Thomas R. Cameron

Davidson College
Mathematics and Computer Science
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Current Position

Visiting Assistant Professor, Mathematics and Computer Science, Davidson College

Areas of Specialization

Discipline: linear algebra, matrix polynomials, functional analysis, numerical analysis, and the eigenvalue problem
Additional interests: spectral theory of operators, programming, and dynamical systems

Programming Experience

Languages: C, C++, Fortran, HTML, JavaScript, Mathematica, MATLAB, PHP, Python, SML, and SQL
Currently Learning: AWS, OpenCL API, scikit-learn, and TensorFlow

Appointments Held

current	Visiting Assistant Professor, Davidson College
2016-2017	Visiting Assistant Professor, The College of Idaho

Education

2013-2016	Ph.D. in Mathematics, Washington State University
2012-2013	M.Sc. in Mathematics, Washington State University
2009-2012	B.Sc. in Mathematics, University of Minnesota Duluth

Honors & Awards

2015	MSRI Summer Graduate School on Spectral Geometry, University of Montreal
2015	Radziemski Fellowship, Washington State University
2012	Sylvan D. Burgstahler Memorial Scholarship, University of Minnesota Duluth
2011	Math Student of the Year, Century College

Publications & Presentations

Journal Articles

2017 *A modified Laguerre's method for the 4th order simultaneous convergence of all roots of a polynomial*, In Progress

2017 Thomas R. Cameron and Panayiotis J. Psarrakos, *On the generalization of Descartes' rule of signs for matrix polynomials*, In Progress

2017 Thomas R. Cameron, *The Determinant from Signed Volume to Laplace's Formula*, In Revision

2017 Thomas R. Cameron and Nikolas I. Steckley, *On the application of Laguerre's method to the polynomial eigenvalue problem*, arXiv:1703.08767 [math.NA]

2016 Thomas R. Cameron, *On the reduction of matrix polynomials to Hessenberg form*, Electronic Journal of Linear Algebra, 31 (2016), 321-334

2015 Thomas R. Cameron, *Spectral bounds for matrix polynomials with unitary coefficients*, Electronic Journal of Linear Algebra, 30 (2015), 585-591

Talks

2018 *On Descartes' Rule of Signs for matrix polynomials*, JMM 2018, San Diego, CA

2017 *On Descartes' Rule of Signs for matrix polynomials*, Coffee Talk, Davidson College

2017 *On Descartes' Rule of Signs for matrix polynomials*, AMS Spring Western Sectional Meeting, Washington State University

2016 *A conjecture on Descartes' Rule of Signs for matrix polynomials*, CLaN Seminar, Washington State University

2016 *Spectral bounds for unitary matrix polynomials*, Analysis Seminar, Washington State University

2015 *Constructive proof of Hessenberg form for matrix polynomials*, CLaN Seminar, Washington State University

2015 *Another approach to Jordan form*, CLaN Seminar, Washington State University

2015 *How do we really find eigenvalues?*, Colloquium, University of Minnesota Duluth

2014 *Hyman's method for matrix polynomials*, CLaN Seminar, Washington State University

2014 *Factorization of matrix polynomials*, CLaN Seminar, Washington State University

2014 *The nonlinear eigenvalue problem*, Colloquium, University of Minnesota Duluth

2013 *The Ehrlich-Aberth method for matrix polynomials*, CLaN Seminar, Washington State University

2013 *When does Newton's method fail?*, CLaN Seminar, Washington State University

Posters

2017 *On Modifications to Laguerre's Method and the Polynomial Eigenvalue Problem*, PNWNAS 17, Corvallis, OR

2015 *Hessenberg form for matrix polynomials*, SIAM LA 15, Atlanta, GA

2014 *Eigenvalue computation for tridiagonal matrix polynomials*, PNWNAS 14, Portland, OR

Referee Experience

LAA: Linear Algebra and Applications
ELA: Electronic Journal of Linear Algebra
MAA: Mathematical Association of America: Mathematics Magazine

Review Experience

Macmillan: J. Holt, Linear Algebra with Applications

Teaching

Courses Taught

current MAT-150: Linear Algebra, CSC/MAT-220: Discrete Structures, *Davidson College*

2016-2017 MAT-101: Survey of Algebra and Probability, MAT-102: Functions, CSC-150: Computer Science 1, MAT-252: Discrete Mathematics, CSC-270: Applied Databases, MAT-498: Upper Division Seminar, MAT-494: Independent Study, *The College of Idaho*

2015-2016 Math-273: Calc 3, Math-220: Linear Algebra, Math-103 (online): Algebra Methods, *Washington State University*

2014-2015 Math-220: Linear Algebra, Math-105: Exploring Mathematics, *Washington State University*

2013-2014 Math-106: Pre-Calc, Math-202: Business Calc 2, Math-220: Linear Algebra, *Washington State University*

2012-2013 Math-201: Business Calc 1, Math-106: Pre-Calc, *Washington State University*

Supervised Undergraduate Research

current Hüseyin Altinisik, Max Li, Pasha Sonkin, and Jenny Zhong, *Heterogeneous Computing and OpenCL*

2017 Nick Steckley, *On Modifications to Laguerre's Method and the Polynomial Eigenvalue Problem*, presented at the 2017 PNWNAS

2017 Leo Trujilo, *The numerical range of a matrix polynomial*, presented at the 2016-2017 College of Idaho Undergraduate Research Conference, The College of Idaho

2016 Will Callahan, Sam Chandler, Johanna Mori, and Leo Trujilo, *Using Chebyshev polynomials to solve ordinary differential equations*, presented at the 2016 Murdock Undergraduate Research Conference, The College of Idaho

2016 Nick Steckley, *A personalized grade management system using MySQL and PHP*, Washington State University

2015-2016 Grant Hutchings, *Numerical algorithms for matrix computations and applications*, Washington State University

2014-2015 Michael Newsham, *Bernstein polynomials and companion matrices*, Washington State University

Professional Service

2017 Virginia Tech Regional Math Contest: Proctored at Davidson College

2017 The Charlotte Mathematics Club: Assisted in the events and activities planned for the club

2016 The Bird Stop: Developed website for a local business