

CURRICULUM VITAE

Summary

University professor with experience in mathematical research and teaching, and in academic, professional, and community leadership

Contact Information

Faculty of Science	tel: (+1) 306.337.2110
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Canada	twitter: @DouglasFarenick

Postsecondary Education

PhD	Mathematics, University of Toronto, 1990
MSc	Pure Mathematics, University of Calgary, 1986
BSc	Mathematics and Computer Science, University of Regina, 1986

Academic Appointments and Leadership Positions

Academic Appointments

Professor	University of Regina, 2002-present
Associate Professor	University of Regina, 1996-2002
Assistant Professor	University of Regina, 1992-1996
CRM Postdoctoral Fellow	Centre de recherches mathématiques, Université de Montréal, 1990-1992

Academic Leadership Appointments (all at University of Regina)

Dean	Faculty of Science, 2017-2022
Acting Dean	Faculty of Science, 2016-2017
Department Head	Department of Mathematics & Statistics, 2012-2016
Acting Associate Dean	Faculty of Science, 2009-2010
Acting Department Head	Department of Mathematics & Statistics, 2009
Assistant Dean	Faculty of Science, 2000-2002

Scholarly Work (Summary)

Areas of Expertise

Operator algebra theory, Hilbert space operators, operator systems, quantum information theory, linear algebra, noncommutative analysis

Contributions to Knowledge

Two books, 50+ refereed journal publications, numerous lectures in Canada and abroad; known mainly for contributions to noncommutative convexity, hyponormal Toeplitz operators, local multiplier algebras, operator systems, and quantum probability measures

Students and Postdoctoral Researchers

Supervision to completion or graduation of eight PhD students, seven MSc students, several BSc/BScHonours students (e.g., 12 undergraduates since 2006), and five postdoctoral researchers

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Research Funding

28 years of continuous, ongoing NSERC Discovery Grant funding

Editorial Boards

Four editorial boards of journals; five-year term as Co-Editor in Chief of Operators and Matrices

Teaching

1st-year undergraduate courses through to courses for doctoral students: calculus (single variable, several variable, vector), linear algebra, mathématiques discrètes, differential equations, modern algebra, complex analysis, Lie groups, measure theory and integration, functional analysis, operator algebras, quantum information theory, topology

International Teaching

African Institute for the Mathematical Sciences, Kigali, Rwanda. November 2017

Professional and Community Leadership

Professional

Canadian Council of Deans of Science	President 2020-2022 Vice President 2018-2020
Canadian Mathematical Society	Vice President (West) 2017-2019 Finance Committee Chair 2012-2015 Member of the Board of Directors 2007-2011
TRIUMF Particle Accelerator	Member of the Board of Management 2018-2022
Pacific Institute for the Mathematical Sciences	Member of the Board of Directors 2016-2022
Natural Sciences and Engineering Research Council of Canada	Chair of the Hamer & Alper Prizes Selection Cte 2005 Chair of the NSERC PGS/PDF Selection Cte 2003-2004

Community

Swim Sask	Member of the Board of Directors 2015-2018
Regina Masters Swim Club	President 2015-2018; Vice President 2012-2015
Queen City Kinsman Gymnastics Club	Co-Chair of the Board 2015; Treasurer 2013-2015

Service Contributions (Selected)

Administrative (UofR)

UR Leading Advisory Committee 2016-present
Executive of Council 2016-2022 (ex officio), 2012-2016 (elected), 2008-2010 (elected)
Council Committee on Research 2009-2010
Faculty of Graduate Studies & Research Scholarship Committee 2009-2010
Alumni Awards for Excellence Selection Committee Chair 2005-2007
President's Sub-Committee on Conflict of Interest/Commitment Policy 2002-2003

Professional

Canadian Mathematical Society Nominating Committee 2020-2024
Canadian Mathematical Society Women in Mathematics Committee 2017-2019
NSERC Representative to the University of Regina 2002-2007
International Linear Algebra Society Publication Committee 2014-2018
Academic Unit Review Teams: Nipissing University 2019, Western University 2019

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Community

Science Camps for Saskatchewan Indigenous Youth 2021 (supported by NSERC Promo Science)
Treaty Four Gathering & Elders' Tent - Faculty of Science Organiser and Volunteer 2018, 2019
Canada Wide Science Fair (Judge) 2017
UofR/CMS/Esso Math Camp Organiser/Activity Leader 2007, 2009, 2011, 2015
Hands on Mathematics Co-Leader (an International Mathematics Year 2000 exhibit at the
Manitoba Children's Museum and the Saskatchewan Science Centre) 2000

Scholarly Work (Detail)

Refereed Publications

Books

1. D. Farenick, *Fundamentals of Functional Analysis*, Springer, New York, 2016.
2. D. Farenick, *Algebras of Linear Transformations*, Springer, New York, 2001.

