziarko, Dr. Yiyu Yao **Coordinator**: Dr. JingTao Yao	
CW 308.11	The Web Intelligence Lab is a centre for research on web intelligence	Dr. Yiyu Yao	

Departments and faculties do not have control over individual classrooms. Rather, classrooms are centrally assigned through the Registrar's office. The university is updating most of its classrooms to be "smart", which means that they have many technological features such as computers, projectors, and wireless microphones.

2.2.3 Specialized teaching equipment and instrumentation

Equipment/Instrumentation	Location	Notes
Several physical servers that are home to multiple virtualized services.	Data Centre (AH 106)	Neptune, Poseidon, Triton - virtualization cluster with replicated storage (Hercules, MSDNAA, etherpad, accreditation and various other systems live there). Mercury - email, accounts, etc are stored and distributed from here.RCS, RCS_spare -> test environment for virtualization cluster
3x Dell Equallogic storage arrays	Data Centre (AH 106)	Stores undergraduate files, MSDNAA downloads, and misc other things.
Network switches	Data Centre (AH 106)	
Smart board	CL 115	
3D Printer	CL 135	
LED/Laser projector	CL 135	

2.2.4 Research equipment and instrumentation

Equipment/Instrumentation	Location	Funding agency	Notes
Venus – Dell R510 Server with Linux - Scientific Linux (a whiteboxed RedHat Enterprise Linux)	Data Centre (AH 106)		Dual Xeon X5570 2.93GHz, Quad core, 64-bit, Hyperthreaded CPU; 16GB Memory - 32GB Virtual memory; 1.5TB Disk
Vistahost - Dell server with virtualized compute load	Data Centre (AH 106)		Dr. Hoeber's research.
Zermelo - Dell server	Data Centre (AH 106)		Dr. Zilles' research
Antar and Abla - Sun servers	Data Centre (AH 106)		Dr. Mouhoub's research project(s)
Open - IBM server used	Data Centre (AH 106)		Dr. Hepting's projects
Dextrose cluster	Data Centre (AH 106)		distributed computing cluster
Entropy	Data Centre (AH 106)		shared memory system
Rack full of VX nodes	Data Centre (AH 106)		compute cluster of yesteryears
Tape backup system for long-term storage	Data Centre (AH 106)		
Infiniband switch(es)	Data Centre (AH 106)		high-speed, low-latency communication switch for cluster computing

2.2.5 Research institutes, clusters, or specialized labs

Laboratory for Computational Discovery

The Laboratory for Computational Discovery (LCD) is a University of Regina facility for research using computer technology for advancing scientific research. The core infrastructure of the LCD consists of parallel and graphics computers with high performance capabilities in scientific computation, visualization, data mining and mathematical computation. The LCD research team is working in the fields of data mining and visualization, chemical computations, molecular dynamics simulations, mathematical computations, scientific visualization, geological visualization and simulation, and statistics.

Through these efforts, new knowledge and intellectual property is discovered, future researchers, scientists and users of computational technology are trained, interdisciplinary research among various sciences is fostered and encouraged, and collaborative efforts between industry, educational and government partners are promoted.

Web Intelligence

Web Intelligence (WI) is a new direction for scientific research and development. It is the key and the most urgent research field of IT in the era of Web and agent intelligence. The WIC specializes in the development and promotion of new WI-related research as well as technologies through collaborations among world-wide WI research centers and organizational members.

The Web Intelligence Consortium (WIC) Canada Research Centre is an affiliated Centre of WIC international organization. This Centre is dedicated to the promotion of world-wide scientific research and industrial development in the era of Web and agent intelligence. Dr. Yiyu Yao is the Director and Dr. Jingtao Yao is the Coordinator.

3 SCHOLARLY OUTPUT

3.1.1   Summary

The Department of Computer Science has an active and diverse research environment supported by Tri-Council funding, and other provincial/federal government agencies as well as private sectors.

Faculty members at the Department of Computer Science are very active in their respective research areas. Collectively, they published 237 refereed journal articles and 425 refereed conference papers over the past ten years. Some of the professors received the Best or the Distinguished paper award for their conference publications. Many of the published papers are co-authored with graduate students at the Department of Computer Science.

Dr. Sandra Zilles has been named a member of the Royal Society of Canada's College of New Scholars, Artists and Scientists.

Dr. Yiyu Yao, has been ranked as one of the most cited researchers in his subject field for 2015.

Dr. Howard Hamilton was named one of the initial Fellows of the Canadian Artificial Intelligence Association / Association pour l'intelligence artificielle au Canada (CAIAC).

 PhD candidate Shubhashis Kumar Shil and his supervisor Dr. Samira Sadaoui won the best student paper award at the IEEE 28th International Conference on Tools with Artificial Intelligence (ICTAI 2016) held at Sun Jose, California, USA on November 06-08, 2016.

 Dr. Yiyu Yao and his former PhD student Bing Zhou won the best paper award at the International Joint Conference on Rough Sets (IJCRS 2016).

Dr. Boting Yang and colleagues was selected as the only recipient of the Best Paper Award at the joint Seventh International Frontiers of Algorithmics Workshop (FAW 2013) and Ninth International Conference on Algorithmic Aspects of Information and Management (AAIM 2013).

PhD candidate Mondelle Simeon, Dr. Robert Hilderman, and Dr. Howard Hamilton were awarded the Best Paper award at the Fourth International Conference on Resource Intensive Applications and Services (INTENSIVE 2012), held March 25-30, 2012 at St. Maarten, Netherlands Antilles.

Dr. Malek Mouhoub, and his two doctoral students Eisa Alanazi and Bandr Mohammed received a Distinguished Paper Award at the 2012 International Conference on e-Commerce in Hong Kong.

Dr. Sandra Zilles and colleagues received the best paper award from the 35th German Conference on Artificial Intelligence (KI'2012).

Drs. Robert Hilderman and Howard Hamilton won the award for the Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2001) Most Influential Paper for their paper entitled "Evaluation of Interestingness Measures for Ranking Discovered Knowledge".

The Department of Computer Science hosted two of the largest Canadian conferences related to Computer Science: the Canadian Conference on Electrical and Computer Engineering (CCECE 2013) co-chaired by Dr. JingTao Yao and the AI/GI/CRV 2013 Conference co-chaired by Dr. Cory Butz.

3.1.2 Statistical summary of published and accepted scholarly work over the last ten years

	Number	Notes
Refereed Journal Articles	237	2007-2016
Edited Books/Proceedings	22	2007-2016
Refereed Book Chapters	54	2007-2016
Referred Conference Papers	425	2007-2016
Professional Creative Activities	8 concerts	IPad orchestra using IPad app – Musixpro developed by start-up company co-founded by D. Gerhard. (2007-2016)
	1 Documentary	The Revolution will be Extruded. CBC Ideas 1-hour radio documentary on the history and the future of 3d printing. (2013)
Other scholarly output (specify):	4 US Patents	2010

3.1.3 Grants and Contracts

Principal Investigator(s)	Funding Agency	Total Amount (% Assigned To Unit)	Dates
Dr. Cory Butz	NSERC Discovery Grant	$95,000	2006-2010
Dr. Lisa Fan	DDL	$4,000	2011
	Communities of Tomorrow	$270,000	2006-2008
Dr. David Gerhard	NSERC Discovery Grant	$102,000	2006-2011
	DRDC Equipment Grant	$161,250	2015
	Own the Podium Grant	$55,350	2015
	Centre for Improv Studies	$5,000	2015
	External Grants	$25,600	2012-2014
Dr. Howard J. Hamilton	NSERC Discovery Grant	$330,000	2005-2014
	Serious Labs	$15,000	2014
	GB Internet Solutions	$20,133	2013-2014
	NSERC Strategic Grant	$80,146	2005-2009
	NSERC Engage Plus	$12,500	2014
	NSERC Engage	$75,000	2013-2012
	CFI	$45,600	2009
	CT	$7,500	2008
	CRD	$20,833	2014
Dr. Daryl Hepting	NSERC Discovery Grant	$117,200	2006-2015
	NSERC Equipment	$27,320	2011-2012
	NSERC Strategic	$71,148.33	2006
Dr. Robert Hilderman	NSERC Discovery Grant	$60,000	2006-2009
	Gas Buddy	$12,500	2013
Dr. Orland Hoeber	NSERC Research Grant	$77,500	2012-2016
	NSERC Research Grant –	$15,000	2014

	Industry matching funds		
	NSERC Strategic Grant	$116,500	2012
	External Contracts	$3,700 + $37,950 (USD)	2013-2016
	SSHRC	$25,500	2013-2014
Dr. Malek Mouhoub	NSERC Discovery Grant	$162,000	2005 - 2016
	NSERC Engage	$25,000	2016
	Innovation and Science Fund	$51,900 (50%)	2009
	French Mobility Program	$12,000	2009 - 2012
	Viterra Professor Grant	$4,000	
Dr. Samira Sadaoui	NSERC Discovery Grant	$160,000	2005-2016
	NSERC Discovery Development Grant	$26,000	2016-2018
	NSERC Engage	$25,000	2016
Dr. Boting Yang	NSERC Discovery Grant	$236,000	2003-2015
	MITACS	$35,000	2004-2011
	NSERC Equipment	$8,915	2004
	Communities of Tomorrow	$15,000	2008
Dr. Xue-Dong Yang	NSERC Discovery Grant	$57,000	2009-2015
	NSERC Strategic	$46,646	2009-2010
	CFI	$45,600	2009
	External Contract	$5,000	2009
Dr. Jingtao Yao	NSERC Discovery Grant	$137,000	2006-2015
	MITACS	$11,500	2015
	CFI	$48,131	2009
	CT	$15,000	2008
	SASK	$3,500	2007
Dr. Yiyu Yao	NSERC Discovery Grant	$169,000	2006-2015
	NSERC Strategic Grant	$11,250	2006
	CFI	$72,378	2009
	CT	$12,000	2008
	NSERC I2IPJ	$93,750	2007-2009
Dr. Sandra Zilles	NSERC Discovery Grant	$247,000	2006-2015
	MITACS	$21,250	2015
	CRC – Computational Learning Theory	$500,000	2010-2017
	NSERC CRD	$46,277	2014-2016
	GB Internet Solutions	$27,766	2014-2016
	CRC	$200,000	2010-2015
	CFI - CLeT Lab	$72,278	2010-2012
	U of R	$25,000	2009-2010

4 COMMUNITY SERVICE INITIATIVES

Science Rendez-vous

Science Rendezvous serves as a public platform to promote science awareness and increase science literacy in Canada. Science Rendez-vous is the single largest science festival in Canada and the Faculty of Science as well as the Department of Computer Science has participated for the past several years. Computer Science engaged participants with the Rainboard, a uniquely complex and brilliantly simplistic musical instrument, the 3D printer and flying drones. Robot demonstrations, learning to code and building interactive gadgets were popular events.

The Canada-Wide High-Altitude Balloon Experiment Program (HABEX) is a University of Regina initiative lead by Dr. David Gerhard (Computer Science) and Dr. Stephen Cheng (Chemistry). Since 2013, HABEX has been bringing science education and real-world experience to high school students across Canada. In April of 2016, in partnership with Science Rendezvous National, 9 balloons were launched across Canada, including 4 launches in Northern Territories. In October 2016, with a $10,000 grant from the TD Friends of the Environment Foundation, a series of 10 launches were performed in high schools across southern Saskatchewan.

First Lego League (FLL)

FIRST LEGO League (FLL) introduces Saskatchewan kids, ages 9-14, to real-world computer-programming and engineering challenges by building LEGO MINDSTORMS robots to complete tasks on a thematic table-top playing field. FLL teams, guided by their imaginations and adult coaches and mentors, discover exciting career possibilities and learn to make positive contributions to society. They become tomorrow's innovators by practicing imaginative thinking and teamwork. FLL tournaments are hosted by the Department of Computer Science at the University of Regina.

Summer Camps

The Computer Science department has participated in the Science and Kinesiology Summer camps at the University of Regina to provide computer science activities at the Summer Sports Camps. Children, between the ages of 6 and 12, participate in activities hosted by different science departments during the morning and then sports related activities in the afternoon. Computer Science has offered activities with Scratch a widely recognized coding program designed especially for ages 8 to 16. When people learn to code in Scratch, they learn important strategies for solving problems, designing projects, and communicating ideas. The Computer Science Department hosts Mentor Systems Inc. (MSI) camps very summer. These camps are dedicated to the education of youth in the rapidly changing computing industry. A LEGO Robots Summer Camp is offered to children ages 9 to 14. This Camp is affiliated with the FIRST Lego League (FLL), an organization that introduces younger students to real-world engineering challenges by building LEGO-based robots to complete tasks on a thematic playing surface. Campers build and program robots to complete tasks from past FLL challenges.

Public Events

Department members have participated in the Science Pub talks (at Bushwakker Pub) and offered evening public talks in: Noisemakers: AI: Rise of the Machines (2013), The Next Generation of Musical Devices (2012) and The DIY Robot-Revolution (2011). One department member took part in the TEDx Regina event (2012).

5 PROGRAMS OFFERED

5.1 Programs

The Computer Science Department offers programs leading to B.Sc. and B.Sc. Honours in Computer Science as well as a B.Sc. in Software Systems Development. There are combined majors in Mathematics and concentrations with Business and Creative Technologies. The Department also offers a two year Certificate in Computer Science. A Post-Diploma B.Sc. in Computer Science is available to graduates from one of two specific programs available at Sask Polytechnic. Cooperative Education program is an important component of the degree programs. The Department offers both a M.Sc. and a PhD program with different options at the masters level.

Undergrad Programs
All applicants admissible to the Faculty of Science may choose Computer Science as their major. The BSc in Computer Science is a more general program and the honours program builds a broader and stronger knowledge base. The student is better qualified for admission to graduate programs and for industrial jobs requiring a specific background. The combined major in mathematics builds strong mathematical skills in addition to computer science skills. The combined mathematics honours program provides an advantage for the student wanting to pursue an academic to research career. The Software Systems Development program builds skills and knowledge for developing large software systems and is beneficial for working in large IT departments or starting a software company. The B.Sc. with Business area of concentration offers technical knowledge, analytical skills and business expertise. The Department also offers minors for non-computer science majors.
- Admissions Requirements
- Undergrad Programs in Computer Science
- Course Descriptions
- Student Advising

Coop Program
The Co-op Program at the University of Regina is based on the principle that well educated; mature individuals will be developed more effectively through an educational system which alternates academic terms and work periods, each four months long. The Co-op program typically included 8 semesters of study and 4-5 work terms. The students submit written Co-op reports to the undergrad Coop Coordinator for grading. The Department has added a Coop option to its Masters programs as well. The student is engaged in productive work rather than merely observing, receives remuneration for the work performed, and performance on the job is supervised and evaluated by the student's employer. The total co-operative work experience is normally fifty percent of the time spent in academic study and in no circumstances less than thirty percent.
- Coop Program

Graduate Programs
The Department of Computer Science offers programs of study involving interdepartmental, multi-institutional and inter-institutional collaboration that has attracted faculty members and graduate students from all over the world. Students may pursue full-time or part-time graduate study leading towards the MSc and PhD degrees. The MSc and PhD degrees in Computer Science focus on four main areas of research: artificial intelligence; databases and information retrieval; graphics, image and audio processing; multimedia, and software engineering.
- Graduate Programs

5.2 Service teaching in support of other programs

The Department of Computer Science teaches services classes for programs in the Faculty of Science and the Faculty of Engineering and Applied Science. The Department schedules sections for both the 100 level and 200 level courses specifically for engineering students every year. The B.Sc. programs in Biology, Biochemistry, Geology, Geography, Mathematics, and Statistics each require three credit hours of computer science. Programs for Physics require 6 credit hours and the B.Sc. in combine Mathematics and Computer Science requires 24 to 45 credit hours depending on options the students choose. All B.A.Sc programs in the Faculty of Engineering require 3 credit hours of computer science with the Electronic Systems Engineering and Software Systems Engineering requiring 12 credit hours in their programs. Some programs in Arts and Business Administration list computer science as an option in their requirements.

Service to Faculties	Academic Year 2015-2016		
	100 level	200 level	300 level
Engineering	437	105	16
Science	200	19	5
Arts	36	3	1
All others	13	8	0

5.3 Enrollment trends

Computer Science Majors (Undergraduate Programs)

The total number of undergraduate students majoring in Computer Science has more than doubled in the past 6 years. This number has increased from **171** students in **201030** (**184** including the Math&CS, CS&Math and the Software System Development programs) to **385** in **201630** (**402** including the combined Math & CS majors and the Software System Development programs). This was especially noticeable in the last year where this number has increased by **86** students for the BSc in CS program alone. We expect that the enrollments will increase in the coming years due to the popularity of the Computer Science discipline as well as the new programs we have recently created: the BSc in Computer Science with Creative Technologies Area of Concentration, the BSc in Computer Science with Business Area of Concentration and the 2+2 program with Chizhou University in China. A total of **537** students majoring in Computer Science have graduated over the past 10 years.

Graduate Enrollments

The Department currently has **86** graduate students including **28** PhDs. This number has increased over the past years (**62 in 201030**). We have recently made some changes to our MSc programs by adding the co-op designation to each of the 3 MSc options we offer (thesis, course-based and project-based). This will make our MSc programs more attractive and we therefore expect to attract more graduate students in the near future. A total of **174** MSc and doctoral students have graduated in Computer Science over the past 10 years.

5.4   Successes

Computing develops skills in solving deep multidimensional problems requiring imagination and logical thinking. These skills are transferable to many industries and professions. Our undergraduate programs in conjunction with the Co-op opportunities provide our students with the advantage of real-world experience while completing their studies. We have a number of students seeing success in the business and academic arenas.

Natasha Jaques (BSC'12 (Hons.), BA'12) was identified by Vianne Timmons, the President and Vice-Chancellor of the University of Regina, as a student who has demonstrated extraordinary academic achievement and received the S.E. Stewart Award in Arts. She began her PhD at the MIT Media Lab in the Fall of 2014, under the supervision of Rosalind Picard. She will be working on a project that uses Google Glass to detect emotional and conversational signals that occur during normal conversation using machine learning on camera images of facial expressions.

Alfredo Marrero, CS Undergraduate Student, was selected to receive the $3000 ISM Canada Computer Science and Technology Project Award at a unique "Dragon's Den" style event at the University of Regina on April 24, 2015. Mr. Marrero designed a mobile app that allows friends to find one another. After finding a specific friend, the app also provides turn-by-turn directions to the friend's location.

Kevin Williams received the Governor-General's Academic Silver Medal which recognizes academic excellence demonstrated by a graduating student receiving a first degree. Kevin earned a Bachelor of Science in Computer Science with a minor in Psychology through Campion College. He graduated with   Great   Distinction,   having   maintained   an   average   above   96   per   cent.

Mark Laprairie (M.Sc. in Computer Science-) in 2012 was featured in a story in the Regina Leader-Post describing his experience at Capcom Games in Vancouver, where he worked on the Dead Rising 3 game; a game that set new records as the best-selling Xbox One game. He is now a game developer working at Klei Entertainment in Vancouver, and has just unveiled an independent project called Hot Lava. Hot Lava has already made a splash on Reddit's gaming forum, racking up 4,973 upvotes after just over a day and has move into full production at Klei.

Brett Park (B.Sc. Computer Science -2005) is a co-founder and lead developer for Shiverware Mobile and IoT Solutions. Shiverware builds mobile apps and explores solutions for the emerging technology of "the internet of things." Shiverware developed, and officially licensed from CBS Interactive Inc., an App for the Vulcan Harp from Star Trek: The Original Series.

