John P. May

108 Primrose Rd
Chestertown, MD 21620 USA
(302) 650-8079
jpmay@udel.edu
http://www.cis.udel.edu/~jpmay

EDUCATION

Doctor of Philosophy in Mathematics *August 2005*
North Carolina State University
- Dissertation Title: Approximate Factorization of Multivariate Polynomials and Related Problems in Approximate Algebra via Singular Value Decomposition Methods
- Advisor: Erich Kaltofen

Master of Arts in Mathematics *August 1999*
University of Oregon

Bachelor of Arts in Mathematics *June 1998*
University of Oregon
- Graduated cum laude with Mathematics Honors
- Thesis Title: A Study of the Dynamics of Continuous Piecewise Linear Maps

RECENT AWARDS

Distinguished Student Author Award *July 2004*
International Symposium on Symbolic Algebraic Computation and SIGSAM

Lowell S. Winton and Nicholas J. Rose Outstanding Graduate Student Scholarship *April 2004*
North Carolina State University, Mathematics Department

ACADEMIC POSITIONS

Researcher and Adjunct Assistant Professor *Sept. 2006 - Aug. 2007*
Department of Computer and Info. Sciences, University of Delaware
- Developed practical solutions in C++ for large linear algebra problems with application in abstract algebra.
- Worked to integrate numerical routines with exact linear algebra algorithms.
- Taught three second year computer science courses in C++.

Researcher and Instructor *Sept. 2004 - Aug. 2006*
David R. Cheriton School of Computer Science, University of Waterloo
- Worked on numerical algorithms to solve open problems relating to approximate multivariate polynomials: GCD, factorization.
- Developed a new approximate algorithm for univariate functional decomposition.
- Implemented much of the above work in Maple.
- Taught four first and second year computer science courses in Java.

Graduate Teaching and Research Assistant *Sept. 1999 - Aug. 2004*
Department of Mathematics, North Carolina State University
- Developed a new criterion for testing for irreducibility of approximately given polynomials in many variables.
- Developed new approximate algorithms for computing factorizations and GCDs of polynomials in many variables.
- Implemented much of the above work in Maple.
- Taught nine first and second year mathematics courses including Maple labs for calculus students.
- Contributed to the NC State Maple Grader project.

RESEARCH PUBLICATIONS

Refereed Papers:

Efficient matrix rank computation with application to the study of strongly regular graphs. To appear in ISSAC 2007 Proceedings 2007 International Symposium on Symbolic Algebraic Computation, ACM Press, New York, N.Y., 2007. With David Saunders and Zhendong Wan.

Approximate factorization of multivariate polynomials via differential equations. In ISSAC 2004 Proceedings 2004 International Symposium on Symbolic Algebraic Computation ACM Press, New York, N.Y., 2004, pages 167–174. With Shuhong Gao, Erich Kaltofen, Zhengfeng Yang, and Lihong Zhi.

On approximate irreducibility of polynomials in several variables. In ISSAC 2003 Proceedings 2003 International Symposium on Symbolic Algebraic Computation ACM Press, New York, N.Y., 2003, pages 161-168. With Erich Kaltofen.

Other Papers:

Numerical Techniques for Computing the Inertia of Products of Matrices of Rational Numbers. Submitted for publication. With David Saunders and David Wood.

Approximate Factorization of Multivariate Polynomials Using Singular Value Decomposition. Submitted for journal publication. With Erich Kaltofen, Zhengfeng Yang, and Lihong Zhi.

Using Riemannian SVD for Problems in Approximate Algebra. In Proceedings of the SNC Workshop, Xi'an, China, July 2005. With Brad Botting, Mark Giesbrecht.

New Algorithms for Exact and Approximate Polynomial Decomposition. In Proceedings of the SNC Workshop, Xi'an, China, July 2005. With Mark Giesbrecht.

'Using Maple to grade Maple' Assessment Software from North Carolina State University. In Proceedings 2002 Maple Workshop, Waterloo, Canada, 2002. Waterloo Maple Inc. Erich Kaltofen, Michael McLean, and Larry Norris with John May, Dmitriy Morozov, and William Turner.

The Tent Map: Chaos to Chaos, Dust to Dust. A Trinity University Research Experience for Undergraduates Report, San Antonio, Texas, 1997. With A. Heap and P. Lynch.

SELECTED ACADEMIC TALKS

Invited Conference Talk (20m) *Comparing Heuristics for Solving Problems in Approximate Polynomial Algebra*, MITACS-CAIMS Joint Meeting, June 2006, Toronto, ON

Invited Conference Talk (20m) *A Comparison of Heuristics for Solving Problems in Approximate Polynomial Algebra*, Joint Mathematics Meeting, AMS-SIAM Special Session: Symbolic-Numeric Computation and Applications, January 2006, San Antonio, TX

Conference Talk (30m) *Using Riemannian SVD for Problems in Approximate Algebra*, Symbolic Numeric Computation (SNC) Workshop, July 2005, Xi'an, China

Invited Conference Talk (30m) *Approximate Factorization of Noisy Multivariate Polynomials*, Applications of Computer Algebra (ACA), August 2004, Beaumont, TX

Invited Speaker (50m) *Approximate Factorization of Noisy Multivariate Polynomials*, MOCAA Workshop, May 2004, Waterloo, ON

Invited Seminar Talk (50m) *Tackling two problems in polynomial algebra using Ruppert's theorem*, Clemson University Algebra and Discrete Math Seminar, September 2003, Clemson, SC

ACADEMIC SERVICE

- Local organizer for the 2007 East Coast Computer Algebra Day conference.
- Webmaster for the conferences ISSAC 2007, ACA 2003, and ISSAC 2001.
- External reviewer for the Journal of Symbolic Computation and the SIGSAM Bulletin Communications in Computer Algebra.
- External reviewer for conferences ISSAC 2001, 2005, and 2007, SNC 2005 and 2007, MEGA 2005, and CASC 2003.

REFERENCES

- Erich Kaltofen <kaltofen@math.ncsu.edu> *1-919-515-8785*
- Mark Giesbrecht <mwg@uwaterloo.ca> *1-519-888-4567 ext. 6582*
- B. David Saunders <saunders@cis.udel.edu> *1-302-831-6238*