THOMAS R. CAMERON

MATHEMATICS & COMPUTER SCIENCE DEPARTMENT ✧ BOX 7129 ✧ DAVIDSON, NC 28035
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RESEARCH INTERESTS

⬧ linear algebra; numerical analysis; matrix polynomials; ranking; nonnegative matrix theory

EDUCATION

⬧ **Ph.D.**, Mathematics, *Washington State University*, Pullman, WA — May 2016
Thesis: *On the computation of eigenvalues, spectral bounds, and Hessenberg form for matrix polynomials*
Advisors: Michael J. Tsatsomeros, David S. Watkins, Judith J. McDonald

⬧ **M.S.**, Mathematics, *Washington State University*, Pullman, WA — November 2013
Thesis: *Spectral bounds for matrix polynomials with unitary coefficients*
Advisor: Michael J. Tsatsomeros

⬧ **B.S.**, Mathematics, *University of Minnesota Duluth*, Duluth, MN — May 2012
Honors: Magna Cum Laude with Distinction

⬧ **A.A.**, General Liberal Arts, *Century College*, White Bear Lake, MN — May 2009

PROFESSIONAL EXPERIENCE

⬧ **Visiting Assistant Professor**, *Davidson College*, Davidson, NC — July 2017 – present

⬧ **Visiting Assistant Professor**, *College of Idaho*, Caldwell, ID — August 2016 – May 2017

⬧ **Teaching Assistant**, *Washington State University*, Pullman, WA — January 2013 – May 2016

⬧ **Research Assistant**, *Washington State University*, Pullman, WA — August 2012 – December 2012

HONORS AND AWARDS

⬧ **MSRI Summer Graduate School**, Spectral Geometry, University of Montreal, 2015

  Competitive nomination based selection process

⬧ **Leon and Barbara Radziemski Graduate Fellowship**, Washington State University, 2015

  Rewards academic excellence and scholarship for graduate students

⬧ **Teaching Assistantship**, Washington State University, 2013 – 2016

⬧ **Research Assistantship**, Washington State University 2012

⬧ **Sylvan D. Burgstahler Scholar**, University of Minnesota Duluth, 2012

⬧ **Departmental Honor (Pi Mu Epsilon)**, University of Minnesota Duluth, 2012

⬧ **Outstanding Graduate (Honorable Mention)**, University of Minnesota Duluth, 2012

⬧ **Outstanding Math Student**, Century College, 2011

PUBLICATIONS

Note: asterisk (*) indicates undergraduate student

In Preparation

4. P. E. Anderson, T. R. Cameron, T. P. Chartier, and A. N. Langville. Rankability and the SVD

3. T. R. Cameron and A. O'Neill*. Compensated Horner method and accurate root solvers

2. T. R. Cameron and M. Robertson*. A modified Laguerre method for the polynomial eigenvalue problem.

1. T. R. Cameron and P. J. Psarrakos. Householder sets for matrix polynomials

Submitted

2. T. R. Cameron. A practical modification of Laguerre's method for the roots of a polynomial

1. T. R. Cameron and P. J. Psarrakos, On Descartes' rule of signs for matrix polynomials

Accepted

4. T. R. Cameron and T. Chartier. Finite precision in an infinite world, *Math Horizons*, Accepted on 7/9/2018

3. T. R. Cameron. The determinant from signed volume to the Laplace expansion, *Amer. Math. Monthly*, Accepted on 2/12/2018

2. T. R. Cameron. On the reduction of matrix polynomials to Hessenberg form, *Electron. J. Linear Algebra*, 31: 321-334, 2016

1. T. R. Cameron. Spectral bounds for matrix polynomials with unitary coefficients, *Electron. J. Linear Algebra*, 30: 585-591, 2015

PRESENTATIONS

Note: asterisk (*) denotes an invited presentation.