Isabella Hugel (B.Sc. Computer Science-2014) was presented the University Medal Winner at Convocation in Fall 2014. The Medal is awarded to the most distinguished student – one who has achieved academic excellence in all courses completed during the previous twelve months with a minimum of 30 credit hours in two semesters. She had an average above 94 per cent and received many scholarships and was on the Dean's List several times. She is currently a developer at Shiverware, a Regina-based startup that focuses ion innovative hardware and software solutions as well as maintaining its own small inventory of iOS applications.

6 UNIT BUDGET

Operating budget requests were mainly salaries for instructional services (sessional instructors, TAs, lab instructors and tutors). The Department's budget was cut by approximately $40,000 in FY2014. In contrast, the number of students to be taught has increased substantially as highlighted in Section 5.3. The cost for student TAs has also increased. Several instructors and markers complained about inadequate hours being allocated for assignment marking because the number of students in classes has been increased but the number of hours paid to mark each class has been decreased. We of course were not able to accommodate them with additional hours (funds) given our tight budget. In the 2014-2015 fiscal year, the departments were required to start funding benefits for TA salaries. This was an expenditure originally paid for by the University. This imposed approximately an 6% increase in costs to the Department.

A travel fund has recently been requested to support thesis-based graduate students travel to conferences to present their research results and get feedback on their work from peers in their area of expertise. This request has been motivated by the fact that the only travel support currently available for students is a maximum of $750 from FGSR. This amount, if received in full, can barely cover for conference registration fees. During 2016-2017, the department of Computer Science has provided some financial support for graduate students travel.

Fiscal Year	Total Operating Budget
2006-2007	$177,688
2007-2008	$177,188
2008-2009	$177,668
2009-2010	$181,531
2010-2011	$182,279
2011-2012	$188,013
2012-2013	$189,919
2013-2014	$189,919
2014-2015	$150,893
2015-2016	$156,085

Over the past years, capital budget requests concerned the replacement and upgrade of laboratory PCs, workstations and software (given the four to five year average lifetime). These requests have been granted subject to the availability of funds. The Department planned a large scale computer equipment expenditure with allocated operating budget but was granted funds from the Faculty of Science for this upgrade.

7 SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS)

Strengths

S1. The Department is enjoying considerable growth in enrolments since 2010. The Department is seen as the Computer Science teaching resource for the entire University. The Department provides well-enrolled service courses for Science, Engineering and other faculties. This provides the Department with economies of scale as well as opportunities to provide non-Computer Science students with exposure to Computer Science as a discipline.

S2. The Department BSc program has maintained its accreditation with the Canadian Association of IT Professionals (CIPS) since its inception in the early eighties. CIPS develops and maintains standards in educational qualifications that provide an appropriate foundation for those who wish to follow a career in computing or information systems. The Department BSc program is the only University program with continuous accreditation from the beginning.

S3. Faculty members are enthusiastic and dedicated to the program. They have a very strong reputation for their research activities and very good reputations as teachers. The Lab Instructors demonstrate leadership and independence in providing exceptional laboratory experiences for students. There is also a training program for teaching assistants (TA's) that uses senior students as well as graduate students. The use of senior students as TAs is positive, as these students are often more very familiar with the material and able to assist students at their level.

S4. Enrolment has been growing, consistent with the demands from the IT industry in Saskatchewan and elsewhere. Students and Graduates are very positive about their program and have always provided positive feedback about the teaching and curriculum, particularly about the professors and staff.

S5. There are excellent support services for Student Advising and Support. Advising staff both in the Department and the Faculty of Science are cross-trained and can substitute for each other when servicing Computing Science students. Students can obtain tutoring support at the institutional level and Computing Science tutoring in the department.

S6. Students are given strong project experience, performed in teams. The Department has committed to offer every elective a minimum of once every two years (though usually more often). The introductory sequences (first and second year) are well designed and delivered. The lab components in these courses are especially well organized. The lab facilities are well funded, well designed, well maintained and up-to-date.

S7. The co-op program is particularly strong and well supported, with good employers, and good staff following best practices. There are regular outreach activities to supplement the curriculum such as the Lego League robot competition, guest speakers and Open House.

S8. The Department has a strong, responsive and effective curriculum committee. This committee meets regularly and is responsive to suggestions from all sources. Faculty and Lab Instructors routinely provide ideas to the Committee.

Weaknesses

W1.   There have been no graduates in the Honours program over the last three years; the role of this credential within the program is an area of concern.

W2.   There is no formal mechanism for industry input into the curriculum.

W3.   First co-op work-term jobs do not always involve core computer science activities such as programming, testing, and debugging. The help desk and administrative jobs are good jobs but they are not suitable for subsequent co-op jobs if students are to get the most of their program.

W4.   Since there are no graduates in the Honours program over the last three years, the role of this credential within the program is an area of discussion.

W5.   The University budgetary situation calls into question whether the level of resources can be maintained while the enrolment is on the rise.

Opportunities

O1. The Department of Computer Science and Chizhou University recently signed a Supplementary Agreement to International Undergraduate Dual Degree Program on September 20, 2016. Based on this Supplementary Agreement, Computer Science Professors will have the opportunity to deliver courses and monitor their progress at Chizhou University. It is expected that this Dual Degree Program will attract 40 to 50 Chinese students who will take their third and forth years at the University of Regina. As was done in the past, there is an opportunity for some of these students to pursue a graduate degree in Computer Science at the University of Regina. After this initiative, the Department of Computer Science is meeting regularly with UR International in order to explore other opportunities for similar Dual Degree Programs.

O2. The Department of Computer Science has recently established the Masters of Health Information Management (MHIM) program. This online course-based program is unique in Canada and is aimed at medical and information technology professionals in the health sector. We anticipate that this program will attract students from Canada and elsewhere in the world.

Threats

T1. The province is experiencing an economic downturn, which is putting considerable pressure on the university budget. There has been an announcement of a $1.6M cut at the University level to the existing government grant and reductions to future budgets are being anticipated.

T2. Faculty attrition, coupled with a lack of replacement and teaching reliefs for administration and research, is resulting in a steadily declining faculty complement available for core teaching (from 20 down to 12.5 available this year). Workload stress has risen sharply and there is an increased use of sessional lecturers to cover courses. This threatens many of the strengths identified in this report.

Appendix I

Short Curricula Vitae of the Academic Faculty Members

Name	Rank
Cory Butz	Professor
Lisa Fan	Associate Professor
David Gerhard	Professor
Howard J. Hamilton	Professor
Daryl Hepting	Associate Professor
Orland Hoeber	Associate Professor
Robert Hilderman	Associate Professor
Malek Mouhoub	Professor
Samira Sadaoui	Professor
Boting Yang	Professor
Xue-Dong Yang	Professor
JingTao Yao	Professor
Yiyu Yao	Professor
Sandra Zilles	Associate Professor

Cory J. Butz

Professor, Department of Computer Science & Associate Dean (Research and Graduate Studies),
Faculty of Science

Cory.Butz@uregina.ca, (306) 585 4201,

Education and Professional Development	
Ph.D., Computer Science, University of Regina, Regina, SK	*May 2000*
M.Sc., Computer Science, University of Regina, Regina, SK	*May 1996*
B.Sc., Computer Science, University of Regina, Regina, SK	*May 1994*

Employment History	
Associate Dean (Research and Graduate Studies), Faculty of Science	*July 2012–present*
Professor, Computer Science Department	*July 2010–present*
Associate Professor, Computer Science Department	*July 2003–June 2010*
Assistant Professor, Computer Science Department	*July 2001–June 2003*

Teaching History

2016 *Summer CS875, Winter CS110.* **2015** *Summer CS838.* **2014** *Fall CS110.* **2013** *Fall CS110.* **2012** *Fall CS110, Winter CS110.* **2011** *Fall CS110, CS375, Winter CS838.* **2010** *Fall CS375, Summer CS110, Winter CS110.* **2009** *Fall CS110, CS375, Winter CS475.* **2008** *Winter CS110, CS838.* **2007** *Winter CS110, CS475*

Student Supervision

Name	Position	Dates of supervision
Mr. Jhonatan Oliveira	Ph.D.	2016 - present
Mr. Andr´e dos Santos	Ph.D.	2016 - present
Ms. Jun Wang	M.Sc.	2016 – present
Mr. Jhonatan Oliveira	M.Sc.	2015 – 2016
Mr. Andr´e dos Santos	M.Sc.	2015 – 2016
Mr. Wen Yan	Ph.D.	2007 – 2013
Mr. Peter Lach	M.Sc.	2011 – 2013
Mr. Sultan Ahmed	M.Sc.	2010 – 2013
Ms. Jing Zeng	M.Sc.	2007 – 2010
Mrs. Shan Hua	Ph.D.	2004 – 2009

Ms. Junying Chen	M.Sc.	2006 – 2008
Mr. Hong Yao	Ph.D.	2002 – 2006
Mr. Ken Konkel	M.Sc.	2006 – 2007
Mr. Wen Yan	M.Sc.	2004 – 2006
Ms. Fang Fang	M.Sc.	2004 – 2005

- *There are 5 more M.Sc. students prior to the above*
- *There are 8 NSERC USRAs*

University Service

U of R:

Associate Dean (Research & Graduate Studies), Faculty of Science (2012 - present)

Dean of Science (Acting), (periodically over 2010 - present)

Dean of FGSR (Acting), (3 weeks in 2013)

Strategic Plan Facilitation Team (2014)

University Committee on Teaching and Learning (2011 - 2013)

Campus Promotion Committee (2011 - 2012)

Member of Provost Confidential Task Force (2013)

Board member of SRNet representing UofR (2014 - present)

Represent VPR at Compute Canada AGM (2015)

Tripartite Board member representing UofR management (2015)

Faculty of Science Review Committee, Chair (2006-2007)

Faculty of Science Graduate Student Scholarship Committee, Chair (2014 - present)

Computer Science Department, Head (Acting) (periodically over 2002 - 2012)

Attended annual CS Chairs meeting (2005 and 2006)

Computer Science Department Search Committee, Chair (2011 and 2012)

Computer Science Department Planning Committee, Chair (2009-2011)

Computer Science Department Graduate Committee, Chair (2003-2004 and 2008-2009)

National:

President of Canadian Artificial Intelligence Association (2015 - present)

Vice President of Canadian Artificial Intelligence Association (2013 - 2015)

Nominating Committee for Canadian Artificial Intelligence Association (2009 - 2011)

General Co-Chair AI/GI/CRV Conference (2012, 2013)

Scholarly Research

Invited Papers: C.J. Butz. Introducing Darwinian Networks. In FLAIRS, pages 604–609, 2015.

C.J. Butz. Evaluating probabilistic inference techniques: a question of "when," not "which". In SUM, pages 38–51, 2011.

C.J. Butz. Current trends in bayesian network inference. In IICAI, pages 1186–1205, 2007.

Journal Papers: C.J. Butz, J.S. Oliveira, and A.E. dos Santos. On Darwinian networks. Computational Intelligence, accepted, 2016.

C.J. Butz, J.S. Oliveira, and A.L. Madsen. Bayesian network inference using marginal trees. International Journal of Approximate Reasoning, 68:127–152, 2016.

M. Kirzinger, C.J. Butz, and J. Stavrinides. Inheritance of pantoea type III secretion systems through both vertical and horizontal transfer. Molecular Genetics and Genomics, 290:2075–2088, 2015.

H.D. Hadjistavropoulos, N.E. Pugh, M.N. Nugent, H. Hesser, G. Andersson, M. Ivanov, C.J. Butz, G. Marchildon, G.J. Asmundson, B. Klein and D.W. Austin. Therapist-assisted internet-delivered cognitive behaviour therapy for depression and anxiety: evidence to practice. Journal of Anxiety Disorders, 28:884–893, 2014.

A.L. Madsen and C.J. Butz. Ordering arc-reversal operations when eliminating variables in lazy ar propagation. International Journal of Approximate Reasoning, 54(8):1182–1196, 2013.

C.J. Butz, K. Konkel, and P. Lingras. Join tree propagation utilizing both arc reversal and variable elimination. International Journal of Approximate Reasoning, 52(7):948–959, 2011. **And 14 more**

Book Chapters: P. Lingras, P. Bhalchandra, C.J. Butz, and S. Asharaf, Rough support vectors: classification, regression, clustering. In Rough Sets and Intelligent Systems, Intelligent Systems Reference Library, pages 491–515. Springer-Verlag, 2013.

P. Lingras, C.J. Butz, and P. Bhalchandra, Financial Series Forecasting using Dual Rough Support Vector Regression In Rough Sets: Selected Methods and Applications of Rough Sets to Management and Engineering, pages 115–127. Springer, 2011. **And 9 more**

Conference Papers: C.J. Butz, A.E. dos Santos, J.S. Oliveira Relevant Path Separation: A Faster Method for Testing Independencies in Bayesian Networks In Eighth International Conference on Probabilistic Graphical Models (PGM), pages 74–85, 2016.

C.J. Butz, J.S. Oliveira, A.E. dos Santos, and A.L. Madsen On Bayesian Network Inference with Simple Propagation In Eighth International Conference on Probabilistic Graphical Models (PGM), pages 62–73, 2016. **And 69 more**

Lisa Fan

Associate Professor

Lisa.Fan@uregina.ca, (306) 585 4110,

Education and Professional Development

1993	Ph.D. in Faculty of Engineering
	Queen Mary College, University of London, U.K.
1987	Diploma in English
	British Council English Training Center,
	Shanghai Foreign Language University, Shanghai, China
1986	B.Sc in Faculty of Engineering
	Beijing University of Technology, Beijing, China

Employment History

2008 – Present	Associate Professor
	Department of Computer Science
	University of Regina, Regina, Canada
2004 - 2008	Assistant Professor
	Department of Computer Science
	University of Regina, Regina, Canada

Teaching History

- **CS210** (Data Structures and Algorithm Analysis)
2006winter, 2006fall, 2007winter, 2007fall, 2009winter, 2009fall, 2010winter, 2010fall, 2011winter, 2011fall, 2012winter, 2012fall, 2013fall, 2015fall
- **CS375** (Database and Information Retrieval)
2013fall, 2015fall, 2016fall
- **CS475** (Advanced Database and Information Retrieval)
2014fall
- **CS104** (Nursing Informatics)
2012winter, 2013winter, 2014winter

- **CS100** (Introduction to Computers)

2009fall, 2011winter, 2015winter
- **CS490AX** (Web Personalization)

2006winter
- **CS499/CS900** (B.Sc. Honours and Graduate Student Seminar Series)

2006winter
- **CS890EF** (Advanced Topics in Data Mining)

2011winter, 2015spring/summer
- **CS831** (Knowledge Discovery in Databases)

2010fall, 2012fall, 2014fall, 2016fall
- **CS890AW** (Web Mining)

2007winter, 2009 winter

Student Supervision

Name	Position	Dates of supervision
Kunal Dhingra	M.Sc	2015-present
Quan, Xiande	M.Sc	2015-present
Hayer, Amandeep Kaur	M.Sc	2015-present
Nassem, Sajid	M.Sc	2013-2015
Arora, Ramanpreet Singh	M.Sc	2013-2015
Sebastian, Dilip Pulikuthiyil	M.Sc	2013-2015
Kiran Malik	M.Sc	2013-2015
Shah, Maulik Rajnikant	M.Sc	2012-2014
Waseem Ahmed	M.Sc	2012-2014
Bushra Khawaja	M.Sc	2009-2013
Xue Fei Zhang	M.Sc	2009-2013
Punnamee Sachakamol	Ph.D	2005-2010
Min Xiao Lei	M.Sc	2005-2008
Botang Li	M.Sc	2005-2008

University Service

- Faculty Review Committee (2016 – present)

- Graduate Co-op Committee Chair (2013 – present)

- Undergraduate Co-op Committee Chair (2000 – 2013)

- NSERC USRA – Scholarship Committee member. (2010, 2011)

- President's international committee member. (2008 – 2010)

- Representative of Faculty of Science to Faculty of Engineering (2004 – 2007)

- Representative of Faculty of Science to Faculty of Arts (2008 – present)

- Representative of Faculty of Science to Faculty of Education (2014 – present)
- Seminar Committee (2010, 2011)
- Executive Council. (2006 – 2007)
- Departmental committee – Publicity (2002 – 2007)

  Chaired and organized four issues of the department newsletters

- Faculty Science Nomination Committee (2012-)
- Faculty Scholarship Committee (2015)
- Board of Directors of Regina Canadian Chinese Association

Scholarly Research

JOURNAL PAPERS:
- Waseem Ahmed, **Lisa Fan**, "Analyze Physical Design Process Using Big Data Tool – hidden patterns, performance measures, predictive analysis and classifying logs" International Journal of Software Science and Computational Intelligence (IJSSCI) 7(2) 2015.
- **Lisa Fan,** Botang Li, "A User Driven Ontology Guided Image Retrieval Model" International Journal of Cognitive Informatics and Natural Intelligence (IJCiNi) 3(3): 61-72 (2009).
- **Lisa Fan,** Minxiao Lei, "Reducing Cognitive Overload by Meta-Learning Assisted Algorithm Selection", accepted by International Journal of Cognitive Informatics and Natural Intelligence (IJCiNi), 2(3): 90-100 (2008).
- J. T. Yao, W. N. Liu, **Lisa Fan,** Y. Y. Yao and X. D. Yang, "Supporting Sustainable Communities with Web-based Information Systems," Journal of Environmental Informatics, Vol. 7, No. 2, 2006, pp84-94.
- **Lisa Fan,** Minxiao Lei, "Rough Set Assisted Meta-learning Method to Select Learning Algorithms" Journal of Nanchang Institute of Technology, Vol.25, No.2, 2006, pp83-87

BOOK CHAPTERS:

- **Lisa Fan,** Botang Li, "An Image Retrieval Model Combing Ontology and Probabilistic Ranking" published as a book chapter in book "Intelligent Multimedia Databases and Information Retrieval – Advancing Applications and Technologies" 2012.
- **Lisa Fan** "Web-based Learning Support Systems" published as a book chapter in Book "Web-based Support Systems" 2010.
- **Lisa Fan,** Minxiao Lei "Reducing Cognitive Overload by Meta-learning Assisted Algorithm Selection", published as a book chapter in "Discoveries and Breakthroughs in Cognitive Informatics and Natural Intelligence". 2010.