Journal Articles [* indicates that the coauthor is, or was, a student or postdoctoral fellow under my supervision or co-supervision]

3. D. Farenick, F. Huntinghawk, A. Masanika*, S. Plosker, *Complete order equivalence of spin unitaries*, Linear Algebra and its Applications 610 (2021), 1-28.
4. D. Farenick, A. Kavruk, V. Paulsen, I.G. Todorov, *Characterisations of the weak expectation property*, New York Journal of Mathematics 24a (2018), 107-135.
5. D. Farenick, M. Rahaman*, *Bures contractive channels on operator algebras*, New York Journal of Mathematics 23 (2017), 1369-1393.
6. D. Farenick, S. Jaques*, M. Rahaman*, *The fidelity of density operators in an operator-algebraic framework*, Journal of Mathematical Physics 57 (2016), 102202 (15pp).
7. D. Farenick, M. Mastnak, A. Popov, *Isometries of the Toeplitz matrix algebra*, Journal of Mathematical Analysis and Applications 434 (2016), 1612-1632.
8. D. Farenick, M. Kozdron, S. Plosker, *Spectra and variance of quantum random variables*, Journal of Mathematical Analysis and Applications, 434 (2016), 1106-122.
9. M. Argerami, D. Farenick, *C*-envelopes of Jordan operator systems*, Operators and Matrices 9 (2015), 325-341.
10. D. Farenick, A. Kavruk, V. Paulsen, I.G. Todorov, *Operator systems from discrete groups*, Communications in Mathematical Physics 329 (2014), 207-238.
11. A. Bhattacharya*, D. Farenick, *Crossed products of C*-algebras with the weak expectation property*, New York Journal of Mathematics 19 (2013), 423-429.
12. M. Argerami, D. Farenick, *The C*-envelope of an irreducible periodic weighted unilateral shift*, Integral Equations and Operator Theory 77 (2013), 199-210.
13. D. Farenick, A. Kavruk, V. Paulsen, *C*-algebras with the weak expectation property and a multivariable analogue of Ando's theorem on numerical radius*, Journal of Operator Theory 70 (2013), 573-590.
14. D. Farenick, R. Floricel, S. Plosker, *Approximately clean quantum probability measures*, Journal of Mathematical Physics 54 (2013), 52201 (15pp).
15. M. Argerami, D. Farenick, P. Massey, *Second-order local multiplier algebras of continuous trace C*-algebras*, Journal of Mathematical Analysis and Applications 397 (2013), 822-836.
16. M. Argerami, D. Farenick, P. Massey, *Injective envelopes and local multiplier algebras of some spatial continuous trace C*-algebras*, Quarterly Journal of Mathematics (Oxford) 63 (2012), 1-20.
17. D. Farenick, V. Paulsen, *Operator system quotients of matrix algebras and their tensor products*, Mathematica Scandinavica 111 (2012), 110-243.
18. D. Farenick, M.J. Kozdron, *Conditional expectation and Bayes' rule for quantum random variables and positive operator valued measures*, Journal of Mathematical Physics 53 (2012), 042201 (17pp).

