

MAUREEN M. MORTON, PH.D.

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OBJECTIVE

Obtain position in applied mathematics or engineering research at a company or laboratory. Apply creative, analytical, mathematical modeling, computational, and generalized problem-solving techniques to patterns in science and engineering. Strengths and experience in:

- Numerical Analysis & Scientific Computing
- Mathematics Research applied to Physics, Agriculture, Biology, Aerospace
- Probabilistic Structural Analysis
- Risk/Reliability Analysis
- 3 Peer-reviewed Journal Articles
- Python
- MATLAB
- LaTeX Typesetting
- Microsoft Office
- Basics of Git
- Basics of AutoCAD

PROFESSIONAL EXPERIENCE

Senior Research Engineer

Apr 2019-Present

N&R Engineering, Parma Heights, OH

- Perform probabilistic structural analysis, risk analysis, and reliability analysis for air and space applications
- Develop software and new methodologies for analyses

Mathematics Instructor (Adjunct)

Aug 2013-May 2019

Stark State College, North Canton, OH

- Courses taught (6-8/yr): Trigonometry, College Algebra, Precalculus, Statistics, Math for Technology
- Designed and taught Matchless Measures math workshop for Kids' College (Jun 2014)
- Envisioned, implemented, and coordinated *Your Story, Your Community, Your College*, a bi-semester community-building program for students, faculty, and staff (Jul 2014-May 2019)

Short-term Contract and/or Grant Work

2010-2013

- Russian Language Instructor (Kent State University, Kent, OH, Aug 2010-May 2011); AmeriCorps Member (Ravenna, OH, Sep 2011-Sep 2012); Long-term Substitute Teacher (Emmanuel Childcare, Massillon, OH, Apr 2013-Jul 2013)

Mathematics Graduate Research Assistant & Instructor

Aug 2004-Jun 2010

Michigan State University, East Lansing, MI

- Conducted original research to improve numerical methods for scientific computing with applications such as biology (summer 2005, summer 2006), optics (Jan 2007-Dec 2007), plasma physics fusion energy (Jan 2008-Jun 2010)
- Co-authored two peer-reviewed journal articles (published 2011, 2014)
- Courses taught (3/yr): College Algebra, Survey of Calculus I/II; Courses tutored: developmental, Trigonometry, Algebra, Calculus, Differential Equations, Analysis

Visiting Mathematics Research Scholar

Mar 2009-Jun 2009

Institute for Pure and Applied Mathematics, UCLA, Los Angeles, CA

- Conducted collaborative interdisciplinary research (mathematics & physics) at the long program on *Quantum and Kinetic Transport: Analysis, Computations, and New Applications*
- Presented research results at Culminating Workshop

Agriculture Research Assistant

May-Aug 2000, Jan-May 2004; Jul-Aug 2005

Organic and Sustainable Agriculture Lab, Iowa State University, Ames, IA; Horticulture and Crops & Soil Sciences Departments, Michigan State University, East Lansing, MI

- Collected and analyzed data; prepared reports
- Initiated and established protocol for mathematical modeling for laboratory
- Co-authored peer-reviewed journal article (published 2008)
- Supervised assistant; served as liaison between university and farmers

EDUCATION

- Ph.D. in Applied Mathematics** Jun 2010
 Michigan State University, East Lansing, MI
- Dissertation Title: Integral Deferred Correction Methods for Scientific Computing
 - Dissertation Advisor: Andrew J. Christlieb
- B.A. in Mathematics/Russian Language & Literature** May 2003
 University of Kansas, Lawrence, KS

AWARDS & SERVICE

- Recreational Coordinator for Adults & Teens with Developmental Disabilities** Sep 2011-Sep 2012
 POWERcorps, a program of Family & Community Services and Portage County Board of DD, Ravenna, OH
- Planned and implemented recreational, social, and educational activities for adult and teen consumers in groups of 6 - 40
 - >900 hours AmeriCorps service
- Industrial Mathematical & Statistical Modeling Workshop Travel Grant** Summer 2006
 Center for Research in Scientific Computation, Raleigh, NC
- Presented team-based project
 - Co-authored technical report
- Mathematical Biology Travel Grant** Summer 2005
 Park City Mathematics Institute, Park City, UT
- Presented team-based project
- First Place, Russian Language Essay Contest (Nonheritage Fourth Year)** 2003
 American Association of Teachers of Slavic and East European Languages (AATSEEL)
- National Merit Scholarship** Aug 1999 - May 2003
 University of Kansas, Lawrence, KS

PUBLICATIONS

- A high order time splitting method based on integral deferred correction for semi-Lagrangian Vlasov simulations.* A. Christlieb, W. Guo, M. Morton, and J.-M. Qiu. *J. Comp. Phys.*, v 267, pp 7-27, 2014
- Semi-implicit integral deferred correction constructed with additive Runge-Kutta methods.* A. Christlieb, M. Morton, B. Ong, and J.-M. Qiu. *Commun. Math. Sci.*, v 9(3), pp 879-902, 2011
- Seed priming of winter annual cover crops improves germination and emergence.* S. Snapp, R. Price, and M. Morton. *Agronomy Journal*, v 100, pp 1506-1510, 2008
- Analysis of biological interaction networks for drug discovery.* A. Baker, M. Jung, C. Lee, I. Maslova, M. Morton, J. Wang. CRSC Technical Report: CRSC-TR06-23, pp 119-157. Industrial Mathematical & Statistical Modeling Workshop for Graduate Students, Center for Research in Scientific Computation, Raleigh, NC, 2006

INVITED TALKS

- Integral deferred correction methods for multi-scale and nonlinear problems.* (Invited). Case Western Reserve University: Applied Mathematics Seminar, Cleveland, OH, April 2019
- High order split integral deferred correction methods for Vlasov equations.* (Invited). SIAM Annual Meeting, Pittsburgh, PA, Jul 2010
- Integral deferred correction methods for multi-scale problems.* (Invited). Colorado School of Mines: Mathematical and Computer Sciences Colloquium, Golden, CO, Oct 2009