REFEREED CONFERENCE PAPERS:

- Waseem Ahmed, **Lisa Fan,** "Big Data Tool Integration in Physical Design Process" The 14th IEEE International Conference on Cognitive Informatics & Cognitive Computing (ICCI*CC'15), Tsinghua University, July 2015.
- Bushra Khawaja, **Lisa Fan**, "Automatic Email Categorization: Intricacies for Users, Challenges for the Machine" The 13th IEEE International Conference on Cognitive Informatics & Cognitive Computing (ICCI 2014), August 2014.
- XueFei Zhang, **Lisa Fan,** and G.X Liu, "Using Data Mining Models to Identify Major Factors Contributing to the Severity of Traffic Collisions for Different Groups in Saskatchewan, Canada" the 2st International Conference on Transportation Information and Safety, ICTIS 2013.
- XueFei Zhang and **Lisa Fan,** "A Decision Tree Approach for Traffic Accident Analysis of Saskatchewan Highways" the 26th Annual Canadian Conference on Electrical and Computer Engineering (CCECE2013), May 2013.
- Bushra Khawaja, **Lisa Fan,** "Evaluation and Application of Scenario Based Design on Thunderbird" Proceeding of the Canadian Conference on Artificial Intelligence, St. Johns, Newfoundland and Labrador, May 2011.
- Shelly Zhao, **Lisa Fan**, "Reports the Current Weather Conditions on Cell Phones Using Web Services**"** Proceeding of the 9th IEEE International Conference on Cognitive Informatics, ICCI2010, Beijing, China, 2010.
- **Lisa Fan,** Botang Li, "visoLink: A User-centric Social Relationship Mining" Proceeding of the 3rd International Conference on Rough Sets and Knowledge Technology, RSKT2008, Chengdu, China, 2008.
- Minxiao Lei, **Lisa Fan,** "A web personalization system based on users' interested domains" Proceeding of the 7th IEEE International Conference on Cognitive Informatics, ICCI2008, Stanford University, CA, USA, 2008.
- **Lisa Fan** "Granular Computing Application to Web-based Learning Support System" Proceeding of the 6th IEEE International Conference on Cognitive Informatics, ICCI2007, Lake Tahoe, CA, USA, 2007.
- **Lisa Fan**, Botang Li, "A User Driven Ontology Guided Image Retrieval Model" Proceeding of the 6th IEEE International Conference on Cognitive Informatics, ICCI2007, Lake Tahoe, CA, USA, 2007.
- **Lisa Fan**, Tomoko Matsuyama, "Rough Set Approach to Analysis of Students Academic Performance in Web-based Learning Support System" Proceedings of the 15th International Workshops on Conceptual Structures, ICCS2007, Sheffield, UK, 2007.
- **Lisa Fan**, Minxiao Lei, "Reducing Cognitive Overload by Meta-Learning Assisted Algorithm Selection" Proceeding of the 5th IEEE International Conference on Cognitive Informatics, ICCI2006, Beijing, China, 2006.
- **Lisa Fan**, Liming Dai, "Web-based Traffic Noise Control Support System for Sustainable Transportation" Proceeding of the International Conference on Nonlinear Science and Complexity, Beijing, China, August 7-12, 2006.
- **Lisa Fan**, Botang Li, "The Hybrid Model of Image Retrieval based on Ontology and Probabilistic Ranking" Proceeding of the 2006 IEEE/WIC/ACM International Conference on Web Intelligence, HongKong, December 18-22, 2006
- **Lisa Fan**, Minxiao Lei, "Rough Set Assisted Meta-learning Method to Select Learning Algorithms" Proceeding of the International Forum on Theory of GrC from Rough Perspective 2006 (IFTGrCRSP), NanChang, China, 2006.

- J.T. Yao, S.L. Zhao, **Lisa Fan,** "An Enhanced Support Vector Machine Model for Intrusion Detection" Proceedings of the International Conference on Rough Sets and Knowledge Technology (RSKT), Chongqing, China, July 24-26, 2006, LNAI 4062, pp53 8-543.

David Gerhard

Professor

david.gerhard@uregina.ca, (306) 585 5227,

Education and Professional Development

- Ph.D. 2003, Computing Science, Simon Fraser University, Burnaby, BC. Thesis: Computationally Measurable Differences Between Speech and Song.

- B.Sc.Comp.E. (Distinction) 1996, Computer Engineering, University of Manitoba, Winnipeg, MB. Thesis: Lossy Compression of Head and Shoulder Images Using Zerotrees of Wavelet Coefficients.

Employment History

- Professor of Computer Science (2003–current), University of Regina. Associate member, Faculty of Media, Art, and Performance. 2003: Tenure granted 2007, promotion to Associate 2008, promotion to Full 2016)

- Co-founder; Co-owner; Head of research and applied innovation. (2010–current) Shiverware Interactive Software Developments, Inc (Startup Company, mobile apps, UX, IoT).

- Syndicated Columnist and Media Expert. (2006–current) TV, Radio, Print. Local and national.

- President. (2012–2013) CrashBang Labs, Inc (non-profit hackerspace and community workshop).

Teaching History

Core courses:

Programming, Problem Solving Nat. Sci.; CS 110; 2009, 2011--2017
Building Interactive Gadgets; CS 207; 2011--2014
Digital Systems Architecture; CS 301; 2007, 2010--2017
Advanced Hardware Architecture; CS 401; 2016
Software Development Project; CS 476; 2011, 2012
The iPad Orchestra; CTCH 202; 2012--2017
Risk, Reward in the Information Society; CS 280; 2007, 2011
Introduction to Digital Systems; CS 201; 2008, 2010, 2016
Introduction to Computer Audio; CS 327; 2008, 2010;
Advanced Architecture; CS 401; 2016

Special topics and directed readings:
Mobile Development; CS 490CW; 2012, 2014
Social, Ethical Implc. of Computing; CS 490BF; 2012
Interactive Hardware; CS 490CV; 2012
Theatre Technology; CS 290AI; 2011
Computational Models in Music; CS 490CQ; 2008
Computer Audio Topics; CS 490BX; 2004--2007, 2010--2014
Scientific Visualization; CS 491AA; 2016
Parallel Computer Architecture; CS 490AD; 2016

Graduate classes
Interactive Hardware; CS 807; 2013-2016
Interactive Hardware; CS 890EH; 2012, 2017
Electronics for Interactivity; ART 820AH; 2012
Computer Audio; CS 827; 2008, 2010, 2014
Pattern Classification; CS 890DR; 2008

Student Supervision

List undergraduate students, graduate students, post-doctoral fellows, and other relevant trainees carrying out research or other original scholarly activity under your direct supervision within the past ten years. Use the table below to list names, position, and dates of supervision. Additional comments can be made below the table.

Name	Position	Dates of supervision
Jennifer Allen	BSc-Complete	2007
Colan Lash	BSc-Complete	2008
Matt Haines	Bsc-Complete	2010

Larry Yang	BSc-Complete	2010
Jed Hubic	BSc-Complete	2010
Peter Dowdy	BSc-Complete	2010
Colton Fink	BSc-Complete	2010
Robin Jastrzebski	BSc-Complete	2011
Steve Maupin	BSc-Complete	2011
Tim Sample	BSc-Complete	2011
Natasha Jaquesv	BSc-Complete	2011
Nathan Magnus	BSc-Complete	2011
Ryan MacDougall	BSc-Complete	2012
Stephanie Kos	BSc-Complete	2012
Ryan Brown	BSc-Complete	2012
Jordan Ubbens	BSc-Complete	2012
Joel Kreutzwieser	BSc-Complete	2012
Eden Rohatensky	BSc-Complete	2013
Regan Meloche	BSc-Current	2014
JJ Nixdorf	MSc-Complete	2004-2009
Tim Maciag	MSc-Complete-Co-Supervised	2004-2006
LiJuan Peng	MSc-Complete	2006-2008
Xinglin Zhang	MSc-Complete	2007-2010
Hao Li	MSc-Complete	2007-2009
Robert Bailey	MSc-Complete-Co-Supervised	2007-2011
Joel Rathgaber	MSc-Complete	2006-2012
Brett Park	PhD-Current	2007-Current
Yang Zhao	PhD-Current	2010-Current
Hanlin Hu	PhD-Current	2013-Current
Jordan Ubbens	MSc-Current	2012-Current
Jason Cullimore	PhD-Current-Co-Supervised	2013-Current

University Service

- Science Representative, University-wide Teaching and Learning Advisory Committee (TLAG) (2013–current)
- Co-director, Science Rendezvous University of Regina 2016
- Co-creator, Canada-wide Science Experiment (for Science Rendezvous National)
- Science Representative, Creative Technologies program committee (2010–current)
- Science Representative to Kineseology (2016–current)
- Representative, Pan-canadian Creative Technologies degree program(2016-current)
- Student Appeals Committee, Faculty of Science (2007–current, Chair for 2013–current)
- Curriculum Committee, Department of Computer Science (2010–current, Chair for 2012–2013)
- External Relations committee, Department of Computer Science (2010–current, Chair for 2010–current
- Member, Humanities Research Institute (HRI) (2012–2013)
- Faculty Review committee, Faculty of Science (2010–2012, Chair for 2012)
- Dean's Representative, Faculty of Science search committee: Geology (2011), Biology (2011)
- Branding Advisory Committee, University of Regina (2009–2010)
- Industrial Advisory Committee, Department of Computer Science (2007–2009)

Scholarly Research

Documentaries.
[1] D. Gerhard (2013) The Revolution will be Extruded. CBC Ideas 1-hour radio documentary on the history and
future of 3d printing. Multiple airings across Canada and around the world on Sirius and PRI.
Journals and Book Chapters.
[2] Jordan Ubbens and David Gerhard (2015). Information Rate for Fast Time-Domain Instrument Classification.
(accepted) Lecture Notes in Computer Science.
[3] Yang Zhao, D. Gerhard, John Barden (2015). Periodicity-based swimming performance feature extraction and parameter estimation. Sports Engineering. 18: 177-189.

[4] Y Zhao, D. Gerhard (2014) Waveform-Aligned Adaptive Windows for Spectral Component Tracking and Noise Rejection. Sound, Music and Motion: Lecture Notes in Computer Science 8905.

[5] D. Gerhard (2014) Three Degrees of "G"s: How an Airbag Deployment Sensor Transformed Video Games, Exercise, and Dance. MC Journal of media and culture. 12/2013; 16(6).

[6] D. Gerhard, Xinglin Zhang (2010) Chord Analysis Using Ensemble Constraints. In Advances in Music Information Retrieval. Ras, Zbigniew W. & Wieczorkowska, Alicja (Eds.) ISBN 978-3-642-11673-5. 1 citation

[7] D. Gerhard, Brett Park, and Jarrod Ellis (2008). Focus-Plus-Context Audio Interaction Design. Computer Music Modelling and Retrieval, Lecture Notes in Computer Science. 453–477.

Articles in Refereed Conferences.

[8] Hanlin Hu, Brett Park and David Gerhard (2015). Mapping Tone Helixes to Cylindrical Lattices using Chiral
Angles. International Computer Music Conference.

[9] Jordan Ubbens and David Gerhard (2015). Information Rate for Fast Time-Domain Instrument Classification. 11th Annual Conference on Computer Music Multidisciplinary Research.

[10] C. Brahms, Y. Zhao, J. Barden, D. Gerhard (2015). Concurrent Validity of a Foot-Mounted IMU to Estimate Stride Length in Running. 20th Annual Congress of the European College of Sport Science.

[11] Jason Cullimore and D. Gerhard (2015). The Virtuoso Composer and the Formidable Machine: A Path to Preserving Human Compositional Expression. 12th Sound and Music Computing Conference.

[12] Hanlin Hu, Brett Park, David Gerhard. (2015) On the Musical Opportunities of Cylindrical hexagonal Lattices: Mapping Flat Isomorphisms Onto Nanotube Structures. Sound and Music Computing. 12th Sound and Music Computing Conference.

[13] Hanlin Hu, Brett Park, D. Gerhard (2015). Mapping Tone Helixes to Cylindrical Lattices using Chiral Angles. 41st International Computer Music Conference.

[14] Yang Zhao, Markus Brahms, David Gerhard, John Barden (2015). Stance Phase Detection for Walking and Running using an IMU Periodicity-Based Approach. International Symposium on Computer Science in Sport (225-232). Springer

[15] Stephen Cheng and David Gerhard (2015). The National High Altitude Balloon Experiment: Engaging High School Students to do Citizen Science. 2nd International Conference on STEM Education and Innovation. Saskatoon.

[16] J. Cullimore, H. Hamilton, D. Gerhard (2014). Directed Transitional Composition for Gaming and Interactive Music Using Q-Learning. First joint ICMC/SMC conference.

[17] B. Park, D. Gerhard (2013) Discrete Isomorphic Completeness & a Unified Isomorphic Layout Format. SMC13. 3 citations

[18] B. Park and D. Gerhard (2013) Rainboard and Musix: Building dynamic isomorphic interfaces. 13th International Conference on New Interfaces for Musical Expression. 3 citations

[19] R. Caines, D. Gerhard, P. Minevich (2013) The University of Regina iPad Orchestra: Engaging mobile audiovisual technologies in music teaching and learning. Teaching and Learning to the Power of Technology.

[20] Y. Zhao and D. Gerhard. Improved Spectral Analysis Using Waveform-Aligned Adaptive Windows.2013 Computer Music Modelling and Retrieval Marseille.

[21] D. Gerhard, Brett Park (2012). Instant Instrument Anywhere: A Self-Contained Capacitive Synthesizer. 12th International Conference on New Interfaces for Musical Expression (NIME12), Ann Arbor, Michigan. 516–519. 4 citations

[22] Nathan Magnus, D. Gerhard (2012). Musician Assistance and Score Distribution (MASD). 12th International Conference on New Interfaces for Musical Expression (NIME12), Ann Arbor. 184–187.

[23] Steven Maupin, D. Gerhard, Brett Park (2011). Isomorphic Tessellations for Musical Keyboards. Proc. Sound & Music Computing Conference. 2011, Padova, Italy. 471–478. 9 citations

[24] Lijuan Peng and D. Gerhard (2009). A Wii-based Gestural Interface for Orchestral Conducting Education. First Int. Conf. on Computer Supported Education (CSEDU), Lisbon. 406–409. 17 citations

[25] Lijuan Peng and D. Gerhard (2009). A Wii-based gestural interface for computer conducting systems. Ninth International Conference on New Interfaces for Musical Expression (NIME), Pittsburgh, PA. 155–158. 17 citations

[26] Xinglin Zhang and D. Gerhard (2008). Chord Recognition using Instrument Voicing Constraints. International Conf. Music Information Retrieval (ISMIR), Philadelphia, 33–38. 10 citations

[27] Daryl Hepting , Lijuan Peng, Tim Maciag, D. Gerhard and Brien Maguire. (2008). Creating synergy between usability courses and open source software projects. ACM SIGCSE Bulletin. ACM Press. 120–123. (Reviewed Professional Magazine article) 7 citations

[28] D. Gerhard and Ellen Moffat (2007). convocare consonare: A Duet in Four Voices. International Computer Music Conference, Copenhagen. 477–484.

[29] D. Gerhard and Jarrod Ellis (2007). Focus-Plus-Context Displays for Audio Interaction. International Conference on Computer Music, Copenhagen. 405–412.

[30] Brien Beattie, Garrett Nicolai, D. Gerhard, Robert J. Hilderman (2007). Pattern Classification in No-Limit Poker: A Head-Start Evolutionary Approach. Canadian Conference on AI. 204–215. 11 citations

[31] JJ Nixdorf and D. Gerhard (2006). RITZ: A real-time tool for interactive spatialization. Proc. ACM Multimedia, Santa Barbara, pp 687–690.

[32] JJ Nixdorf and D. Gerhard (2006). Real-time sound source spatialization as used in challenging bodies: implementation and performance. International Conference on New Interfaces for Musical Expression (NIME06), Paris, 318–321. 7 citations

Howard John Hamilton

Professor

howard.hamilton@uregina.ca, (306) 585-4079

Education and Professional Development

1992 **Ph.D.** in Computing Science, Simon Fraser University

Thesis title: "Specification of Inductive-Inference Problems for Machine Discovery"

Supervisor: Dr. N.J. Cercone

Employment History

00/07 -present Professor, Computer Science, University of Regina

Teaching History

CS115, Object Oriented Design

CS203, Java Programming and Applications

CS330, Introduction to Operating Systems

CS408, Animation Software Design

CS409, Interactive Entertainment Software

CS808, Animation Software Design (with 408)

CS809, Interactive Entertainment Software (with 409)

CS831, Knowledge Discovery in Databases

Plus numerous reading courses at the undergraduate and graduate level.

Student Supervision

List undergraduate students, graduate students, post-doctoral fellows, and other relevant trainees carrying out research or other original scholarly activity under your direct supervision within the past ten

years. Use the table below to list names, position, and dates of supervision. Additional comments can be made below the table.

Name	Position	Dates of supervision
Richard Dosselmann	Postdoc	2014-2016
Mehdi Sadeqi	Postdoc	2014-2016
Rahim Samei	Postdoc	2015-2016
Mondelle Simeon	Industrial Postdoc	2014-2016
Mondelle Simeon	Postdoc	2013-2014
Cristina Manfredotti	Postdoc	2011
Paolo Viappiani	Postdoc	2011
Richard Dosselmann	Research Assistant	2014
David Thue	Research Associate	2013
Richard Dosselmann	Research Associate	2016-Present
Mehdi Sadeqi	Research Associate	2016-Present
Hassan Waqar Ahmad	PhD	2016-Present
Shaun Kaufmann	PhD	2016-Present
Stamatis Katsaganis	PhD	2012-Present
Tina Derzaph	PhD	2010-Present
Haider Ali	MSc	2017-Present
Fatima Anwer	MSc	2017-Present
Fatemah Bayeh	MSc	2014-Present
Anthony Beug	MSc	2016-Present
Kael Dow	MSc	2011-Present
Fahad Majeed	MSc	2016-Present
Ryan Marcotte	MSc	2012-Present
Darshan Nayak	MSc	2016-Present
Karlee Stein	MSc	2015-Present
Khantil Patel	MSc	2013-2016
Moslema Jahan	MSc	2012-2015
Andrew Geiger	MSc	2013-2015
Spoorthy Seenappa	MSc	2009-2012
Mark Laprairie	MSc	2009-2011
Laura Zilles	MSc	2010-2011
Robert Bailey	MSc	2008-2011
Sean Targett	MSc	2009-2011
Chantal Laplante	MSc	2004-2009
Daniel Schroeder	MSc	2007-2009
James Ranson	MSc	2006-2008
Warren Marusiak	MSc	2004-2008
Paul Schmiedge	MSc	2005-2007

University Service

National Service:

- Selection Committee, Canadian Artificial Intelligence Association Distinguished Service Award, Member: 2012.
- Selection Committee, Canadian Artificial Intelligence Association AI Master's Award, Member: 2012.
- Selection Committee, Canadian Artificial Intelligence Association Lifetime Achievement Award, Member: 2011.
- NSERC Discovery Grant Appeal Committee 331: member, 2010-2013.
- NSERC Advanced Communication and Management of Information panel, which evaluates Strategic Project Grant applications relevant to CS: member, July 2007 – September 2010.
- Chair, Selection Committee, Canadian Artificial Intelligence Association AI Doctoral Dissertation Award, 2010.
- NSERC Special Research Opportunity College of Reviewers: member, August 2003 – July 2009.

Department and University Duties:

- Special Advisor to Vice-President of Research for the Digital Future cluster, Jan. 2015 to present.
- Director, Laboratory for Computational Discovery, January 2003 to present.
- Head, Department of Computer Science, July 2013 to June 2016
- Curriculum Committee, Department of Computer Science, Member: July 2012 to June 2013.
- External Relations Committee, Department of Computer Science, Member: July 2012 to June 2013.
- Assistant Department Head, Department of Computer Science: July 2011 to June 2012.
- Web Committee, Department of Computer Science, Member: January 2010 to present; Chair: July 2011 to June 2012.
- Research Coordinator, Department of Computer Science, 2002 – 2010, 2011 – 2012 and 2016 – Present.
- Technical Reports Officer, Department of Computer Science: July 2011 to June 2012.
- Department Head (Acting), Department of Computer Science: July 2010 to December 2010.
- Canada Research Chair Search Committee, Department of Computer Science: January 2008 to June 2008.
- Graduate Committee, Department of Computer Science: July 2007 to June 2008.

Scholarly Research

Book

2. Guillet, Fabrice and Hamilton, Howard J., *Quality Measures in Data Mining*, Springer, Berlin, 2007.

Refereed journal publications:

29. Obaid Ullah Malik, Howard Hamilton, Robert Hilderman, Richard Dosselmann, "Retail Price Time Series Imputation," *International Journal of Business Intelligence and Data Mining*, **2016**, accepted, October, 2015.

28. Ahmad, H.W., Zilles, S., Hamilton, H.J., and Dosselmann, R., "Prediction of Retail Prices of Products Using Local Competitors," *International Journal of Business Intelligence and Data Mining*, **2016**, accepted June, 2015.

27. Schroeder, D., and Hamilton, H.J., "Desirable Elements for a Particle System Interface," *International Journal of Computer Games Technology*, Vol. 2014, Article ID 623809, 2014, 12 pages. http://dx.doi.org/10.1155/2014/623809.