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19. D. Farenick, S. Plosker, J. Smith*, *Classical and nonclassical randomness in quantum measurements*, Journal of Mathematical Physics 52 (2011), 122204 (26pp).
20. D. Farenick, V. Futorny, T. Gerasimova*, V. Sergeichuk, and N. Shvai*, *A criterion for unitary similarity of upper triangular matrices in general position*, Linear Algebra and its Applications 435 (2011), 1356-1369.
21. D. Farenick, *Arveson's criterion for unitary similarity*, Linear Algebra and its Applications 435 (2011), 769-777.
22. D. Farenick, T. Gerasimova*, N. Shvai*, *A complete unitary similarity invariant for unicellular matrices*, Linear Algebra and its Applications 435 (2011), 409-419.
23. M. Argerami, D. Farenick, P. Massey, *The gap between local multiplier algebras of C^* -algebras*, Quarterly Journal of Mathematics (Oxford) 60 (2009), 273-281.
24. D. Farenick, C. Ramsey*, *Unitary groups of Hermitian forms and the homotopy groups of pseudospheres*, Journal of Pure and Applied Algebra 212 (2008), 2358-2367.
25. M. Argerami, D.R. Farenick, *Local multiplier algebras, injective envelopes, and type I W^* -algebras*, Journal of Operator Theory 59 (2008), 237-245.
26. D.R. Farenick, F. Zhou*, *Jensen's inequality relative to matrix-valued measures*, Journal of Mathematical Analysis and Applications 327 (2007), 919-929.
27. D.R. Farenick, S.M. Manjegani*, *Young's inequality in operator algebras*, Journal of the Ramanujan Mathematical Society 20 (2005), 107-124.
28. D.R. Farenick, B.E. Forrest, L.W. Marcoux, *Amenable operators on Hilbert spaces*, Journal für die reine und angewandte Mathematik 582 (2005), 201-228; 206 (2007), 235.
29. D.R. Farenick, *Pure matrix states on operator systems*, Linear Algebra and its Applications 393 (2004), 149-173.
30. D.R. Farenick, B.A. Pidkowich*, *The spectral theorem in quaternions*, Linear Algebra and its Applications 371 (2003), 75-102.
31. M. Argerami, D.R. Farenick, *Young's inequality in trace-class operators*, Mathematische Annalen 325 (2003), 727-744.
32. D.R. Farenick, P. Psarrakos, *A triangle inequality in Hilbert modules over matrix algebras*, Linear Algebra and its Applications 341 (2002), 57-67.
33. D.R. Farenick, *Symmetry in algebraic algebras with positive involution*, Communications in Algebra 30 (2002), 369-382.
34. J. Erişman, D.R. Farenick, R. Zeng*, *Young's inequality in compact operators*, Operator Theory: Advances and Applications 30 (2001), 170-184.
35. D.R. Farenick, *Extremal matrix states on operator systems*, Journal of the London Mathematical Society 61 (2000), 885-892.
36. D.R. Farenick, D. Hadwin, *Finitely strongly reductive operators*, Journal of Operator Theory 41 (1999), 199-211.
37. D.R. Farenick, H. Zhou*, *The structure of C^* -extreme points in spaces of completely positive linear maps on C^* -algebras*, Proceedings of the American Mathematical Society 126 (1998), 1467-1477.
38. D.R. Farenick, W.Y. Lee, *On hyponormal Toeplitz operators with polynomial and circulant-type symbols*, Integral Equations and Operator Theory 29 (1997), 202-210.
39. D.R. Farenick, P.B. Morenz, *C^* -extreme points in the generalised state spaces of a C^* -algebra*, Transactions of the American Mathematical Society 349 (1997), 1725-1748.
40. D.R. Farenick, W.Y. Lee, *Hyponormality and spectra of Toeplitz operators*, Transactions of the American Mathematical Society 348 (1996), 4153-4174.
41. D.R. Farenick, *Irreducible positive linear maps on operator algebras*, Proceedings of the American Mathematical Society 124 (1996), 3381-3390.
42. D.R. Farenick, M. Krupnik*, N. Krupnik, W.Y. Lee, *Normal Toeplitz matrices*, SIAM Journal on Matrix Analysis and Applications 17 (1996), 1037-1043.
43. I.A. Affleck*, D.R. Farenick, *Numerical radius of a multigraph*, Ars Combinatoria 44 (1996), 23-32.
44. D.R. Farenick, R. McEachin, *Toeplitz operators hyponormal with the unilateral shift*, Integral Equations and Operator Theory 22 (1995), 273-280.
45. P. Binding, D.R. Farenick, C.-K. Li, *A dilation and norm in several variable operator theory*, Canadian Journal of Mathematics 47 (1995), 449-461.
46. D.R. Farenick, *Normal compressions and restrictions to 2-dimensional subspaces, and the Berberian spectral extension*, Linear and Multilinear Algebra 37 (1994), 131-138.