16. *On Descartes' Rule of Signs for matrix polynomials*, Joint Mathematics Meeting, San Diego, CA, 2018

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

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

13. *Matrix Polynomials: A Natural Generalization of Spectral Theory*, College of Idaho Department of Mathematics Colloquium, Caldwell, ID, 2016

12. *The Personal Discovery Process: Numerical Differential Equations*, College of Idaho Faculty Forum, Caldwell, ID, 2016

11. *Spectral bounds for unitary matrix polynomials*, Washington State University Department of Mathematics Analysis Seminar, Pullman, WA, 2016

10. *Constructive proof of Hessenberg form for matrix polynomials*, Washington State University Department of Mathematics ClaN Seminar, Pullman, WA, 2015

9. *Another approach to Jordan form*, Washington State University Department of Mathematics CLaN Seminar, Pullman, WA, 2015

8. *How do we really find eigenvalues?*, University of Minnesota Duluth Department of Mathematics Graduate Colloquium, Duluth, MN, 2015

7. *Hyman's method for matrix polynomials*, Washington State University Department of Mathematics CLaN Seminar, Pullman, WA, 2014

6. *Factorization of matrix polynomials*, Washington State University Department of Mathematics CLaN Seminar, Pullman, WA, 2014

5. *The nonlinear eigenvalue problem*, Washington State University Department of Mathematics CLaN Seminar, Pullman, WA, 2014

4. *The Ehrlich-Aberth method for matrix polynomials*, Washington State University Department of Mathematics CLaN Seminar, Pullman, WA, 2013

3. *When does Newton's method fail?*, Washington State University Department of Mathematics CLaN Seminar, Pullman, WA, 2013

2. *The dynamics of Newton's method*, University of Minnesota Duluth Department of Mathematics Undergraduate Colloquium, Duluth, MN, 2012

1. *The capture and analysis of aerial photos of Lake Superior*, University of Minnesota Duluth Department of Mathematics Undergraduate Colloquium, Duluth, MN, 2012

POSTERS

5. *A Practical Parallelizable Fourth-Order Modification of Laguerre's Method*, MathFest, Denver, CO, 2018

4. *A Practical Parallelizable Fourth Order Modification of Laguerre's Method*, SIAM-SEAS, Chapel Hill, NC, 2018

3. *On Modifications to Laguerre's Method and the Polynomial Eigenvalue Problem*, PNWAS, Corvallis, OR, 2017

2. *Hessenberg form for matrix polynomials*, SIAM-ALA, Atlanta, GA, 2015

1. *Eigenvalue computation for tridiagonal matrix polynomials*, PNWAS, Portland, OR, 2014

SUPERVISED UNDERGRADUATE RESEARCH

Davidson College

3. Michael Robertson, *Finding a needle in $\mathbb{C}$: On Initial Estimates for the Polynomial Eigenvalue Problem*, MathFest, 2018

2. Aidan O'Neill, *On Error Free Transformations and Applications to Polynomial Equations*, MathFest, 2018

1. Hüseyin Altinisik, Max Li, Pasha Sonkin, and Jenny Zhong, *Heterogeneous Computing and OpenCL*, 2017

The College of Idaho

2. Leo Trujilo, *The numerical range of a matrix polynomial*, CofI Undergraduate Research Conference, 2017

1. Will Callahan, Sam Chandler, Johanna Mori, and Leo Trujilo, *Using Chebyshev polynomials to solve ordinary differential equations*, Presented at Murdock Undergraduate Research Conference, 2016

Washington State University

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

4. Nick Steckley, *On the application of Laguerre's method to the polynomial eigenvalue problem*, `arXiv:1703.08767`, 2017

3. Nick Steckley, *A personalized grade management system using MySQL and PHP*, 2016

2. Grant Hutchings, *Numerical algorithms for matrix computations and applications*, 2016

1. Michael Newsham, *Bernstein polynomials and companion matrices*, 2015

PROFESSIONAL SERVICE

✧ Journal referee by subject:
  - Linear Algebra/Matrix Theory
    – *Electronic Journal of Linear Algebra*
    – *Linear Algebra and its Applications*
  - General mathematics
    – *Mathematics Magazine*

✧ Textbook Reviewer

  - J. Holt, *Linear Algebra with Applications*, Macmillan
  - M. T. Nair and A. Singh, *Linear Algebra*, Springer