26. Derzaph, T.L.M., and Hamilton, H.J., "Effects of Wind on Virtual Plants in Animation," *International Journal of Computer Games Technology*, Vol. 2013, Article ID 674848, 2013, 11 pages. http://dx.doi.org/10.1155/2013/674848.

25. Targett, S., Verlysdonk, V., Hamilton, H.J., and Hepting, D., "A Study of User Interface Modifications in World of Warcraft," *Game Studies*, 12(2), 2012.

24. Wang, X., Rostoker, C., and Hamilton, H.J., "A Density-Based Spatial Clustering Method for Physical Constraints," *Journal of Intelligent Information Systems*, 38(1):269-297, 2012.

23. Karimi, K. and Hamilton, H.J. "Generation and Interpretation of Temporal Decision Rules," *International Journal of Computer Information Systems and Industrial Management Applications,* 3:314-323, 2011.

22. Wang, X., Ziebelin, D., and Hamilton, H.J. "An Ontology-Based Framework for Geospatial Clustering," *International Journal of Geographical Information Systems*, 24(11):1601-1630, November 2010.

21. Li, X., Hamilton, H.J., Karimi, K., and Geng, L., "The Multi-Tree Cubing Algorithm for Computing Iceberg Cubes," *Journal of Intelligent Information Systems*, 33(2), October 2009, pp. 179-208.

20. Yao, H. and Hamilton, H.J. "Mining Function Dependencies from Data with FD_Mine," *Data Mining and Knowledge Discovery*, April 2008, pp. 197-219.

Refereed Conference Publications:

114. Sadeqi, M. and Hamilton, H.J., "Efficient Representation of Pattern Databases Using Acyclic Random Hyper graphs," The 26th International Conference on Automated Planning and Scheduling (ICAPS 2016), London, UK, June 12-17, 2016.

113. Hala, S., Hamilton, H.J., and Domenici, P., "Stimulating the Bubble Net Hunting Behaviour of Humpack Whales: The BNH-Whale Algorithm," 29th Canadian Conference on Artificial Intelligence (AI 2016), Victoria, Canada, May 31-June 3, 2016.

112. Bjorndahl, J., Herman, A., Hamilton, R., Hamilton, H.J., and Brigham, M., "Discovery of Parameters for Animation of Midge Swarms," *18th International Conference on Discovery Science* (*DS 2015*), Banff, Canada, October 4-6, 2015.

111. Patel, K., Hoeber, O., and Hamilton, H.J., "Real-Time Sentiment-Based Anomaly Detection in Twitter Data Streams," *28th Canadian Conference on Artificial Intelligence* (*AI 2015*), Halifax, Canada, June 2-5, 2015.

110. Cullimore, J., Hamilton, H.J., and Gerhard, D., "Directed Transitional Composition for Gaming and Adaptive Music Using Q-Learning." *40th International Computer Music Conference / 11th Sound and Music Computing Conference* (*ICMC/SMC 2014*), Athens, Greece, September 14-20, 2014.

109. Moersch, J. and Hamilton, H.J., "Variable-Sized, Circular Bokeh Depth of Field Effects." *Graphics Interface 2014* (*GI 2014*), Montreal, May 7-9, 2014.

108. Thue, D., Bulitko, V. and Hamilton, H., "Implementation Cost and Efficiency for AI Experience Managers." *Workshop on Intelligent Narrative Technologies* (*INT 2013*), Boston, October 14-15, 2013.

107. Manfredotti, C., Hamilton, H.J., Pedersen, K.S., and Zilles, S., "Learning Models of Activities Involving Interacting Objects." *Proceedings of the Twelfth International Symposium on Intelligent Data Analysis* (*IDA 2013*), London, UK, October 7-9, 2013.

106. Simeon, M., Hilderman, R.J., and Hamilton, H.J., "Mining Interesting Contrast Sets." Proceedings of the 4th International Conference on Resource Intensive Applications and Services (INTENSIVE'12), St. Maarten, Netherlands Antilles, March, 2012, pp. 14-21. **Best Paper Award**.

105. Manfredotti, C.E., Fleet, D.J., Hamilton, H.J., and Zilles, S., ``Simultaneous Tracking and Activity Recognition,'' IEEE 23rd International Conference on Tools with Artificial Intelligence (ICTAI 2011), Boca Raton, FL, USA, November 7-9, 2011, pp.189-196.

104. Viappiani, P., Zilles, S., Hamilton, H.J., and Boutilier, C., "Learning Complex Concepts using Crowdsourcing: A Bayesian Approach." In *Second International Conference on Algorithmic Decision Theory (ADT 2011),* Rutgers University, October, 2011.

103. Viappiani, P., Zilles, S., Hamilton, H.J., and Boutilier, C., "A Bayesian Concept Learning Approach to Crowdsourcing." In *Proceedings of the Interactive Decision Theory and Game Theory (IDTGT) Workshop, Association for the Advancement of Artificial Intelligence 2011*, San Francisco, CA, August, 2011. Also accepted by special arrangement at *9th Workshop on Intelligent Techniques for Web Personalization, International Joint Conference on Artificial Intelligence (IJCAI'11)*, Barcelona, Spain, July 2011.

102. Manfredotti, C., Fleet, D., Hamilton, H.J., and Zilles, S., "Relational Particle Filter." In *Proceedings of the NIPS 2010 Workshop on Monte Carlo Methods for Bayesian Inference in Modern Day Applications*, Vancouver, BC, December 2010.

101. Manfredotti, C., Hamilton, H.J., and Zilles, S., **"**Learning RDBNs for Activity Recognition." In *Proceedings of the NIPS 2010 Workshop on Learning and Planning from Batch Time Series Data*, Vancouver, BC, December 2010.

100. Anwar, M., Fong, P.W.L., Yang, X.D., and Hamilton, H. "Visualizing Privacy Implications of Access Control Policies in Social Network Systems." In *Proceedings of the 4th International Workshop on Data Privacy Management* (*DPM'09*), Saint Malo, France, September 2009, pp. 106-120.

99. Wang, X., and Hamilton, H.J., "Using Clustering Methods in Geospatial Information Systems," In *Proceedings of the Sixteenth International Conference on Geoinformatics* (*Geoinformatics 2008*), Guangzhou, China, June 2008.

98. Karimi, K. and Hamilton, H.J., "Using Dependence Diagrams to Summarize Decision Rule Sets," In *Proceedings of the 21st Canadian Conference on Artificial Intelligence (AI 2008)*, Windsor, ON, Canada, May 2008, pp. 163-172.

97. Geng, L., Hamilton, H.J., and Korba, L., **"**Expectation Propagation in GenSpace Graphs for Summarization," In *Proceedings of the 9th International Conference on Data Warehousing and Knowledge Discovery (DAWAK 2007)*, Regensburg, Germany, September 2007, pp. 449-458.

Refereed book chapters:

6. Geng, L., and Hamilton, H.J., "Choosing the Right Lens: Finding What is Interesting in Data Mining." In Guillet, F. and Hamilton, H.J., *Quality Measures in Data Mining*, Springer, Berlin, 2007, pp. 3-24.

Technical Reports:

35. Manfredotti, C.E., Fleet, D.J., Hamilton, H.J., and Zilles, S., "Simultaneous Tracking and Activity Recognition with Relational Dynamic Bayesian Networks", Tech. Report CS-2011-01, Department of Computer Science, University of Regina, March, 2011, ISBN 978-0-7731-0694-9.

34. Ranson, J.F., Hamilton, H.J., and Fong, P.W.L., "A Semantics of Python in Isabelle/HOL," Tech. Report CS-2008-04, Department of Computer Science, University of Regina, July 2008, 93 pages, ISBN 978-0-7731-0657-4 (print), ISBN 978-0-7731-0658-1 (online).

Daryl H. Hepting

Associate Professor, Computer Science
daryl.hepting@uregina.ca, (306) 585-5210

Education and Professional Development

- *Ph.D. Computer Science, Simon Fraser University, 1999*
- *M.Sc. Computer Science, University of Regina, 1991*
- *B.Sc. Computer Science (Hons.) and Math, University of Regina, 1988*

Employment History

- *2006 - present: Associate Professor, University of Regina*
- *2001 - 2006: Assistant Professor, University of Regina*

Teaching History

- *CS 110: Programming and Problem Solving*
- *CS 205/325 & FILM 385AB: Introduction to Multimedia Systems*
- *CS 215: Introduction to Web Programming*
- *CS 305/428/828: Human Computer Communications*
- *CS 280: Risk and Reward in the Information Society*
- *CS 330: Introduction to Operating Systems*
- *CS390AM: User Interface Implementation and Evaluation*
- *CS390AL: Web Business Analysis*
- *CS490CP: Web Service Design*
- *CS490CN: Open Source Software Development (UCOSP)*
- *CS490CT & CS890DS: Visual Analytics*
- *CS890DT: End-User Programming*
- *CS890DW: The Internet and Social Participation*
- *CS890DK: Advanced Topics in Personalization*
- *CS890DP: Service Oriented Architecture*

Student Supervision

Name	Position	Dates of supervision
Tim Maciag	Ph.D. Student	2005 – 2016
Hadeel Bin Amer	Ph.D. Student	2012 –
Trevor Tomesh	Ph.D. Student	2013 –
Sean Targett	M.Sc. Student (thesis)	2008 – 2012
Richard Spring	M.Sc. Student (thesis)	2008 – 2012
Andy Fang	M.Sc. Student (thesis)	2007 – 2010
Leila Latifi	M.Sc. Student (thesis)	2007 – 2010

Shahid Hussain	M.Sc. Student (project)	2007 – 2011
Shawn Andrews	Undergrad Honours	2016 –
Tori Verlysdonk	NSERC USRA	2012
Paul Schmiedge	NSERC USRA	2006

University Service

- *FIRST (For Inspiration and Recognition of Science and Technology) LEGO League Partner for Saskatchewan*
- *CACS/AIC Outreach Committee Member and Chair*
- *Founding President of Saskatchewan Chapter of Computer Science Teachers Association*
- *Science Scholarship Committee*
- *Representative to Faculty of Arts, Luther College*
- *CS Participant Pool Coordinator*

Scholarly Research (Selected)

- *P. W. Elliott and D. H. Hepting (editors), Free Knowledge: Confronting the Commodification of Human Discovery, University of Regina Press, 2015.*
- *T. M. Tomesh and D. H. Hepting, DIY Game Console Development, Proceedings of 1st Annual CHIPLAY Conference, 2014, pages 471–473.*
- *D. H. Hepting and E. H. Almestadi, Discernibility in the Analysis of Binary Card Sort Data, Proceedings RSFDGrC 2013, LNAI 8170, 2013, pages 380–387.*
- *D. H. Hepting, J. Jaffe, and T. Maciag, Operationalizing Ethics in Food Choice Decisions, Journal of Agricultural and Environmental Ethics, 27 (3), June 2014, pages 453–469.*
- *S. Targett, V. Verlysdonk, H. J. Hamilton, D. H. Hepting, A Study of User Interface Modifications in World of Warcraft, Game Studies: the international journal of computer game research, 12(2), 2012, online: http://gamestudies.org/1202/articles/ui_mod_in_wow*
- *D. H. Hepting, G. Donaldson, P. R. King, and D. Silver, CS/IT Outreach from a Canadian Perspective, Proc. SIGITE 2012, ACM, 2012, pages 251–252.*
- *D. H. Hepting, T. Maciag, and H. Hill, Web-Based Support of Crop Selection for Climate Adaptation, Proc. HICCS 45, 2012, pages 1227–1236.*
- *B. S. McIntosh, J. C. Ascough, M. Twery, J. Chew, A. Elmahdi, D. Haase, J. Harou, D. H. Hepting, S. Cuddy, A. J. Jakeman, S. Chen, AQ. Kassahun, S. Lautenbach, K. Matthews, W. Merritt, N. W. T. Quinn, I. Rodriguez-Roda, S. Sieber, M. Stavenga, A. Sulis, J. Ticehurst, M. Volk, M. Wrobel, H. van Delden, S. El-Sawah, Environmental Decision Support Systems (EDSS) Development Challenges and Best Practices, Environmental Modelling & Software, 26(12), December 2011, pages 1389–1402.*
- *D. H. Hepting, R. Spring, and D. Ślęzak , A Rough Set Analysis of Facial Similarity Judgements, Transactions on Rough Sets VII, Lecture Notes in Computer Science 6600, Springer Verlag, 2011,*

pages 81–99.

- *D. H. Hepting and L. Latifi, Towards Perception-Driven Interaction with Parametric Images, Proc. Active Media Technology 2010, pages 200–211.*
- *L. Fang and D. H. Hepting, Assessing End-User Programming for a Graphics Development Environment, Proc. Active Media Technology 2010, pages 411–423.*
- *D. H. Hepting, L. Latifi, and C. Oriet, In search of a perceptual basis for interacting with parametric images, Proceedings of the seventh ACM conference on Creativity and Cognition, 2009, pages 377-378.*
- *R. Petry and D. H. Hepting, Enabling Information Technology for the Emancipation of Physical and Natural Capital, Proceedings of ISESS 2009.*
- *D. H. Hepting, K. Arbuthnott, J. Jaffe, and T. J. Maciag, Feeding the Triple Top Line, ACM CHI2009 Workshop "Defining the Role of HCI in the Challenges of Sustainability".*
- *D. H. Hepting and T. J. Maciag, Design Scenarios for Web-Based Information Management, Chapter 17 in Web-Based Support Systems, Springer, 2010, pages 371–386.*
- *D. H. Hepting, L. Peng, T. J. Maciag, D. Gerhard, B. Maguire, Creating Synergy Between Usability Courses and Open Source Software Projects, ACM SIGCSE Bulletin, Volume 40, Number 2, June 2008, pages 120–123.*
- *T. Maciag, D. Ślęzak, D. H. Hepting, R. J. Hilderman, A Data-Mining Framework for Designing Personalized E-Commerce Support Tools, Chapter 15 in Data Mining for Design and Marketing, Chapman & Hall/CRC Data Mining and Knowledge Discovery Series, 2009, pages 235–250.*
- *D. H. Hepting, Software for Systematic and Imaginative Exploration, Proceedings of Creativity and Cognition 2007, pages 253–254.*
- *D. H. Hepting, T. J. Maciag, and S. A. A. Rizvi, Information Technology in Support of Sustainable Food Choices , Proceedings of the International Symposium on Environmental Software Systems (ISESS) 2007.*
- *T. J. Maciag, D. H. Hepting, D Ślęzak, R. J. Hilderman, Mining Associations for Interface Design, Proceedings of the Second International Conference on Rough Sets and Knowledge Technology (RSKT 2007), Lecture Notes in Artificial Intelligence (LNAI) Volume 4481, Springer-Verlag, 2007, pages 109–117.*
- *D. H. Hepting and P. Schmiedge, A User-Driven Interface for Exploring Visualizations, Proceedings of Visualization and Data Analysis (VDA) 2007, SPIE Volume 6495, 2007, 6495R-, pages 1 – 12.*
- *D. H. Hepting, Ethics and Usability Testing in Computer Science Education, ACM SIGCSE Bulletin, 38(2), 2006, pages 76–80.*
- *L. Carlson Berg, S. Longman, D. Hepting, and E. Doolittle, Respectful Actions in Research: Aboriginal Adolescents Speaking Their Future, The Delta Kappa Gamma Bulletin, 72(3), 2006, pages 23–29.*
- *D. H. Hepting, Decision Support for Local Environmental Impact Assessment, Journal of Environmental Modelling and Software, Volume 22, Number 4, April 2007, pages 436-441.*

Robert J. Hilderman

Associate Professor

robert.hilderman@uregina.ca, (306) 585-4061

Education and Professional Development

- Ph.D.: Department of Computer Science, University of Regina (2000)
- M.Sc.: Department of Computer Science, University of Regina (1995)
- B.A.: Department of Mathematics, Concordia College (1980)

Employment History

2004/07 - present: Associate Professor - Computer Science, University of Regina

Teaching History

- CS110: Programming and Problem Solving (200730, 200810, 2011)
- CS115: Object-Oriented Design (201010)
- CS210: Data Structures and Abstractions (201020, 201310, 201410, 201430, 201510)
- CS330: Introduction to Operating Systems (201110, 201130, 201210, 201230, 201330, 201430, 201530, 201710)
- CS340: Advanced Data Structures and Algorithm Design (200830, 201410, 201530, 201610, 201710)
- CS430: Advanced Operating Systems (200730, 200830, 201030, 201330, 201530)
- CS430 (Directed Reading): Advanced Operating Systems (201230)
- CS490 (Directed Reading): Foundations and Applications in Data Mining (200910)
- CS490 (Directed Reading): Introduction to Data Mining (201630)
- CS491 (Directed Reading): Operating Systems Programming (201410)
- CS499/CS900: Student Seminar Series (201130, 201210, 201220, 201230, 201310, 201320)
- CS831: Knowledge Discovery (201130, 201220)
- CS833: Advanced Operating Systems (200830, 201310, 201330, 201530, 201610)
- CS890 (Directed Reading): Advanced Artificial Intelligence (200720)
- CS890 (Directed Reading): Text Classification Algorithms (200720)
- CS890 (Directed Reading): Contrast Set Mining (200820)
- CS890 (Directed Reading): Software Engineering (201320)
- CS890 (Directed Reading): Software Development Life Cycle (201430)

Student Supervision

Name	Position	Dates of supervision
Credell Simeon	M.Sc. Project Student	201330 - 201520
Thomas Ugheoke	M.Sc. Project Student	201220 - 201420
Mondelle Simeon	Ph.D. Student	200630 - 201210
Dorothy Allotey	M.Sc. Project Student	200910 - 201130
Garrett Nicolai	M.Sc. Thesis Student	200630 - 200830

University Service

Department Service
- Chair: Scholarship/Honours Committee (2015 - 2017)
- Chair: Undergraduate Co-op Committee (2013 - 2017)
- Chair: Seminar Committee (2011 - 2013)
- Member: Special Projects Committee (2010 - 2011, 2013 - 2015)
- Chair: Web Site Committee (2010 - 2011)
- Member: Planning Committee (2009 - 2010)
- Member: Curriculum Committee (2009 - 2010)
- Member: Canada Research Chair Search Committee (2008 - 2009)
- Chair: Curriculum Committee (2007 - 2009)

Faculty Service
- Member: Admissions and Studies Committee (2009 - 2017)
- Representative: Faculty of Education (2009 - 2017)

University Service
- Member: Market Supplement Committee (2010 - 2011, 2013 - 2014)
- Member: Executive of Council (2006 - 2010)

Scholarly Research

Refereed Book Chapters
- Nicolai, G. and **Hilderman, R.J.**, "Countering Evolutionary Forgetting in No-Limit Texas Hold'em Poker Agents." In Madani, K., Correia, A.D., Rosa, A., and Filipe, J. (eds.), *Computational Intelligence*, Studies in Computational Intelligence 399, Springer, 2012, pp. 31-48.
- Maciag, T., Slezak, D., Hepting, D., and **Hilderman, R.J.** "A Data Mining Framework for Designing Personalized e-Commerce Support Tools." In Yada, K. and Ohsawa, Y. (eds.), *Data Mining for Design and Marketing*, Chapman & Hall/CRC Data Mining and Knowledge Discovery Series, CRC Press, 2009, pp. 235-250.
- **Hilderman, R.J.**, and Peckham, T. "Statistical Methodologies for Mining Potentially Interesting Contrast Sets." In Guillet, F. and Hamilton, H.J. (eds.), *Quality Measures in Data Mining*, Studies in Computational Science 43, Springer, 2007, pp. 153-177.

Refereed Conference Proceedings
- Simeon, C., **Hilderman, R.J.** "Evaluating the Effectiveness of Predictors of the Sentiment of Tweets." *Proceedings of 18th International Conference on Discovery Science (DS'15)*, Banff, Canada, October, 2015.