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47. D.R. Farenick, *Matricial extensions of the numerical range: a brief survey*, Linear and Multilinear Algebra 34 (1993), 197-211.
48. D.R. Farenick, P.B. Morenz, *C*-extreme points of some compact C*-convex sets*, Proceedings of the American Mathematical Society 118 (1993), 765-775.
49. D.R. Farenick, *On the spatial matricial spectra of operators*, Journal of Operator Theory 30 (1993), 329-352.
50. D.R. Farenick, *C*-convexity and matricial ranges*, Canadian Journal of Mathematics 44 (1992), 280-297.
51. D.R. Farenick, *Krein-Milman-type problems for compact matricially convex sets*, Linear Algebra and its Applications 162-164 (1992), 325-334.
52. D.R. Farenick, *The fundamental group of a unitary orbit*, Linear and Multilinear Algebra 16 (1990), 1-4.
53. D.R. Farenick, P.J. Browne, *Gergorin theory and the definiteness of determinantal operators*, Proceedings of the Royal Society of Edinburgh 106A (1987), 1-10.

Articles Submitted for Publication in Refereed Journals

54. D. Farenick, O. Ojo*, S. Plosker, *Universality of Weyl unitaries*, submitted January 2021.
55. D. Farenick, R. Tessier*, *Pure embeddings of operator systems into their injective and C*-envelopes*, submitted January 2020.

Selected Conference Presentations

- Workshop on Numerical Ranges. Munich, Germany. 13.VI. 2018
- Workshop on Operator Algebras and Quantum Information Theory. Paris, France. 13.IX.2017
- International Workshop on Operator Theory and Applications. St Louis, USA. 21. VII. 2016
- Workshop on Inequalities and Quantum Information. Toulouse, France. 18.I.2016
- Canadian Operator Algebra Symposium. Victoria, BC. 26.V.2011 (plenary)
- Korean Operator Theory and Applications Conference. Incheon, Korea. 18.VI.2010 (plenary)
- International Linear Algebra Society Conference. Shanghai, China. 17.VII.2007 (plenary)
- Workshop on Operator Theory & Applications. Newcastle Upon Tyne, England. 14.VII. 2004 (semi-plenary)

Selected Colloquium/Seminar Presentations

- University of Manitoba 28.XI.2019, 10.III.2017
- University of Saskatchewan 30.VIII.2016, 20.XI.2009, 02.IV.2005
- University of Georgia 03.III.2015
- University of Ottawa 06.II.2015
- University of Waterloo 28.IX.2018, 15.IV.2014, 15.IX.2011, 31.X.2003
- Institut Mittag-Leffler (Stockholm) 10.XII.2010
- Institut de Mathématiques de Jussieu (Paris) 14.X.2010
- Instituto Argentino de Matemática (Buenos Aires) 14.VIII.2009
- University of Calgary 10.III.2005
- University of Toronto 24.XI.2003

Research Grants

- NSERC Discovery Grants
 - \$105,000 (2019-2023); \$115,000 (2014-2018); \$110,000 (2009-2013); \$70,000 (2004-2008); \$70,000 (1999-2003); \$42,000 (1996-1998); \$36,000 (1993-1995)
- PIMS Collaborative Research Group in Operator Algebras and Noncommutative Geometry
 - \$239,000, 2009-2012, with 3 co-investigators

Highly Qualified Personnel Supervised (since 2010)

- Postdoctoral
 - Samir Raouafi (Université Laval) 2015-2017
 - Shawn McCann (University of Calgary) 2012-2014

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Doctoral

Ryan Tessier 2020
Miza Rahaman 2018

Angshu Bhattacharya 2014
Abdullah Al-Aharmi 2010

Masters

Ruth Ojo (in progress)
Adili Masanika 2020 (co-supervised)
Bo Cui 2016

Sadia Mwangangi 2012 (co-supervised)
Tatiana Gerasimova 2011 (co-supervised)
Nadya Shvai 2011 (co-supervised)

Bachelors/Honours

Madeleine Young 2018
Sam Jaques 2015, 2018
Charlayna McGill 2014, 2015

Adam Gorr 2014
Natalia Filomeno 2013, 2014
Jerrod Smith 2011

Personal

Preferred Pronouns

he/him

Interests

Swimming (masters level, competitive)
Cycling (road, gravel)
Dogs/cats

Reading (contemporary fiction)
Music listening (mostly, but not exclusively, classical)