OUTREACH

Davidson College

✧ Decision Davidson: Met with students and parents to discuss Davidson College, 2018

✧ Virginia Tech Regional Math Contest: Proctored at Davidson College, 2017

✧ The Charlotte Mathematics Club: Assisted in the supervision of activities, 2017

College of Idaho

✧ Physics Club: Faculty mentor for club, Fall 2016 – Spring 2017

✧ The Bird Stop: Developed website for a local business, 2016

✧ Friday Night Office Hours: Extra office hours for students, Fall 2016 – Spring 2017

Washington State University

✧ Math Tutoring: Worked with high-achieving middle school student in mathematics, Fall 2015 – Spring 2016

✧ Friday Night Office Hours: Extra office hours for students, Fall 2013 – Spring 2016

CONFERENCES

✧ MathFest, Denver, Co, August 2018
  Session: Introduction to Inquiry-Based Learning

✧ Western Canada Linear Algebra Meeting, Pullman, WA, May 2018

✧ SIAM-SEAS, Chapel Hill, NC, March, 2018

✧ Joint Mathematics Meetings, San Diego, CA, January 2017

✧ American Mathematical Society Spring Sectional Meeting, Pullman, WA, April 2017

✧ PNWNAS, Corvallis, OR, October 2017

✧ 25th Annual Murdock College Science Research Conference, Spokane, WA, November 2016

✧ SIAM-ALA, Atlanta, GA, October 2015

✧ PNWNAS, Portland, OR, October 2014

COURSES TAUGHT

Davidson College

Term	Course Number	Course Name
Spring 2019	MAT 331	Complex Analysis
Spring 2019	MAT 160	Calc III
Fall 2018	MAT 235	Differential Equations
Fall 2018	CSC/MAT 220	Discrete Structures
Spring 2018	MAT 112	Calc I and Modeling
Spring 2018	MAT 450	Advanced Linear Algebra
Fall 2017	MAT 150	Linear Algebra
Fall 2017	CSC/MAT 220	Discrete Structures

College of Idaho

Term	Course Number	Course Name
Spring 2017	CSC 150	Computer Science I
Spring 2017	CSC 252	Discrete Mathematics
Spring 2017	CSC 270	Applied Databases
Winter 2017	MAT 111	Contemporary Mathematics
Fall 2016	MAT 101	Survey of Algebra and Probability
Fall 2016	CSC 150	Computer Science I
Fall 2016	MAT 494	Independent Study: Differential Equations
Fall 2016	MAT 498	Upper Division Seminar

Term	Course Number	Course Name
Summer 2016	MAT 103 (online)	Algebra Methods
Spring 2016	MAT 220	Linear Algebra
Fall 2015	MAT 273	Calc 3
Spring 2015	MAT 105	Exploring Mathematics
Fall 2014	MAT 220	Linear Algebra
Summer 2014	MAT 220	Linear Algebra
Spring 2014	MAT 202	Business Calc II
Fall 2013	MAT 106	Pre Calc
Summer 2013	MAT 106	Pre Calc
Spring 2013	MAT 201	Business Calc I

COMPUTER LANGUAGES AND PROGRAMS

✧ Languages: C, C++, Fortran, HTML, Java Script, PHP, Python, SML, and SQL

✧ Applications: AWS, Excel, LaTeX, MATLAB, Mathematica, OpenCL, Pthread, Word

✧ Operating Systems: Linux (Ubuntu, CentOS, Gentoo), Mac OSX, Windows

PROFESSIONAL ASSOCIATIONS

✧ American Mathematical Society (AMS)

✧ International Linear Algebra Society (ILAS)

✧ Mathematical Association of America (MAA)

✧ Society for Industrial and Applied Mathematics (SIAM)

REFERENCES

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`tsat@math.wsu.edu`

Judith J. McDonald
Professor of Mathematics
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David S. Watkins
Professor Emeritus of Mathematics
Washington State University
`watkins@math.wsu.edu`

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PERSONAL DATA

- ✧ Place of birth: St Paul, MN
- ✧ Citizenship: United States
- ✧ Marital status: Married (Katie) with two children (Hudson and ?)