- Simeon, M., **Hilderman, R.J.**, and Hamilton, H.J. "Mining Interesting Correlated Contrast Sets." *Proceedings of the 32nd SGAI International Conference on Artificial Intelligence (AI'12)*, Cambridge, England, December, 2012. pp. 49-62.

- Simeon, M., **Hilderman, R.J.**, and Hamilton, H.J. "Mining Interesting Contrast Sets." *Proceedings of the 4th International Conference on Resource Intensive Applications and Services (INTENSIVE'12)*, St. Maarten, Netherlands Antilles, March, 2012, pp. 14-21. **Note:** This paper received the "Best Paper Award" at the conference.

- Simeon, M. and **Hilderman, R.J.** "GENCCS: A Correlated Group Difference Approach to Contrast Set Mining." *Proceedings of the 7th International Conference on Machine Learning and Data Mining (MLDM'11)*, New York, U.S.A, September, 2011, pp. 140-154.

- Simeon, M. and **Hilderman, R.J.** "COSINE: A Vertical Group Difference Approach to Contrast Set Mining." *Proceedings of the 24th Canadian Conference on Artificial Intelligence (AI'11)*, St. John's, Canada, May, 2011, pp. 359-371.

- Nicolai, G. and **Hilderman, R.J.** "Algorithms for Evolving No-Limit Texas Hold'em Poker Playing Agents." *Proceedings of the International Conference on Evolutionary Computation (ICEC'10)*, Valencia, Spain, October, 2010, pp. 20-32.

- Nicolai, G. and **Hilderman, R.J.** "No-Limit Texas Hold'em Poker Agents Created with Evolutionary Neural Networks." *Proceedings of the 5th IEEE Symposium on Computational Intelligence and Games (CIG'09)*, Milan, Italy, September, 2009, pp. 125-131.

- Simeon, M. and **Hilderman, R.J.** "An Empirical Study of Category Skew on Feature Selection for Text Categorization." *Proceedings of the 22nd Canadian Conference on Artificial Intelligence (AI'09)*, Kelowna, Canada, May, 2009, pp. 249-252.

- Simeon, M. and **Hilderman, R.J.** "Categorical Proportional Difference: A Feature Selection Method for Text Categorization." In Roddick, J.F., Jiuyong, L., Christen, P., and Kennedy, P. (eds.), *Proceedings of the 7th Australasian Data Mining Conference (AusDM'08)*, Glenelg, Australia, November, 2008, pp. 201-208.

- Simeon, M. and **Hilderman, R.J.** "Exploratory Quantitative Contrast Set Mining: A Discretization Approach." *Proceedings of the 19th International Conference on Tools with Artificial Intelligence (ICTAI'07)*, Patras, Greece, October, 2007, pp. 124-131.

- Maciag, T., Hepting, D.H., and **Hilderman, R.J.** "Evaluation of a Dominance-Based Rough Set Approach to Interface Design." *Proceedings of the 2007 International Conference on Frontiers in the Convergence of Bioscience and Information Technologies (FBIT'07)*, Jeju Island, Korea, October, 2007, pp. 409-416.

- Beattie, B., Nicolai, G., Gerhard, D., and **Hilderman, R.J.** "Pattern Classification in No-Limit Poker: A Head-Start Evolutionary Approach." *Proceedings of the 20th Canadian Conference on Artificial Intelligence (AI'07)*, Montreal, Canada, May, 2007, pp. 204-215.

- Maciag, T., Hepting, D.H., Slezak, D., and **Hilderman, R.J.** "Mining Associations for Interface Design." *Proceedings of the International Conference on Rough Sets and Knowledge Technology (RSKT'07)*, Joint Rough Set Symposium (JRS'07), Toronto, Canada, May, 2007, pp. 109-117.

Refereed Workshop Proceedings

- Simeon, C. and **Hilderman, R.J.** "Using Combined Lexical Resources to Identify Hashtag Types." *Proceedings of the 6th Workshop on Computational Apporaches to Subjectivity, Sentiment, and Social Media Analysys (WASSA'15)*, Conference on Empirical Methods in Natural Language Processing (EMNLP'15), Lisbon, Portugal, September, 2015, pp. 169-174.

- Simeon, M. and **Hilderman, R.J.** "Improving Contrast Set Mining." *Proceedings of the Doctoral Consortium 2008*, 7th Australasian Data Mining Conference (AusDM'08), Glenelg, Australia, November, 2008, pp. 1-4.

Orland Hoeber

Associate Professor

orland.hoeber@uregina.ca, (306) 585-4598,

Education and Professional Development

2007: Ph.D. (Computer Science), University of Regina

2000: Certificate in Software Engineering, University of British Columbia

1999: M.Sc. (Computer Science), University of Saskatchewan

1995: B.Sc. (Mathematics), University of Saskatchewan

Employment History

2012 – present: Associate Professor, Department of Computer Science, University of Regina

   Tenure granted in 2014; Sabbatical from Jan – Dec 2016

2007 – 2012: Assistant Professor, Department of Computer Science, Memorial University of Newfoundland

Teaching History

CS 215 (Web & Database Programming): 2012F, 2013F, 2014W, 2014F, 2015W, 2015F

CS 455 (Mobile Computing): 2013W, 2015W, 2017W

CS 890DS (Visual Analytics): 2014W

CS 837 (Information Visualization): 2014S, 2015F

CS 855 (Mobile Computing): 2013W, 2015W, 2017W

Note that I have also taught four different courses on similar topics during my time at Memorial University of Newfoundland from 2007 – 2012.

Student Supervision

Name	Position	Dates of supervision
Haider Ali Butt	M.Sc.	Sep 2016 – present
Alain Maubert	Ph.D.	Jan 2016 - present
Amanda Hawkins	M.Sc. (Project, part-time)	May 2015 – present
Gursimran Kaur	M.Sc.	Sep 2015 – present
Manali Gaikwad	M.Sc.	May 2015 – present
Khantil Patel	M.Sc.	Jan 2015 – Apr 2016
Radhika Gopi	M.Sc.	May 2014 – present
Hamna Rajput	M.Sc. (Co-op)	Sep 2013 – Dec 2014 (changed supervisor)

Kenneth Odoh	M.Sc. (Project)	Sep 2013 – Apr 2016
Maha El Meseery	M.Sc.	Sep 2013 – Apr 2016
Isabella Hugel	B.Sc. (NSERC USRA)	May – Aug 2013
Dayne Wagner	B.Sc. (NSERC USRA)	May – Aug 2013
Monjur Ul Hasan	M.Sc. (MUN)	Jan 2012 – Apr 2015
Mustafa Bhuiyan	M.Sc. (Project) (MUN)	Sep 2011 – Jan 2014
Cassandra Lee	M.Sc. (MUN)	Sep 2010 – Sep 2013
Zhi Li	M.Sc. (Project) (MUN)	Sep 2010 – Jan 2013
Taraneh Khazaei	M.Sc. (MUN)	Sep 2010 – Dec 2012
Asikur Rahman	M.Sc. (MUN)	Sep 2010 – Apr 2013
Muhammad Nasir	M.Sc. (MUN)	Jan 2010 – Jan 2014

I have included only the students I have supervised since starting my position at the University of Regina in 2012. Note that the bottom of the list includes students that I continued to supervise to the completion of their degrees at Memorial University of Newfoundland. Between 2007 and 2012, I supervised an additional five M.Sc. students to completion at MUN, along with two post-doctoral researchers.

University Service

Research Ethics Board, University of Regina (Jul 2012 – Dec 2015); mentored four new members

Graduate Coordinator, Department of Computer Science, University of Regina (Jul 2014 – Dec 2015; Jan 2017 – present)

North American Society for Sport Management, Executive Council (2005 – present)

I have also served on various Department-level committees, both at the University of Regina (2012 – present) and Memorial University of Newfoundland (2007 – 2012), and on MUN's equivalent of our Research Ethics Board from 2010- 2012.

Scholarly Research

Journal Articles (2012 – 2016)

1. T. Khazaei and **O. Hoeber**, Supporting academic search tasks through citation visualization and exploration, *International Journal on Digital Libraries*, in press (accepted Apr 2016).
2. **O. Hoeber**, L. Hoeber, M. El Meseery, K. Odoh, R. Gopi, Visual Twitter analytics (Vista): Temporally changing sentiment and the discovery of emergent themes within sport event tweets, *Online Information Review*, 40(1):25-41, 2016.
3. L. Hoeber, A. Doherty, **O. Hoeber**, R. Wolfe, The nature of innovation in community sport organizations, *European Sport Management Quarterly*, 15(5):518-534, 2015.
4. **O. Hoeber** and T. Khazaei, Evaluating citation visualization and exploration methods for supporting academic search tasks, *Online Information Review*, 39(2):229-254, 2015.
5. C. Lee, R. Devillers, and **O. Hoeber**, Navigating spatio-temporal data with temporal zoom and pan in a multi-touch environment, *International Journal of Geographical Information Science*, 28(5):1128-1148, 2014.
6. E. Hoque, **O. Hoeber**, and M. Gong, CIDER: Concept-based image diversification, exploration, and retrieval, *Information Processing & Management*, 49(5):1122-1138, 2013.

7. Y. A. Sekhavat and **O. Hoeber**, Visualizing association rules using linked matrix, graph, and detail views, *International Journal of Intelligence Science*, 3(1A):34-49, 2013.

8. R. Enguehard, R. Devillers, and **O. Hoeber**, Comparing interactive and automated mapping systems for supporting fisheries enforcement activities - A case study on Vessel Monitoring Systems (VMS), *Journal of Coastal Conservation: Planning and Management*, 17(1):105-119, 2013.

Note that I have published nine additional journal articles since 2007, which do not appear here since they were completed before I started my position at the University of Regina in 2012.

Conference Proceedings (2012 – 2016)

1. **O. Hoeber**, A. Sarkar, A. Vacariu, M. Whitney, M. Gaikwad, G. Kaur, Evaluating the value of Lensing Wikipedia during the information seeking process, In Proceedings of the ACM SIGIR Conference on Human Information Interaction and Retrieval, (accepted Nov 2016 for presentation/publication in Mar 2017.

2. M. El Meseery and **O. Hoeber**, Geo-coordinated parallel coordinates (GCPC): A case study of environmental data analysis, In Proceedings of the International Conference on Discovery Science, pp. 63-77, 2015.

3. K. Patel, **O. Hoeber**, and H. J. Hamilton, Real-time sentiment-based anomaly detection in Twitter data streams, In Proceedings of the Canadian Artificial Intelligence Conference, pp. 196-203, 2015.

4. **O. Hoeber** and M. U. Hasan, Supporting event-based geospatial anomaly detection with geovisual analytics, In Proceedings of the International Conference on Visualization Theory and Applications, pp. 17-28, 2015.

5. M. Nasir, **O. Hoeber**, and J. Evermann, Supporting ontology alignment tasks with edge bundling, In Proceedings of the International Conference on Knowledge Management and Knowledge Technologies, pp. 1-8, 2013.

6. T. Khazaei and **O. Hoeber**, Metadata visualization of scholarly search results: Supporting exploration and discovery, In Proceedings of the International Conference on Knowledge Management and Knowledge Technologies, pp. 1-8, 2012.

7. **O. Hoeber** and M. Gong, A granular computing perspective on image organization within an image retrieval context, In Proceedings of International Conference on Rough Sets and Knowledge Technology, pp. 320-328, 2012.

Note that I have published 17 additional conference papers since 2007, which do not appear here since they were completed before I started my position at the University of Regina in 2012.

Book Chapters (2012 – 2016)

1. L. Hoeber and **O. Hoeber**, Social Media Analytics for Sport Management: Tools, Pitfalls, and Best Practices, In Critical Issues in Global Sport Management (N. Schulenkorf and S. Frawley, editors), Routledge, pp. 252-265, 2017.

2. L. Hoeber and **O. Hoeber**, Fostering Innovation, In Sport Leadership in the 21st Century (J. F. Borland, G. M. Kane, and L. J. Burton, editors), Jones & Bartlett Learning, pp. 169-183, 2015.

Note that I have published three additional book chapters since 2007, which do not appear here since they were completed before I started my position at the University of Regina in 2012.

Malek Mouhoub

Professor and Department Head

mouhoubm@uregina.ca, (306) 585 4700

Education and Professional Development

PhD in Computer Science. Univ. of H.P. Nancy 1, France. 1996.
MSc in Computer Science. Univ. of H.P. Nancy 1, France. 1992.
MEng in Computer Science. Univ. of Constantine, Algeria. 1989.

Employment History

From 2009 - Professor in Computer Science, University of Regina.
2008 to 2009 Visiting Professor in Computer Science, Université de Caen, France.
2002 to 2009 Associate Professor in Computer Science, University of Regina.

Teaching History

CS820 - Artificial Intelligence, CS890DE - Advanced Topics in Robotics, CS890BR - Constraint
Programming, CS890CE - Constraint-Based Agents, CS 115 (formerly 170) - Fundamentals of
Computer Science I, CS 201 - Introduction to Digital Systems, CS340 - Data Structures and
Algorithm Analysis, CS421 - Advanced Artificial Intelligence, CS490CA - Constraint Processing
CS490CD - Robot Motion Planning.

Student Supervision

Name	Position	Dates of supervision
Bandar Mohammed	PhD	January 2012 - February 2017
Eisa Alanazi	PhD	January 2013 - December 2016
Munira Al-Ageili	PhD	January 2009 - December 2014
Ali Hmer	PhD	September 2007 - April 2013
Amrudee Sukpan	PhD	September 2002 - July 2008
Xuegang Wang	MSc	September 2014 - April 2016
Yong Ket Wei	MSc	May 2014 - January 2016
Shu (Jessie) Zhang	MSc	September 2012 - Nov. 2014
Ahmed Mobaraki	MSc	May 2011 - Dec. 2013
Reza Abbasian	MSc	September 2010 - April 2012
Bandar Mohammed	MSc	September 2009 - Dec. 2011
Eisa Alanazi	MSc	May 2009 - September 2011
Farnaz Ghavamifar	MSc	January 2008 - October 2010
Bahareh Jafari	MSc	September 2007 - March 2010
Nurul Anwar	MSc	September 2003 - July 2008
Racem Rashid	MSc	September 2004 - June 2008
Roger Barbour	MSc	January 2006 - April 2008
Jia Liu. MSc	MSc	September 2005 - March 2008
Colin Witow	MSc	September 2004 - October 2006

Xiao Feng Li	MSc	September 2004 - October 2006
Chang Feng	MSc	September 2005 - Dec 2007
Xinkai Feng	MSc	September 2003 - July 2005
Wang Chonghai	MSc	September 2003 - July 2005

I am currently supervising 6 PhD and 2 MSc students.

University Service

Member of the following committees at the University of Regina: Vanier Canada Graduate Scholarships Selection Committee, Faculty of Graduate Studies & Research Council, Distinguished University Professor Committee, Selection committee for the NSERC Undergraduate Student Research Awards (USRA), NSERC Postgraduate Scholarships (PGS) Selection Committee, Student Appeals Council Committee, Advisory Committee on Research and Instructional Computing, Executive Committee, University of Regina Faculty Association (URFA), Academic Freedom Committee and Chair of the Faculty of Science Review Committee.

Scholarly Research

Refereed Journal Articles

J23. A. Hmer and M. Mouhoub. A Multi-Phase Hybrid Metaheuristics Approach for the Exam Timetabling. International Journal of Computational Intelligence and Applications (IJCIA).World Scientific, Vol. 15(4), pages 1-22, 2016.

J22. R. Abbasian and M. Mouhoub. A New Parallel GA-Based Method for Constraint Satisfaction Problems. International Journal of Computational Intelligence and Applications (IJCIA). World Scientific, Vol. 15(3), pages 1-22, 2016.

J21. E. Alanazi and M. Mouhoub. Variable Ordering and Constraint Propagation for Constrained CP-Nets. Applied Intelligence, Springer. Vol. 44(2), pages 437-448, 2016.

J20. S. Zhang, S. Sadaoui and M. Mouhoub. An Empirical Analysis of Imbalanced Data Classification. Computer and Information Science. Vol. 8(1), pages 151-162, 2015.

J19. S. Zhang, M. Mouhoub and S. Sadaoui. 3N-Q: Natural Nearest Neighbor with Quality. Computer and Information Science. Vol. 7(1), pages 94-102, 2014.

J18. R. Abbasian and M. Mouhoub. A Hierarchical Parallel Genetic Approach for the Graph Coloring Problem. Applied Intelligence, Springer, Vol. 39(3), pages 510-528, 2013.

J17. S. Sadaoui, M. Mouhoub and X.F. Li. An OCL-based Constraint Solver for Managing Symbolic and Numeric Temporal Information. International Journal of Knowledge Based Intelligent Engineering Systems, IOS Press. Vol. 17(3), pages 209-217, 2013.

J16. B. Mohammed, M. Mouhoub, E. Alanazi and S. Sadaoui. Data Mining Techniques and Preference Learning in Recommender Systems. Computer and Information Science. Vol. 6(4), pages 88-102, 2013.

J15. S. K. Shil, S. Sadaoui and M. Mouhoub. Evolutionary Techniques for Reverse Auctions. Intelligent Control and Automation. Vol.4(4), pages 371-378, 2013.

J14. M. Mouhoub and A. Sukpan. Managing Dynamic CSPs with Preferences. Applied Intelligence, Vol. 37(3), pages 446-462, 2012.

J13. M. Mouhoub and A. Sukpan. Conditional and Composite Temporal CSPs. Applied Intelligence, Springer, Vol. 36(1), pages 90-107, 2012.

J12. E. Alanazi, M. Mouhoub and B. Mohammed. A Preference-aware Interactive System for Online Shopping. Computer and Information Science. Vol. 5(6), pages 33-42, 2012.

J11. M. Mouhoub. Dynamic Arc Consistency for CSPs. International Journal of Knowledge Based Intelligent Engineering Systems, IOS Press, Vol. 13(2), pages 45-58, 2009.

J10. S. Sadaoui, M. Mouhoub and B. Chen. An Efficient Lotos-based Framework for Describing and Solving (Temporal) CSPs. International journal of Software Engineering and Knowledge Engineering (IJSEKE), Vol. 19(6), pages 765-789, 2009.

J9. M. Mouhoub. Systematic versus Local Search Techniques for Incremental SAT. International Journal of Computational Intelligence and Applications (IJCIA). Imperial College Press, pages 77-96, Vol. 7, No. 1. 2008.

J8. M. Mouhoub and A. Sukpan. Managing Temporal Constraints with Preferences. Spatial Cognition and Computation, Taylor & Francis, Vol. 8, No. 1-2, pages 131-149, 2008.

J7. M. Mouhoub and S. Sadaoui. Solving Incremental Satisfiability. International Journal of Artificial Intelligence Tools, World Scientific Publishing. Vol. 16, No. 1, pages 139-147, 2007.

J6. M. Mouhoub. Stochastic Local Search for Incremental SAT. International Journal of Knowledge Based Intelligent Engineering Systems, IOS Press, Vol. 9(3), pages 191-196, 2005.

J5. M. Mouhoub. Stochastic Search versus Genetic Algorithms for Solving Real Time and Over constrained Temporal Constraint Problems. International Journal of Knowledge Based Intelligent Engineering Systems, IOS Press, Vol. 9(1), pages 22-33, 2005.

J4. M. Mouhoub. Reasoning with Numeric and Symbolic Time Information. Artificial Intelligence Review. Kluwer Academic Publishers. Vol. 21, pages 25-56, 2004.

J3. M. Mouhoub. Systematic versus non systematic techniques for solving temporal constraints in a dynamic environment. AI Communications, IOS Press, Vol. 17(4), pages 201-211, 2004.

