Curriculum Vitae of

Rachel Cox

EDUCATION

University of Colorado Boulder — Boulder, CO
M. S. in Applied Mathematics (APPM) — 2013-2016
- Awarded Teaching Assistantship

Florida State University — Tallahassee, FL
M. S. in Applied & Computational Mathematics — 2006-2008
- Awarded Teaching Assistantship

Bucknell University — Lewisburg, PA
B. S. in Mathematics | Minor in Physics — 2002-2006
- Fulfilled requirements for a B.A. degree in Classics
- Herbert Goodman Barrows Prize; excellence in Latin

TEACHING EXPERIENCE

University of Colorado Boulder — Boulder, CO
Assistant Teaching Professor, Department of Computer Science — 2018-Present
- Teach Computer Science (CSCI) undergraduate courses including:
  - CSCI 2820 Linear Algebra with Computer Science Applications
  - CSCI 2824 Discrete Structures
  - CSCI 3022 Introduction to Data Science with Probability and Statistics
  - CSCI 3104 Algorithms
  - CSCI 3202 Introduction to Artificial Intelligence
- Hire and help manage Undergraduate Teaching Assistants (UTAs); meet weekly with UTAs to prepare them for teaching discrete structures workgroups
- Collaborate with the CSCI Department Curriculum committee
- Serve on the ABET accreditation committee
- Hire undergraduate Learning Assistants (LAs) for the CSCI department
- Coordinate between CU Boulder and Gradescope; organize workshops for faculty
- Designing and teaching a novel Data Science short course for local business management with the newly formed Tech Frontiers committee

Instructor, Tech Frontiers Executive Education Program — July 2021
- Co-taught two-day Data Science course designed for mid-level management tech professionals and secondary teachers
- Developed course materials and lectured on the following topics: Python basic syntax, utilizing NumPy, manipulating data with Pandas, and Regression techniques for model fitting

Lecturer, Learning Center Coordinator for APPM — 2016-2018
- Taught APPM undergraduate courses, course coordinator for Pre-Calculus

- Hired and managed undergraduate Learning Assistants (LAs); met weekly with LAs to prepare them for teaching workgroups
- Gathered and analyzed Learning Center usage; analysis done through self-authored MATLAB scripts
- Facilitated exam accommodations for special needs students
- Scheduled TA office hours; organized Learning Center rooms to foster a conducive learning environment

Graduate Part-Time Instructor, Teaching Assistant 2013-2016

- Graduate Instructor for Calculus I for Engineers, Pre-Calculus for Engineers
- Instructor of record for Calculus I, II, and III Workgroups
- Teaching Assistant for Calculus I, II, III, and Differential Equations
- Participant in Peer Assisted Review (PAR) research study

Front Range Community College Westminster, CO
Adjunct Mathematics Instructor 2012-2013, 2016-Present

- Taught Statistics, College Algebra, Trigonometry, Intermediate Algebra, Career Mathematics
- Lecture topics relevant to Computer Science which include Sequences, Series, Probability, Propositional Logic, and Set Theory
- Lead Developer of online Calculus I course; Created a Desire2Learn master shell with accessibility in mind
- Taught online Calculus 1 and College Algebra
- Recorded supplementary mathematics lectures for online Calculus I course

Arapahoe Community College Littleton, CO
Adjunct Mathematics Instructor 2012-2013

- Taught Calculus I, Liberal Arts Mathematics, College Algebra, and Trigonometry
- Tutored all levels of mathematics in the Math Center

RESEARCH EXPERIENCE

Applied Research Laboratory State College, PA
The Pennsylvania State University 2008-2012
Research & Development Engineer II

- Analyzed embedded flight control and flight guidance software for autonomously guided vehicles
- Performed software-in-the-loop test and evaluation
- Assessed overall performance of torpedo defense systems
- Highly proficient with data processing, experience with code integration
- Managed large parallel simulations and cluster queue usage for the department; experience with high performance computing
- Utilized Excel and wrote MATLAB scripts to organize and present large amounts of data in a creative, meaningful manner
- Wrote formal simulation study plans and technical reports
- Created and gave PowerPoint presentations based on research study results both internally within division and externally for project review panels
- Team-oriented; taught new employees how to set up and execute their own studies

- Promotion to Research & Development Engineer II within first year of employment

RELEVANT SKILLS & EXPERIENCE

- Strong working knowledge of MATLAB and Python
- Capability with C++, ArcGIS
- Understanding of Windows, Linux, and VMS OS
- Proficient with Microsoft Word, MS Excel, MS PowerPoint
- Skilled in LaTeX

TECHNICAL REPORTS & PRESENTATIONS*

* All technical reports and presentations are classified. The meaning of the acronyms is also classified. The research involved developing and testing torpedo software. The research studies performed were system level studies that analyzed vehicle performance in combination with a larger defense system.