J2. M. Mouhoub. A Hopfield Type Neural Net Based Model for Temporal Constraints. International Journal of Artificial Intelligence Tools (IJAIT), World Scientific Publishing, pages 533-545, Vol. 13(3), 2004.

J1. M. Mouhoub, F. Charpillet and J.P. Haton. Experimental Analysis of Numeric and Symbolic Constraint Satisfaction Techniques for Temporal Reasoning. Constraints: An International Journal, Vol. 2, pages 151-164, Kluwer Academic Publishers, June 1998.

Refereed Book Chapters

BC4. M. Mouhoub and J. Liu. Probabilistic Temporal Network for Numeric and Symbolic Time Information. Knowledge-Based Intelligent System Advancements: Systemic and Cybernetic Approaches, Advances in Artificial Intelligence Technologies series. J. Jozefczyk and D. Orski editors, pages 67-86, IGI Global, 2011.

BC3. M. Mouhoub and C. Feng. CSP Techniques for Solving Combinatorial Queries within Relational Databases. Intelligent Systems for Knowledge Management. Studies in Computational Intelligence, Springer, pages 131-151, 2009.

BC2. S. Sadaoui, M. Mouhoub and X.F. Li. An OCL-based CSP Specification and Solving Tool. New Challenges in Applied Intelligence Technologies, Studies in Computational Intelligence, pages 235-244, Vol. 134, Springer 2008.

BC1. M. Mouhoub. Extending Allen Algebra to Manage Symbolic and Metric Temporal Information. Planning and Scheduling. Frontiers in Artificial Intelligence and Applications Series, pages 59-68, Vol 117, IOS Press, L. Castillo, D. Borrajo, M.A. Salido & A. Oddi editors, 2004.

Refereed Conference and Workshop papers
I have published over 100 papers in Conference and Workshop Proceedings.

Samira Sadaoui

Professor

sadaouis@uregina.ca, (306) 337-2340

Education and Professional Development

2000: Ph.D. in Computer Science, Univ. of Nancy I, France
1995: M.Sc. in Computer Science, Univ. of Nancy I, France
1993: State Engineer Diploma, Computer Science, Univ. of Tizi-Ouzou, Algeria

Employment History

2012-present: Full Professor in Computer Science, Univ. of Regina.
2006-2012: Assistant Professor in Computer Science, Univ. of Regina
2002-2006: Assistant Professor in Computer Science, Univ. of Regina

Teaching History

CS115 - Object-Oriented Design: {www2.cs.uregina.ca/~sadaouis/CS115/CS115.html}
CS230 - Fundamentals of Computer Science III: {www2.cs.uregina.ca/~sadaouis/CS230/index230.html}
CS372 - Software Engineering Methodology: {www2.cs.uregina.ca/~sadaouis/CS372/index.htm}
CS476 - Software Development Projects: {www2.cs.uregina.ca/~sadaouis/CS476/CS476.pdf}
CS872 - Software Engineering: {www2.cs.uregina.ca/~sadaouis/CS872/indexCS872.html}
Numerous reading courses at the undergraduate and graduate levels.

Student Supervision

Completed:
1. Swati Ganguly, MSc (Jan. 2015 - Dec. 2016).
2. Khulood Almonami, MSc (Sept. 2014- Nov. 2016).
3. Xuegang Wang, MSc (Sept. 2014 - April 2016).
4. Jessie Zhang, MSc (Sept. 2012 - Nov. 2014).
5. Sadra Abedinzadeh, PhD (Jan. 2008 - Nov. 2013).
6. Shubhashis Kumar Shil, MSc (Jan. 2012 - Nov. 2013).
7. Tahani Mansour, MSc (Jan. 2012 - April 2013).
8. Wei Jiang, MSc (Jan. 2009 - June 2011).
9. Hadeel Bin Amer, MSc (Jan. 2009 - Jan. 2011).
10. Farnaz Ghavamifar, MSc (Jan. 2008 - Oct. 2010).
11. Nima Sharifimehr, MSc (Jan. 2006 - May 2008
12. Chang Feng, MSc (Sept. 2005 - Jan. 2008).

In Progress: I am currently supervising **6 PhD students.**

University Service

Univ. of Regina:
- Lecturer Position Search Committee, Faculty of Education, 2016-2017.
- SSHRC Doctoral Selection Committee, Fall 2016.
- Campus Promotion Committee, 2014-2016.
- Canada Graduate Scholarships NSERC - Master's Program Committee, FGSR, 2015
- Vanier Canada Graduate Scholarships Committee, FGSR, 2011.
- URFA Equity Committee, 2012-2015.
- URFA Status of Women Committee, co-chair in 2013-2014, and member in 2010-2013.
- FGSR Executive Council, 2006-2008.
- Student Appeals Committee, 2007-2010.

Dept. of Computer Science:
- Scholarship and Honours, coordinator in 2014-2015.
- Co-op Committee, chair in 2013-2014.
- Graduate Committee, chair in 2007-2008.

- Web Committee, 2012-2014.
- Graduate committee, 2006-2007 and 2011-2013.
- Co-op Committee, 2010-2013 and 2015-2017.
- Curriculum Committee, 2015-2017.
- Seminar Committee, 2009-2010.

Faculty of Science:
- Lab Instructor Review Committee, 2015-2017.
- Representative to Faculty of Education, 2011-2014.
- Scholarship Committee, 2006-2008.

Scholarly Research

Refereed International Journals

1. S. Sadaoui and **X. Wang** . A Dynamic Stage-based Fraud Monitoring Framework of Multiple Live Auctions. *Applied Intelligence Journal,* pp. 1-17, DOI: 10.1007/s10489-016-0818-7, August 2016.
2. S. Sadaoui and **S. K. Shil**. A Multi-Attribute Auction Mechanism based on Conditional Constraints and Conditional Qualitative Preferences. *Journal of Theoretical and Applied Electronic Commerce Research*, Vol. 11, Num. 1, pp. 1-25, January 2016.
3. **S. Zhang**, S. Sadaoui and M. Mouhoub. An Empirical Analysis of Imbalanced Data Classification. *Computer and Information Science*, Vol. 8, Num. 1, pp. 151-162, February 2015.
4. **S. Abedinzadeh** and S. Sadaoui. Identifying Factors for Managing Trust in Open Multi-Agents Systems. *International Journal of Information Engineering*, American V-King Scientific Publishing, Vol. 4, Num. 3, pp 68-77, Sep. 2014.
5. **S. Abedinzadeh** and S. Sadaoui. A Trust-based Service Suggestion System using Human Plausible Reasoning. *Applied Intelligence, The International Journal of Artificial Intelligence, Neural Networks, and Complex Problem-Solving Technologies*, Vol. 41. Num. 1. pp. 55-75, Springer US, January 2014, DOI: 10.1007/s10489-013-0495-8.
6. **S. Abedinzadeh** and S. Sadaoui. A Rough Sets-based Agent Trust Management Framework. *International Journal of Intelligent Systems and Applications*, Vol. 5, Num. 4, pp. 1-19, MECS Publisher, March 2013.
7. **B. Mohammed**, M. Mouhoub, **E. Alanazi** and S. Sadaoui. Data Mining Techniques and Preference Learning in Recommender Systems. *Computer and Information Science*, Vol. 6, Num. 4, pp. 88-102, Canadian Center of Science and Education, September 2013.
8. **S. K. Shil**, S. Sadaoui and M. Mouhoub. Evolutionary Techniques for Reverse Auctions. *Intelligent Control and Automation*, Vol. 4, Num. 4, pp. 371-378, Scientific Research, 2013.
9. S. Sadaoui, M. Mouhoub and **X. F. Li**. Specifying and Solving Symbolic and Numeric Temporal Constraints. *International Journal of Knowledge-based and Intelligent Engineering Systems*, Vol. 17, Num. 3, pp. 209-217, IOS Press, 2013.
10. **W. Jiang** and S. Sadaoui. Evaluating and Ranking Semantic Offers According to Users' Interests. *Journal of Electronic Commerce Research*, Vol. 13, Num. 1, pp 1-22, February 2012.
11. S. Sadaoui, M. Mouhoub and **B. Chen**. An Efficient Lotos-based Framework for Describing and Solving Temporal CSPs. *International Journal of Software Engineering & Knowledge Engineering*, Vol. 19, Num. 6, pp. 765-789, World Scientific Publishing, Sept. 2009.
12. M. Mouhoub and S. Sadaoui. Solving Incremental Satisfiability. *International Journal on Artificial Intelligence Tools*, Vol.16, Num. 1, pp. 139-147, World Scientific Publishing, October 2007.

Refereed Book Chapters

1. **S. K. Shil**, M. Mouhoub and S. Sadaoui. Winner Determination in Multi-Attribute Combinatorial Reverse Auctions. *Neural Information Processing* , Vol. 9491, pp. 645-652, LNCS, Springer, ICONIP, November 2015.
2. S. Sadaoui, **X. Wang** and **D. Qi**. A Real-Time Monitoring Framework For Online Auctions Frauds. *Current Approaches in Applied Artificial Intelligence* , Springer, pp. 97-108, June 2015.
3. **S. Zhang**, M. Mouhoub and S. Sadaoui. Integrating TCP-Nets and CSPs: The Constrained TCP-Net (CTCP-Net) Model. *Current Approaches in Applied Artificial Intelligence* , Springer, pp. 201-211, June 2015
4. **S. K. Shil**, M. Mouhoub and S. Sadaoui. Winner Determination in Combinatorial Reverse Auctions. *Contemporary Challenges and Solutions in Applied Artificial Intelligence* , Springer, pp. 35-40, June 2013.
5. S. Sadaoui, M. Mouhoub and **X. F. Li**. An OCL-based CSP Specification and Solving Tool. *New Challenges in Applied Intelligence Technologies*. Studies in Computational Intelligence, Vol. 134, pp. 235-244, Springer, N.T. Nguyen and R. Katarzyniak (Eds.), 2008.

Refereed Conference Publications

1. **S. K. Shil** and S. Sadaoui. Winner Determination in Multi-Objective Combinatorial Reverse Auctions. *IEEE International Conference on Tools with Artificial Intelligence*, ICTAI, November 2016, CA (Best Paper Award).
2. **S. K. Shil**, M. Mouhoub and S. Sadaoui. An Evolutionary Technique for Combinatorial Reverse Auctions. *Proc. of the 28th International Florida Artificial Intelligence Research Society Conference*, FLAIRS, pp. 79-84, May 2015.
3. S. Sadaoui and **S. K. Shil**. Constraint and Qualitative Preference Specification in Multi-Attribute Reverse Auctions, *Proc. of 27th International Conference on Industrial, Engineering & Other Applications of Applied Intelligent Systems*, IEA-AIE, pp. 497-506, June 2014.
4. **S. K. Shil**, M. Mouhoub and S. Sadaoui. An Approach to Solve Winner Determination in Combinatorial Reverse Auctions Using Genetic Algorithms, *Proc. of Genetic and Evolutionary Computation Conference*, GECCO, short paper, ACM, pp. 75-76, July 2013.
5. **S. Abedinzadeh** and S. Sadaoui. ScubAA: A Human Plausible Reasoning Approach to Agent Trust Management, *Proc. of 25th International Conference on Software Engineering and Knowledge Engineering*, SEKE, poster paper, pp. 1-2, June 2013.
6. **S. Abedinzadeh** and S. Sadaoui. Trust Management based on Human Plausible Reasoning: Application to Web Search. *Proc. of 4th IEEE International Conference on Information Privacy, Security, Risk and Trust*, PASSAT, ASE/IEEE, pp. 760- 765, September 2012.
7. **W. Jiang** and S. Sadaoui. Comparing the MNL Model with an Individual Interest Model. *Proc. of International Conference on e-CASE and e-TECH*, pp. 66-80, March 30- April 2012.
8. S. Sadaoui and **W. Jiang**. An Offer Evaluation System based on Buyer's Interests. *Proc. of 26th Annual ACM Symposium On Applied Computing*, ACM SAC, short paper, March 2011.
9. **S. Abedinzadeh** and S. Sadaoui. A Rough Set Approach to Agent Trust Management. *Proc. of International Symposium on Privacy and Security Applications, PSA*, IEEE Computer Society, pp. 1064-1071, Aug. 2010
10. **N. Sharifimehr** and S. Sadaoui. Markovian Workload Modeling for Enterprise Application Servers. *Proc. of Canadian Conference on Computer Science and Software Engineering*, C3S2E'09, pp. 161-168, ACM Press, May 2009
11. **N. Sharifimehr** and S. Sadaoui. A Dynamic Semi-Markovian Workload Modeling. *Proc. of 10th International Conference on Enterprise Information Systems*, ICEIS, pp. 125-130, June 12-16 2008
12. S. Sadaoui, M. Mouhoub and **X.F. Li**. An OCL-based CSP Specification and Solving Tool. *, Proc. of 21st International Conference on Industrial, Engineering & Other Applications of Applied Intelligent Systems*, IEA/AIE
13. **N. Sharifimehr** and S. Sadaoui. An Extended Concurrency Control Service for CORBA. *Proc. of 19th Australian Software Engineering Conference*, ASWEC, IEEE Computer Society, pp. 330-337, March 2008
14. S. Sadaoui and **S. Srisodsai**. A Multi-Language Information Searching Tool. *Proc. of 2nd International Conference on Software Engineering Advances*, ICSEA, IEEE Computer Society, pp. 49, August 2007 (acceptance rate: 32%).
15. **N. Sharifimehr** and S. Sadaoui. A Predective Automatic Tuning Service For Object Pooling Based On Dynamic Markov Modeling. *Proc. of 2nd International Conference on Software and Data Technologies*, ICSOFT, pp. 38-45, July 2007.

Refereed Workshop proceedings

1. M. Mouhoub, S. Sadaoui and **S. Zhang**. Constrained TCP-nets. *M-PREF16, IJCAI*, July 2016.
2. S. Sadaoui and **W. Jiang**. An Interest-based Offer Evaluation System for Semantic Matchmakers. *Fourth International Workshop on Service Matchmaking and Resource Retrieval in the Semantic Web*, SMR2, pp 1-16, A. Bernstein, P. Grace, M. Klusch and M. Paolucci (eds), ISWC 2010.
3. S. Sadaoui, M. Mouhoub and **X.F. Li**. An UML-based Temporal Constraint Solver. *Workshop on Spatial and Temporal Reasoning, International Joint Conference on Artificial Intelligence*, IJCAI-07, Jan. 2007.

Boting Yang

Professor

boting.yang@uregina.ca, (306) 585 4774,

Education and Professional Development

Ph.D. in Computer Science, Memorial University of Newfoundland, 2002.
Ph.D. in Mathematics, Xi'an Jiaotong University, 1995.
M.Sc. in Mathematics, Xi'an Jiaotong University, 1991.
B.Sc. in Mathematics, Fudan University, 1988.

Employment History

July 2011 - present: Professor, Dept. of Computer Science, University of Regina
July 2014 - present: Research Scientist, Institute for Energy, Environment and Sustainable Communities, University of Regina
Jan. 2015 - May 2015: Visiting Professor, Dept. of Computer Science, The University of Hong Kong
July 2006 - June 2011: Associate Professor, Dept. of Computer Science, University of Regina
Aug. 2008 – Dec. 2008: Visiting Professor, Dept. of Computer Science and Engineering, Chinese University of Hong Kong
July 2002 - June 2006: Assistant Professor, Dept. of Computer Science, University of Regina

Teaching History

Programming and Problem Solving for Natural Sciences (CS110): 2005S, 2007W.
Discrete Computational Structure (CS310): 2017W, 2016W, 2014W, 2009W.
Algorithms and Data Structures (CS340): 2009W, 2011F, 2014F.
Introduction to Compiler Design (CS410): 2010F, 2012F, 2014F, 2016F.
Computability and Formal Languages (CS411): 2005F, 2007F, 2009F, 2011F, 2013F, 2015F.
Algorithm Analysis (CS412): 2005W, 2006W, 2007W, 2008W, 2010W, 2011W, 2012W, 2013W, 2014W, 2016W, 2017W.
Theory of Computing (CS811): 2006F, 2009F, 2011W, 2013W, 2013F, 2015F, 2015F.
Searching Networks (CS890CP): 2012F, 2013S, 2014F, 2016S.
Topics in Algorithm Analysis (CS890EM): 2016W, 2017W.
Heuristic Algorithms (CS890CO): 2007F, 2011W.
Computability and Complexity (CS890AK): 2012W.
Seminars (CS499/900): 2009F, 2010W, 2010S, 2014W, 2014F, 2016W.

Student Supervision

Name	Position	Dates of supervision
Pavel Semukhin	Post-doctoral fellow	Sept. 2011 – Sept. 2013
Yuan Xue	Ph.D. student	Sept. 2014 - present
Guo Li	Ph.D. student	Jan. 2008 – Dec. 2016
Rahim Samei	Ph.D. student	May 2011 - May 2015

| Ray Shulang Lei | MSc. student | Sept. 2012 - July 2015 |
| Babar Majeed | MSc. student | Sept. 2012 – May 2014 |

University Service

I have served in departmental Graduate Coordinator, Graduate Committee, Planning Committee, Honours Program Coordinator, Undergraduate Scholarship Committee, NSERC USRA Selection Committee, NSERC PGS Selection Committee, Co-op Committee, Faculty Search Committee, Seminars Committee, Representative of Faculty of Science to Faulty of Engineering, Representative of Faculty of Science to Faulty of Arts, Representative to Library, and the university Executive of Council.

Scholarly Research

Papers published in refereed journals (2006 - 2016)

1. B. Yang, Lower bounds for positive semidefinite zero forcing and their applications, Journal of Combinatorial Optimization, accepted.
2. J. Jia, B. Yang and S. Liu, On a homogeneous recurrence relation for the determinants of general pentadiagonal Toeplitz matrices, Computers and Mathematics with Applications, Vol. 71, pp.1036--1044, 2016.
3. S. Fallat, K. Meagher and B. Yang, On the complexity of the positive semidefinite zero forcing number, Linear Algebra and its Applications, Vol. 491, pp.101--122, 2016.
4. I. Kanj, G. Lin, T. Liu, W. Tong, G. Xia, J. Xu, B. Yang, F. Zhang, P. Zhang and B. Zhu, Improved parameterized and exact algorithms for cut problems on trees, Theoretical Computer Science, Vol. 607, part 3, pp.455--470, 2015.
5. B. Yang and W. Hamilton, The Optimal Capture Time of the One-Cop-Moves Game, Theoretical Computer Science, Vol. 588, pp.96--113, 2015.
6. D. Dereniowski, D. Dyer, R. Tifenbach and B. Yang, The complexity of zero-visibility cops and robber, Theoretical Computer Science, Vol. 607, part 2, pp.135--148, 2015.
7. D. Dereniowski, D. Dyer, R. Tifenbach and B. Yang, Zero-Visibility Cops & Robber and the Pathwidth of a Graph, Journal of Combinatorial Optimization, Vol. 29, pp.541--564, 2015.
8. D. Kirkpatrick, B. Yang and S. Zilles, A Polynomial-Time Algorithm for Computing the Resilience of Arrangements of Ray Sensors, International Journal of Computational Geometry and Applications, Vol. 24, pp.225--236, 2014.
9. Z. Chen, B. Fu, R. Goebel, G. Lin, W. Tong, J. Xu, B. Yang, Z. Zhao and B. Zhu, On the approximability of the exemplar adjacency number problem for genomes with gene repetitions, Theoretical Computer Science, Vol. 550, pp.59--65, 2014.
10. R. Samei, P. Semukhin, B. Yang and S. Zilles, Algebraic Methods Proving Sauer's Bound for Teaching Complexity, Theoretical Computer Science, Vol. 558, pp.35--50, 2014.
11. B. Yang, Fast-mixed searching and related problems on graphs, Theoretical Computer Science, Vol. 507, pp.100--113, 2013.
12. B. Yang, Euclidean Chains and Their Shortcuts, Theoretical Computer Science, Vol. 497, pp.55--67, 2013.
13. Y. Zou, G.H. Huang and B.T. Yang, Water resources management under multi-parameter interactions: A factorial multi-stage stochastic programming approach, Omega -- The International Journal of Management Science, Vol. 41, Issue 3, pp.559--573, 2013.
14. S. Wang, G.H. Huang and B.T. Yang, An interval-valued fuzzy-stochastic programming approach and its application to municipal solid waste management, Environmental Modelling & Software, Vol. 29, Issue 1, pp.24--36, 2012.
15. B. Yang, Fast edge-searching and fast searching on graphs, Theoretical Computer Science, Vol. 412, pp.1208--1219, 2011.
16. L. Cai and B. Yang, Parameterized Complexity of Even/Odd Subgraph Problems, Journal of Discrete Algorithms, Vol. 9, No. 3, pp.231--240, 2011.
17. S. Bereg, M. Jiang, B. Yang and B. Zhu, On the Red/Blue Spanning Tree Problem, Theoretical Computer Science, Vol. 412, pp.2459--2467, 2011.
18. D. Stanley and B. Yang, Fast searching games on graphs, Journal of Combinatorial Optimization, Vol. 22, No. 4, pp.763--777, 2011.
19. B. Yang, D. Dyer and B. Alspach, Searching Graphs with Large Clique Number, Discrete Mathematics, Vol. 309, No. 18, pp.5770--5780, 2009.
20. B. Yang and Y. Cao, Standard directed search strategies and their applications, Journal of Combinatorial Optimization, Vol. 17, No. 4, pp.378--399, 2009.

21. B. Yang and Y. Cao, Monotonicity in Digraph Search Problems, Theoretical Computer Science, Vol. 407, No.1-3, pp.532--544, 2008.
22. B. Alspach, D. Dyer, D. Hanson and B. Yang, Time constrained Searching, Theoretical Computer Science, Vol. 399, No.3, pp.158--168, 2008.
23. Z. Chen, B. Fu, R. Schweller, B. Yang, Z. Zhao and B. Zhu, Linear Time Probablistic Algorithms for the Singular Haplotype Reconstruction Problem from SNP Fragments, Journal of Computational Biology, Vol. 15, No. 5, pp.535--546, 2008.
24. B. Yang and Y. Cao, Digraph searching, directed vertex separation and directed pathwidth, Discrete Applied Mathematics, Vol.156, pp.1822--1837, 2008.
25. B. Yang and Y. Cao, Monotonicity of strong searching on digraphs, Journal of Combinatorial Optimization, Vol.14, No.4, pp.411--425, 2007.
26. C. Worman and B. Yang. On the tileability of polygons with colored dominoes. Discrete Mathematics and Theoretical Computer Science, Vol.9, No.1, pp.107--126, 2007.
27. B. Yang, Strong-mixed searching and pathwidth, Journal of Combinatorial Optimization, Vol.13, No.1, pp.47--59, 2007.
28. C.J. Butz, W. Yan and B. Yang, An efficient algorithm for inference in rough set flow graphs, Transactions on Rough Sets, Vol.5, pp.102--122, 2006.

Papers published in refereed conference proceedings (2011 - 2016)

1. Y. Xue and B. Yang, Fast Searching on Cartesian Products of Graphs, Proceedings of the 14th International Conference on Theory and Applications of Models of Computation, Lecture Notes in Computer Science, to appear.
2. Y. Xue, B. Yang, F. Zhong and S. Zilles, Fast Searching on Complete k-partite Graphs, Proceedings of the 10th International Conference on Combinatorial Optimization and Applications (COCOA'16), Lecture Notes in Computer Science, Vol. 10043, Springer, Berlin, pp.159--174, 2016.
3. Shaun M. Fallat, Karen Meagher, Abolghasem Soltani, and Boting Yang, Positive Zero Forcing and Edge Clique Coverings, Proceedings of the 10th International Frontiers of Algorithmics Workshop (FAW'16), Lecture Notes in Computer Science, Vol. 9711, Springer, Berlin, pp.53--64, 2016.
4. B. Yang, Positive Semidefinite Zero Forcing: Complexity and Lower Bounds, Proceedings of the 14th International Workshop on Algorithms and Data Structures (WADS'15), Lecture Notes in Computer Science, Vol. 9214, Springer, Berlin, pp.629--639, 2015.
5. Shaun M. Fallat, Karen Meagher and Boting Yang, The Complexity of the Positive Semidefinite Zero Forcing, Proceedings of the 8th International Conference on Combinatorial Optimization and Applications (COCOA'14), Lecture Notes in Computer Science, Vol. 8881, Springer, Berlin, pp.681--693, 2014.
6. Iyad A. Kanj, Guohui Lin, Tian Liu, Weitian Tong, Ge Xia, Jinhui Xu, Boting Yang, Fenghui Zhang, Peng Zhang and Binhai Zhu: Algorithms for Cut Problems on Trees, Proceedings of the 8th International Conference on Combinatorial Optimization and Applications, Lecture Notes in Computer Science, Vol. 8881, Springer, Berlin, pp.283--298, 2014.
7. R. Samei, B. Yang and S. Zilles, Generalizing Labeled and Unlabeled Sample Compression to Multi-label Concept Classes, Proceedings of the 25th International Conference on Algorithmic Learning Theory (ALT'14), Lecture Notes in Artificial Intelligence, Vol. 8776, Springer, Berlin, pp.275--290, 2014.
8. R. Samei, P. Semukhin, B. Yang and S. Zilles, Sample Compression for Multi-label Concept Classes, Proceedings of the 27th Annual Conference on Learning Theory (COLT 2014), JMLR: Workshop and Conference Proceedings, Vol. 35, pp.371--393, 2014.
9. D. Dereniowski, D. Dyer, R. Tifenbach and B. Yang, The Complexity of Zero-Visibility Cops and Robber, Proceedings of the 8th International Frontiers of Algorithmics Workshop, Lecture Notes in Computer Science, Vol. 8497, Springer, Berlin, pp.60--70, 2014.
10. D. Dereniowski, D. Dyer, R. Tifenbach and B. Yang, Zero-Visibility Cops and Robber Game on a Graph, Proceedings of the 7th International Frontiers of Algorithmics Workshop and the 9th International Conference on Algorithmic Aspects in Information and Management, Lecture Notes in Computer Science, Vol. 7924, Springer, pp.175--186, 2013.
11. B. Yang, Fast-Mixed Searching on Graphs, Proceedings of the 6th International Conference on Combinatorial Optimization and Applications, Lecture Notes in Computer Science, Vol. 7402, Springer, pp.324--335, 2012.
12. R. Samei, P. Semukhin, B. Yang and S. Zilles, Sauer's Bound for a Notion of Teaching Complexity, Proceedings of the 23rd International Conference on Algorithmic Learning Theory (ALT'12), Lecture Notes in Artificial Intelligence, Vol. 7568, Springer-Verlag, Berlin, pp.96--110, 2012.
13. B. Yang, Euclidean Chains and Their Shortcuts, Proceedings of the 5th International Conference on Combinatorial Optimization and Applications, Lecture Notes in Computer Science, Vol. 6831, Springer, pp.141-155, 2011.
14. B. Fu, H. Jiang, B. Yang and B. Zhu, Exponential and Polynomial Time Algorithms for the Minimum Common String Partition Problem, Proceedings of the 5th International Conference on Combinatorial Optimization and Applications (COCOA'11), Lecture Notes in Computer Science, Vol. 6831, Springer-Verlag, Berlin, pp.299--310, 2011.

Xue-Dong Yang

Professor

xuedong.yang@uregina.ca, (306) 585 - 4692,

Education and Professional Development

- *B.Sc.* in computer science, Hefei University of Technology, China, Jan. 1982.
- *M.Sc.* in computer science, New York University, USA, Sept. 1984.
- *Ph.D.* in computer science, New York University, USA, Sept. 1988.
- *Post-Doctor*, Supervisor: John Hopcroft, Cornell University, USA, Sept. 1988 – Dec. 1989.

Employment History

- *Professor*, Department of Computer Science, University of Regina, 2000 – present
- *Head*, Department of Computer Science, University of Regina, May 2007 – June 2013
- *Founding Director*, Confucius Institute, University of Regina, July 2011 – June 2012
- *Acting Associate Dean (International)*, Faculty of Graduate Studies and Research, University of Regina, January 2015 – December 2015

Teaching History

- CS110 – Programming and Problem Solving
- CS315 – Introduction to Computer Graphics
- CS405 – Computer Graphics
- CS425 – Image Processing
- CS805 – Computer Graphics
- CS825 – Image Processing

Student Supervision

Name	Position	Dates of supervision
Xueguang Chen, PhD	Co-Supervisor	Completed in Feb. 2015
Richard Dosselmann, PhD	Supervisor	Completed in July 2012
Marian Moise, MSc (Thesis)	Supervisor	Completed in Aug 2012

Yang He, MSc (Thesis)	Supervisor	Completed in Aug 2010
Brien Beattie, MSc (Thesis)	Supervisor	Completed in Oct 2010
Hao Guo, MSc (Thesis)	Supervisor	Completed in Dec 2009
Orland Hoeber, PhD	Supervisor	Completed in April 2007
Cara Gibbs, MSc (Thesis)	Supervisor	Completed in April 2007
Peter Kort, MSc (Thesis)	Supervisor	Completed in Aug 2007
Rick Chakma, MSc (Project)	Supervisor	Completed in Feb 2016
Alex Wang, MSc (Project)	Supervisor	Completed in 2013
He Tian, MSc (Project)	Supervisor	Completed in Aug 2008
Bingyang Liu, MSc (Thesis)	Supervisor	Sept 2015 -
Zhi Cao, MSc (Thesis)	Supervisor	Sept 2015 -
Anthony Beug, MSc (Thesis)	Co-Supervisor	Sept 2016 -
Hongli Lin, Visiting Scholar	Supervisor	June 2013 – June 2014
Weisheng Wang, Visiting Scholar	Supervisor	March 2013 – March 2014
Xi Deng, Visiting Scholar	Supervisor	Sept 2014 – Aug 2015
Weihong Ma, Visting Scholar	Supervisor	Jan 2015 – Feb 2016

University Service

- Credit Transfer evaluation (CS Department)
- Dept Graduate Committee
- Dept Curriculum Committee
- Judger at Regional Science Fair

Scholarly Research

H. Lin, X.D. Yang and W. Wang. "A Content-Boosted Collaborative Filtering Algorithm for Personalized Training in Interpretation of Radiological Imaging" *Journal of Digital Imaging*, 27(4): 449-456, 2014.

H. Lin, X.D. Yang, W. Wang, and J. Luo. "A Performance Weighted Collaborative Filtering Algorithm for Personalized Radiology Education". *Journal of Biomedical Informatics*, 51:107-113, 2014.

H. Lin, W. Wang, J. Luo and X.D. Yang. "Development of a Personalized Training System Using the Lung Image Database Consortium and Image Resource Initiative". *Academic Radiology*, 21(12):1614-1622, 2014.

M. Moise, X.D. Yang and R. Dosselmann. "A Two-Part Approach to Face Recognition: Generalized Hough Transfor and Image Descriptors". A. Fred and M. De Marsico (eds.) *Pattern Recognition Applications and Methods, Advances in Intelligent Systems and Computing 318*, Springer, 2014.

R. Dosselmann, and X.D. Yang, "Improved Method of Finding the Illuminant Direction of a Sphere." *Journal of Electronic Imaging*, 22(1), March 2013.

Dosselmann, R. and X.D. Yang, "A comprehensive assessment of the structural similarity index." *Journal of Signal, Image and video Processing*, Springer, 5(1): 81-91, 2011.

O. Hoeber and X. D. Yang, "Supporting Web Search With Visualization", In *Web-based Support Systems*, Springer, pp. 183-214, 2010.

Xiao, Q. and X.D. Yang, "Facial recognition in uncontrolled conditions for information security." *EURASIP Journal on Advances in Signal Processing - Special Issue on Advanced Image Processing for Defense and Security Applications*, Vol 2010, February 2010.

Hoeber, O. and X. D. Yang, "HotMap: Supporting visual explorations of Web search results," *Journal of the American Society for Information Science and Technology*, 60(1), pp. 90-110, 2009.

Hoeber, O. and X. D. Yang, Evaluating WordBars in exploratory Web search scenarios, *Information Processing & Management, 44(2), pp. 485-510, 2008.*

Hoeber, O. and X. D. Yang, and Y. Yao, "VisiQ: supporting visual and interactive query refinement", *Web Intelligence and Agent Systems, an International Journal*, 5(3):311-329, 2007.

M. Moise, X.D. Yang and R. Dosselmann. "Face Recognition using Modified Generalized Hough Transform and Gradient Distance Descriptor". *2nd International Conference on Pattern Recognition, Applications and Methods*, pp.5-10, February 2013.

R. Dosselmann and X.D. Yang. "A Rank-Order Comparison of Image Quality Metrics." *Proc. 2013 IEEE CCECE*, pp.325-328, May 2013.

Mohd Anwar, Philip W. L. Fong, Xue-Dong Yang, and Howard Hamilton. Visualizing Privacy Implications of Access Control Policies in Social Network Systems. In *Proceedings of the 4th International Workshop on Data Privacy Management (DPM'09) volume 5939 of Lecture Notes in Computer Science*, pages 106--120, Saint Malo, France, September 24-25, 2009.

Dosselmann, R. and X. D. Yang, "An empirical assessment of the structural similarity index."
Proc. Canadian Conf. on Electrical and Computer Engineering (CCECE '09). May 2009, St. John's, NF, pp.112 – 116.

Xiao, Q. and X. D. Yang, "A facial presence monitoring system for information security." *Proc. IEEE Symposium Series on Computational Intelligence in Biometrics: Theory, Algorithms and Applications (CIB2009)*, March 2009, Nashville, TN, pp.69-76.

Dosslemann, R. and X.D. Yang, "Mean Shift Particle-Based texure Granularity," *Proc. Of 2008 IEEE International Instrumentation and measurement technology Conference*, pp.101-106, May 2008.

Dosselmann, R. and X.D. Yang, "Mean Shift Point-Mass Level-of-Detail," *Proc. of 21st Canadian Conference on Electrical and Computer Engineering*, pp.37-42, May 2008.

JingTao Yao

Professor

jtyao@cs.uregina.ca, (306) 585 4071

Education and Professional Development

PhD (Information Systems), 1999, School of Computing, National University of Singapore

MSc (Software Engineering), 1988, Department of Computer Science and Engineering, Xi'an Jiaotong University

BEng (Computer Software), 1983, Department of Computer Science and Engineering, Xi'an Jiaotong University.

Employment History

2011- present, Professor, 2007- 2011, Associate Professor (tenured),

Department of Computer Science, Faculty of Science, University of Regina, Canada

Teaching History

CS110	Programming and Problem Solving For Natural Sciences
CS335	Data Communications and Networks
CS473	Management Support Systems
CS490CJ	Electronic Commerce and Web Applications
CS890CB	Research Methods in CS
CS890CS	Time Series Forecasting
CS839	Web Intelligence and Electronic Commerce

Student Supervision

Name	Position	Dates of supervision
Nouman Azam	Assistant Professor, Pakistan	2010-2014
Joseph Herbert	Associate Principal, Regina	2006-2010
Ying Zhou	System Analyst, Regina	2012-2-14
Sojung Kim	System Analyst, Regina	2011-2013

Dong Won Kim	System Analyst, South Korea	2006-2009
Songlun Zhao	System Analyst, USA	2004-2007
Abdulaziz Aljuaied	System Analyst, Saudi Arabia	2009-2012
Yu Song	Team leader, Regina	2006-2014
Junlong Mo	System Analyst, Regina	2015-2016

I supervised 5 visiting scholar/professors in the past 10 year.

I am currently supervising 3 PhD students, 2 MSc students, 1 visiting scholar, and 1 Postdoc Fellow

University Service

University: Undergraduate Scholarship Committee: Member/Co-Chair

Executive of Council: Member, Member

Advisory Committee on China Related Issues: Member

Faculty (FGSR): Vanier Selection Committee: Member

Department: Grad Committee: Member/Chair

Grad Co-op Committee: Member/Chair

Curriculum Committee: Member/Chair

Strategic Project: Coordinator

Website Committee: Member/Chair

Planning Committee: Member/Chair

Library: Representative

Scholarship Committee: Member/Chair

Canada Chair Search Committee Chair

MHIM Committee: Member

MHIM Coordinator Search Committee: Member

Industrial Advisory Committee: Member

External Community: International Rough Set Society: Treasurer, Steering Committee Member/Chair

Rough Set Technology Laboratory: Coordinator

The Web Intelligence Consortium (WIC) Canada Research Centre: Coordinator

PC member/PC Chair/Session Chair of international conferences,

Reviewer of international Journals

Member of Editorial Board of International Journal of Data Mining, Modelling and Management (IJDMMM)

Member of Editorial Board of International Journal of Granular Computing, Rough Sets and Intelligent Systems (IJGCRSIS)

Member of Editorial Board of Journal of Emerging Technologies in Web Intelligence (JETWI).