Technical Reports

1. "EDM-1 Baseline Study": Prepared for the CAT Systems Engineering Working Group. **R.S. Tutmaher**, M.A. Moreland, H.B. Miska. 2010

2. "EDM-1 Performance": Prepared for PMS-415. **R.S. Tutmaher**, M.A. Moreland, H.B. Miska, D. Brown, M.L. Perini. 2010

3. "EDM-1 Baseline Study Report": Prepared for CAT/TWS Team. **R.S. Tutmaher**. 2010

4. "EDM-2 GCS Baseline Study Plan": Prepared for CVLWT-ATT Team. **R.S. Tutmaher**, B.L. Zoebisch, M.A. Moreland, H.B. Miska. 2010

5. "CVLWT-ATT EDM-1 Minimum Launch Range": Prepared for CVLWT-ATT System Requirements Review. **R.S. Tutmaher**, M.A. Moreland. 2009

6. "EDM-1 Baseline Simulation Study Test Plan": Prepared for CVLWT-ATT Team. **R.S. Tutmaher**. 2009

7. "ATT Maximum Speed Simulation Study Plan": Prepared for the CVLWT-ATT Team. **R.S. Tutmaher**. 2009

Presentations by R.S. Tutmaher

1. "EDM-1+ ATT Capability Analysis": Prepared for N8 Torpedo Defense Technical Review Panel. 2011

2. "ECAT Effectiveness Study": Prepared for the CAT Systems Engineering Working Group. 2010

3. "EDM-1 CAT Maximum Speed Study Results": Prepared for CAT Systems Engineering Working Group. 2010

4. "Launcher Position Study": Prepared for CAT Systems Engineering Working Group. 2010

5. "Launcher Position Study": Prepared for SWDG. 2010

6. “Launcher Position Study”: Prepared for CAT/TWS Ready Stow Group. 2010

7. “Launcher Position Study”: Prepared for the CAT/TWS Systems Engineering IPT. 2010

8. “Compact Finite Difference Methods with Spectral-like Resolution” by Sanjiva K. Lele: Prepared for Florida State University Graduate Committee as a Masters Research Presentation. 2008

Presentation Collaborator

1. “Technology Requirements Model (TRM) Support of CAT/TWS”: Prepared for COMPOTEVFOR Undersea Warfare Division. 2011

2. “Nixie “Footprint” on EDM-1 Performance”: Prepared for N8 Torpedo Defense Technical Review Panel. 2011

3. “Technology Requirements Model (TRM) Study of ATT Launcher Position on CVN”: Prepared for Captain Edward J. Lester, Captain Jeff Griffen, Dr. Teresa McMullen (ONR33), Dan Godfrey (PMS-415). 2010

4. “Bearing Only Launches”: Prepared for CAT/TWS. 2010

5. “CVLWT-ATT TRM Baseline Study” Prepared for the CVLWT-ATT Team. 2009

6. “Technology Requirements Model (TRM): Modeling and Simulation Support of ATTDS”: Prepared for PMS-415 ONR. 2009

7. “Technology Requirements Model (TRM): Modeling and Simulation Support of ATTDS”: Prepared for NMAWC, N86B, OPNAV, N86A, Surface Warfare Magazine, ONR333. 2009

8. “Bearing Error Sensitivity Study”: Prepared for the System Engineering IPT. 2009

9. “CVLWT-ATT Minimum Launch Range”: Prepared for CVLWT-ATT System Requirements Review. 2008

PROFESSIONAL DEVELOPMENT

1. Online Teaching Certification – Front Range Community College 2017

2. Peer Assisted Review (PAR) research study participant – University of Colorado 2015

3. D3+DS: A Data Visualization Workshop with Twitter Data Science Team 2014

4. Introduction to Research Seminar – University of Colorado Boulder 2014

5. Teaching Excellence Seminar – University of Colorado Boulder 2013

6. Teaching and Learning Online – Arapahoe Community College 2012

7. Heated Hatha Yoga Teacher Training – Hayward's Yoga in State College 2011

8. Women's Leadership Conference – Pennsylvania State University 2009

9. Employee Benefits Association Committee Member 2009

10. Sea, Air & Space Expo Attendee 2009

11. TRM Software Training – as a trainer 2009

12. Structural-Acoustics Computations Seminar – Penn State University 2009

13. Teaching Assistant Training – Florida State University 2007