Member of Editorial Board of Journal of Intelligent Systems (JIS)

Editor-in-Chief of Computational Science and Engineering Software

Scholarly Research

Journal Articles

1. H.U. Rehman, N. Azam, J.T. Yao, and A. Benso, A Three-way Approach for Protein Function Classificatio, PLoS ONE (IF3.54, Q1) (Accepted), 2017.
2. N. Azam, Y. Zhang and J.T. Yao, Evaluation Functions and Decision Conditions of Three-way Decisions with Game-theoretic Rough Sets, European Journal of Operational Research (IF 2.679, Q1), (in press), 2017.
3. M.T. Khan, N. Azam, S. Khalid and J.T. Yao, A Three-way Approach for Learning Rules in Automatic Knowledge-based Topic Models, International Journal of Approximate Reasoning, (IF 2.696, Q1), 82:210-226, 2017.
4. Y. Zhang and J.T. Yao, Gini Objective Functions for Three-way Classifications, International Journal of Approximate Reasoning (IF 2.696, Q1), 81:103-114, 2017.
5. M. Nauman, N. Azam, and J.T. Yao, A Three-way Decision Making Approach to Malware Analysis Using Probabilistic Rough Sets, Information Sciences (IF 3.36, Q1), 374:193-209, 2016.
6. J.T. Yao, N. Azam, Web-based Medical Decision Support Systems for Three-way Medical Decision Making with Game-theoretic Rough Sets, IEEE Transactions on Fuzzy Systems (IF 6.3), 23(1):3-15, 2015. http://dx.doi.org/10.1109/TFUZZ.2014.2360548
7. N. Azam, J. T. Yao, Interpretation of Equilibria in Game-theoretic Rough Sets, Information Sciences (IF 3.89, Q1), 295:586-599, 2015. http://dx.doi.org/10.1016/j.ins.2014.10.046
8. N. Azam, J.T. Yao, Game-theoretic Rough Sets for Recommender Systems, Knowledge-Based Systems (IF 3.0), 72:96-107, 2014. http://dx.doi.org/10.1016/j.knosys.2014.08.030
9. T.R. Li, H.M. Chen, J.T. Yao, and H.S. Nguyen, Advances on Rough Sets and Knowledge Technology (preface), Fundamenta Informaticae, 132(3), i-iii, 2014. http://dx.doi.org/10.3233/FI-2014-1044
10. T.R. Li, Y. Yang, J.T. Yao, H.S. Nguyen J.F. Peters, and A. Skowron (eds.), Preface, JRS 2012 Special Issue, Transactions on Rough Sets, Volume XVIII, LNCS 8449, v-vi, 2014. http://dx.doi.org/10.1007/978-3-662-44680-5

11. J.T. Yao, A.V. Vasilakos and W. Pedrycz, Granular Computing: Perspectives and Challenges, IEEE Transactions on Cybernetics, 43(6):1977-1989, 2013,http://dx.doi.org/10.1109/TSMCC.2012.2236648

12. N. Azam, J. T. Yao, Analyzing Uncertainties of Probabilistic Rough Set Regions with Game-theoretic Rough Sets, International Journal of Approximate Reasoning, 55(1):142-155, 2014. http://dx.doi.org/10.1016/j.ijar.2013.03.015

13. J.T. Yao, H.X. Li, G. Peters, Decision-theoretic rough sets and beyond (editorial), International Journal of Approximate Reasoning, 55(1):99-100, 2014. http://dx.doi.org/10.1016/j.ijar.2013.09.022

14. J.T. Yao, A. Skowron, G.Y. Wang, H.S. Nguyen, Rough Sets and Knowledge Technology 2011, Preface, Fundamenta Informaticae, 126(4):i-iii, 2013. http://dx.doi.org/10.3233/FI-2013-882

15. X.P. Yang, J.T. Yao, Modeling Multi-agent Three-way Decisions with Decision-theoretic Rough Sets, Fundamenta Informaticae, 115(2-3): 157-171, 2012. http://dx.doi.org/10.3233/FI-2012-647

16. N. Azam and J.T. Yao, Comparison of Term Frequency and Document Frequency Based Feature Selection Metrics in Text Categorization, Expert Systems with Applications: An International Journal, 39(5):4760-4768, 2012. doi:10.1016/j.eswa.2011.09.160

17. J. P. Herbert, J.T. Yao, Game Theoretical Rough Sets, Fundamenta Informaticae, 108 (3-4):267-286, 2011. http://dx.doi.org/10.3233/FI-2011-423

18. D.W. Kim, J.T. Yao, A Treasure Hunt Model for Inquiry-based Learning in the Development of a Web-based Learning Support System, Journal of Universal Computer Science, 16(14):1853-1881, 2010. http://dx.doi.org/10.3217/jucs-016-14-1853

19. J.P. Herbert, J.T. Yao, A Granular Computing Framework for Self-Organizing Maps, Neurocomputing, 72(13-15):2865-2872, 2009. doi:10.1016/j.neucom.2008.06.031

20. J. T. Yao, Q. F. Zhang, J.S. Lei, Recent Developments on Natural Computation, Neurocomputing, 72(13-15): 2833-2834, 2009. doi:10.1016/j.neucom.2009.02.014

21. J.P. Herbert, J.T. Yao, Financial Time-series Analysis with Rough Sets, Applied Soft Computing, 9(3):1000-1007, 2009. doi: 10.1016/j.asoc.2009.01.003

22. Y. Wang, K.L. Wang, J. T. Yao, Marketing mixes for digital products: A study of marketspaces in China, The International Journal of Technology Marketing, 4(1): 15-42, 2009. dx.doi.org/10.1504/IJTMKT.2009.023554

23. J.P. Herbert, J.T. Yao, Criteria for Choosing a Rough Set Model, Computers and Mathematics with Applications, 57(6):908-918, 2009. doi:10.1016/j.camwa.2008.10.043

24. J. T. Yao, Y. Y. Yao, W. Ziarko, Probabilistic rough sets: Approximations, decision-makings, and applications (Editorial), International Journal of Approximate Reasoning, 49(2):253-254, 2008. doi:10.1016/j.ijar.2007.10.005

25. J.T. Yao, V.V. Raghavan, Z.H. Wu, Guest Editorial: Web Information Fusion, Information Fusion, 9(4):444-445, 2008. doi:10.1016/j.inffus.2008.05.001

26. J.T. Yao, V.V. Raghavan, Z.H. Wu, Web Information Fusion: a Review of the State of the Art, Information Fusion, 9(4): 446-449, 2008. doi:10.1016/j.inffus.2008.05.002

27. J.T. Yao, J.P. Herbert, A Game-Theoretic Perspective on Rough Set Analysis, 2008 International Forum on Knowledge Technology (IFKT'08), Journal of Chongqing University of Posts and Telecommunications, 20(3):291-298, 2008.

28. J. T. Yao, An Introduction to Web-based Support Systems, Journal of Intelligent Systems, 17(1-3):267-281, 2008.

29. Y. Wang, K.L Wang, J.T. Yao, An Analytical Study of Marketing Model for Digital Products in the Network Environment (in Chinese), Nankai Business Review (Bimonthly), 10(6):26-32, 2007.

In addition,

I have 34 conference papers, 9 book chapters published. I also edited 5 volumes of proceedings, 2 books, 7 journal special issues.

Yiyu Yao

Professors

yyao@uregina.ca, (306) 585 5226,

Education and Professional Development

Doctorate, 1988/9 - 1991/8, Computer Science, The University of Regina

Master's, 1986/1 - 1988/8, Computer Science, The University of Regina

Bachelor's, 1979/9 - 1983/7, Computer Science, Xi'an Jiaotong University

Employment History

2001/7 – present, Professor, Computer Science, The University of Regina

Teaching History

CS310 Discrete Computational Structures

CS320 Introduction to Artificial Intelligence

CS350 Programming Language Concepts

CS412 Advanced Artificial Intelligence

CS824 Information Retrieval

CS836 Rough Sets and Applications

Student Supervision

Name	Position	Dates of supervision
Kai Zhang	PDF	August 2016 - present
Cong Gao	PhD	January 2014 - present
Mengjun Hu	PhD	January 2015 - present
Liquan Zhao	PhD	September 2016 - present
Ruisi Ren	Vising PhD (co-supervision)	November 2015 - present
Xin Yang	Vising PhD (co-supervision)	September 2016 - present
Yanhong She	PDF	December 2013 - December 2014
Yan Zhao	PDF	May 2007 - April 2009
Xiaofei Deng	PhD	Spring 2015*
Jigan Luo	PhD	Spring 2014*
Yaohua Chen	PhD	Fall 2010*
Bing Zhou	PhD	Fall 2012*
Yan Zhao	PhD	Fall 2007*
Shu Wang	MSc (Thesis)	Spring 2016*
Mengju Hu	MSc (Thesis)	Spring 2015*
Kuifei Liu	MSc (Thesis)	Fall 2015*
Rong Fu	MSc (Thesis)	Spring 2013*

Bing Zhou	MSc (Thesis)	Fall 2008*
Napu Sun	MSc (Thesis)	Spring 2008*

Note: * Date of graduation. I also co-supervised 6 visiting PhD students. On average, I hosted 6 to 10 visiting scholars per year. Currently, I am hosting 6 visiting scholars.

University Service

Member and Section Chair of NSERC Computer Science evaluation group

Member and Chair of Council Committee on Research

Member, Search Advisory Committee of Dean of Faculty of Science

Member, PhD Committee, Faculty of Graduate Studies and Research

Elected Fellow, International Rough Set Society

Elected Vice President, International Rough Set Society

Chair, Association of Chinese Canadian Professors (Regina Chapter)

Scholarly Research

Statistical summary (2007-2016):

Refereed Journal Papers:	66	
Refereed Conference Papers:	81	
Refereed Book Chapters:	31	
Edited Books/Proceedings:	18	
Edited Journal Special Issues:	10	Total: 206

A list of Sample Journal Papers:

1. Yao, Y.Y., Rough-set concept analysis: Interpreting RS-definable concepts based on ideas from formal concept analysis, Information Sciences 346-347: 442-462, 2016.
2. Yao, Y.Y., Three-way decisions and cognitive computing, Cognitive Computation 8(4): 543-554, 2016.
3. Yao, Y.Y., A triarchic theory of granular computing, Granular Computing 1(2), 145-157, 2016.
4. Yao, Y.Y., She, Y.H., Rough set models in multigranulation spaces, Information Sciences 327: 40-56, 2016. (**Web of Science Highly Cited Paper***)
5. Yao, Y.Y., Zhou, B., Two Bayesian approaches to rough sets, European Journal of Operational Research 251: 904-917, 2016. (**Web of Science Highly Cited Paper***)
6. D'eer, L., Cornelis, C., Yao, Y.Y., A semantically sound approach to Pawlak rough sets and covering-based rough sets, International Journal of Approximate Reasoning 78: 62-72, 2016.
7. Jia, X.Y., Shang, L., Zhou, B., Yao, Y.Y., Generalized attribute reduct in rough set theory, Knowledge-Based Systems 91: 204-218, 2016. (**Web of Science Highly Cited Paper***)
8. Yao, Y.Y., The two sides of the theory of rough sets, Knowledge-based Systems 80: 67-77, 2015.
9. Yao, Y.Y., and Deng, X.F., Quantitative rough sets based on subsethood measures, Information Sciences 267: 306-322, 2014.
10. Deng, X.F., and Yao, Y.Y., Decision-theoretic three-way approximations of fuzzy sets, Information Sciences 279: 702-715, 2014.

11. Zhou, B., Yao, Y.Y. and Luo, J.G., Cost-sensitive three-way email spam filtering, Journal of Intelligent Information Systems 42(1): 19-45, 2014.

12. Chen, J.H., Ma, J.H., Zhong, N., Yao, Y.Y., Liu, J.M., Huang, R.H., Li, W.B., Huang, Z.S., Gao, Y., and Cao, J.P., WaaS - Wisdom as a service, IEEE Intelligent Systems 29(6): 40-47, 2014.

13. Yao, Y.Y., Duality in rough set theory based on the square of opposition, Fundamenta Informaticae 127(1-4): 49-64, 2013.

14. Yao, Y.Y. and Zhao, L.Q., A measurement theory view on the granularity of partitions, Information Sciences 213: 1-13, 2012.

15. Yao, Y.Y. and Yao, B.X., Covering based rough set approximations, Information Sciences 200: 91-107, 2012. (**Web of Science Highly Cited Paper***)

16. Yao, Y.Y., The superiority of three-way decisions in probabilistic rough set models, Information Sciences 181(6): 1080-1096, 2011. (**Web of Science Highly Cited Paper***)

17. Yao, Y.Y., Three-way decisions with probabilistic rough sets, Information Sciences 180(3): 341-353, 2010. (**Web of Science Highly Cited Paper***)

18. Qian, Y.H., Liang, J.Y., Yao, Y.Y., and Dang, C.Y., MGRS: A multi-granulation rough set, Information Sciences 180(6): 949-970, 2010. (**Web of Science Highly Cited Paper***)

19. Yao, Y.Y., Interpreting concept learning in cognitive informatics and granular computing, IEEE Transactions on Systems, Man, and Cybernetics, Part B: Cybernetics 39(4): 855-866, 2009.

20. Yao, Y.Y., and Zhao, Y. Discernibility matrix simplification for constructing attribute reducts, Information Sciences 179(5): 867-882, 2009.

21. Wang, G.Y., Yao, Y.Y. and Yu, H. A survey on rough set theory and its application, Chinese Journal of Computers (in Chinese) 32(7): 1229-1246, 2009.

22. Yao, Y.Y., Probabilistic rough set approximations, International Journal of Approximate Reasoning 49(2): 255-271, 2008. (**Web of Science Highly Cited Paper***)

23. Yao, Y.Y. and Zhao, Y., Attribute reduction in decision-theoretic rough set models, Information Sciences 178(17): 3356-3373, 2008. (**Web of Science Highly Cited Paper***)

Note: * "As of September/October 2016, this highly cited paper received enough citations to place it in the top 1% of the academic field of Computer Science based on a highly cited threshold for the field and publication year."

A list of Sample Conference Papers:

1. Zhou, B., Yao, Y.Y., Liu, Q.Z., Utilizing DTRS for imbalanced text classification. In: Flores, V., Gomide, F., Janusz, A., Meneses, C., Miao, D.Q., Peters, P., Slezak, D., Wang, G.Y., Weber, R., Yao, Y.Y. (eds.), IJCRS 2016, LNCS (LNAI), vol. 9920, pp. 219-228, 2016. (**Best Paper Award**)

2. Zhou, B., Yao, Y.Y., Decision-level sensor-fusion based on DTRS. In: Ciucci, D., Wang, G.Y., Mitra, S., Wu, W.Z. (eds.), RSKT 2015, LNCS (LNAI), vol. 9436, pp. 321-332, 2015. (**Best Paper Award**)

3. Gao, C., Yao, Y.Y., An addition strategy for reduct construction. In: Miao, D.Q., Pedrycz, W., Slezak, D., Peters, G., Hu, Q.H., Wang, R.Z. (eds.), RSKT 2014, LNCS (LNAI), vol, 8818, pp. 535-546, 2014. (**Best Student Paper Award**)

4. Liu, D., Yao, Y.Y., and Li, T.R., Three-way decision-theoretic rough sets (in Chinese), The Joint Conference of the 10th Chinese Conference on Rough Sets and Soft Computing, Computer Science (Ji Suan Ji Ke Xue), Computer Science, Vol. 38, No. 1, pp. 246-250, 2011. (**Best Student Paper Award**)

Sandra Zilles

Associate Professor

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Education and Professional Development

03/2000 - 10/2003 Dr. rer. nat. in Computer Science, University of Kaiserslautern
10/1994 - 03/2000 Diplom (comparable to B.Sc.+M.Sc.) in Mathematics, Univ. of Kaiserslautern

Employment History

07/2010 - present: Canada Research Chair (Tier 2) in Computational Learning Theory
                Department of Computer Science, Univ. of Regina
07/2013 - present: tenured Associate Professor, Dept. of Computer Science, Univ. of Regina
09/2012 - 08/2015: Adjunct Professor, Department of Computing Science, Univ. of Alberta
07/2009 - 06/2013: Assistant Professor, Department of Computer Science, Univ. of Regina
06/2009 - 06/2012: Assistant Adjunct Professor, Dept. of Computing Science, Univ. of Alberta
06/2007 - 06/2009: PostDoctoral Fellow, Department of Computing Science, Univ. of Alberta
10/2004 - 12/2008: Senior Researcher, German Research Center for Artificial Intelligence

Teaching History

CS 210 Data Structures and Abstractions (201030)
CS 340 Advanced Data Structures and Algorithm Analysis (201110, 201310)
CS 829 Information Theory and Applications (201420)
CS 830 Machine Learning (201010, 201130, 201330)
CS 890EC Special Topics in Computational Learning Theory (several times)

Student Supervision

Over the last ten years, I supervised or co-supervised:
5 Postdoctoral Fellows (all 5 completed),
7 PhD students (3 completed, 4 in progress),
14 MSc students (12 completed, 2 in progress),
5 Undergraduate Research Assistants (all 5 completed),
and 4 Postgraduate Research Assistants (3 completed, 1 in progress).

In addition, I served as:

external examiner on 3 PhD theses in Germany,
external examiner on 4 MSc theses (3 at UofR, 1 at U Ottawa),
committee member on supervisory committees for 5 PhD students,
committee member on supervisory committees for 4 MSc students

University Service

Department level:
07/2013 - 06/2014 Graduate Program Coordinator
07/2013 - 06/2014 Member of the Graduate Co-op Committee
07/2009 - 06/2014 Member of the Graduate Committee
07/2012 - 06/2013 Member of the Website Committee
Fall 2011   Initiator and co-organizer of the weekly Research Colloquium
07/2011 - 12/2012 Member of the Seminar Committee
07/2010 - 06/2011 Member of the External Relations Committee
07/2009 - 06/2010 Member of the Curriculum Committee
04/2008 - 03/2009 Organizer of the weekly AI seminar, Dept. of Comp. Science, Univ. Alberta

Department of Computing Science, University of Alberta
Faculty level:
11/2017   Member of Dean's Advisory Committee re reappointment of Assoc Dean
                 Research and Graduate Studies
09/2012 - 06/2014 Member of the Faculty Review Committee
05/2010 - 06/2014 Member of the Budget and Space Advisory Committee
05/2011   Booth organizer and presenter at \Science Rendezvous" public event

University level:
07/2012 - 06/2013 Member of the Executive of Council
2010   CS Ambassador for the Employee Engagement Survey

External community service:
Two radio interviews, several newspaper interviews and articles (both local and national),
several research presentations

Research Community Service:

Associate Editor of the Journal of Computer and System Sciences
Steering Committee Chair for one international conference
Publicity Chair for two international conferences
Co-chairing of program committees of one international conference and one international
conference
Local co-organizer of two co-located international conferences
Program Committee member for 28 conferences (mostly international)
Reviewing for NSF grants, NSERC Discovery Grants, and NSERC Canada Research Chair
applications
Reviewing of numerous journal and conference articles

Scholarly Research

Over the last ten years, I have published or had accepted the following **peer-reviewed** articles:
22 articles in international scientific journals
40 papers in peer-reviewed conferences (mostly international)
5 edited books
numerous technical reports and refereed workshop papers

Due to space limits, I am listing only some of my recent papers, sorted by venue.

- Levi H.S. de Lelis, Roni Stern, Shahab Jabbari Arfaee, Sandra Zilles, Ariel Felner, Robert C. Holte. Predicting Optimal Solution Costs and Learning Heuristics with Bidirectional Stratified Sampling in Regular Search Spaces. **Artificial Intelligence** 230:51-73, 2016.
- Levi H. S. de Lelis, Sandra Zilles, Robert C. Holte. Predicting the size of IDA*'s search tree. **Artificial Intelligence** 196:53-76, 2013.
- Shahab Jabbari Arfaee, Sandra Zilles, Robert C. Holte. Learning Heuristic Functions For Large State Spaces. **Artificial Intelligence** 175:2075-2098, 2011.
- Sandra Zilles, Robert C. Holte. The computational complexity of avoiding spurious states in state space abstraction. **Artificial Intelligence** 174:1072-1092, 2010.

- Rahim Samei, Pavel Semukhin, Boting Yang, and Sandra Zilles. Sample Compression for Multi-label Concept Classes. 50 pages. Accepted at **Journal of Machine Learning Research**, 2017.
- Ziyuan Gao, Christoph Ries, Hans Ulrich Simon, and Sandra Zilles. Preference-based Teaching. 30 pages. Accepted at **Journal of Machine Learning Research**, 2017.
- Thorsten Doliwa, Gaojian Fan, Hans Simon, and Sandra Zilles. Recursive Teaching Dimension, VC-Dimension, and Sample Compression. **Journal of Machine Learning Research** 15:3107-3131, 2014.
- Sandra Zilles, Steffen Lange, Robert C. Holte, Martin Zinkevich. Models of Cooperative Teaching and Learning. **Journal of Machine Learning Research** 12:349-384, 2011.

- Ziyuan Gao, Christoph Ries, Hans Ulrich Simon, and Sandra Zilles. Preference-based Teaching. In: Proceedings of the 29th **Annual Conference on Learning Theory (COLT)** 2016.
- Rahim Samei, Pavel Semukhin, Boting Yang, and Sandra Zilles. Sample Compression for Multi-label Concept Classes. In: Proceedings of the 27th **Annual Conference on Learning Theory (COLT)**, pp. 371-393. 2014.
- Sandra Zilles, Steffen Lange, Robert C. Holte, Martin Zinkevich. Teaching dimensions based on cooperative learning. In: Proceedings of the 21st **Annual Conference on Learning Theory (COLT)**, pp. 135-146, 2008.

- Eisa Alanazi, Malek Mouhoub, and Sandra Zilles. The Complexity of Learning Acyclic CP-nets. In: Proceedings of the 25th **International Joint Conference on Artificial Intelligence (IJCAI)** AAAI Press, 2016.
- Levi H.S. Lelis, Santiago Franco, Marvin Abisrror, Mike Barley, Sandra Zilles, and Robert C. Holte. Heuristic Subset Selection in Classical Planning. In: Proceedings of the 25th **International Joint Conference on Artificial Intelligence (IJCAI)** AAAI Press, 2016.