Ryan Reed Grove

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SKILLS, QUALIFICATIONS, AND EXPERTISE

Programming:

- C++ with MPI & OpenMP
- C with MPI
- Python, Fortran, Matlab, R
- Java, HTML, SQL

Software Packages: (* implies contributor of)

- ASPECT* (open source mantle convection program using deal.II)
- GRIPS* (evolutionary multi-objective nonlinear solver)
- ViCE* (visual contour editor)
- UNCOLA* (analytical collision avoidance software package)
- deal.II* (open source finite element library)
- AMPL, CPLEX, and Girobi (nonlinear and linear optimization)
- LaTeX & Beamer
- Sage

Platforms:

- Linux & Ubuntu

Computational Mathematics:

- Finite element method
- Stabilization schemes
- Viscoelastic fluid flow
- Navier Stokes equations
- Stochastic models and processes
- Linear, nonlinear, & network optimization
- Finite difference method
- Immersed boundary method
- Modeling and simulation
- Numerical linear algebra
- Numerical differential equations

Physics & Engineering:

- Nuclear & quantum
- Electricity & magnetism
- Mechanics, optics, & electronics
- Satellites & space systems

Version Control:

- GIT & Subversion

EDUCATION

- **Ph.D., Mathematical Sciences, Clemson University** *2017(expected)*
  Thesis area: Finite element method, stabilization schemes, and parallelization **QPA: 3.69/4.00**
- **M.S., Applied Mathematics, Indiana University of Pennsylvania** *2013*
  Thesis area: Viscoelastic fluid flow, Navier Stokes equations **QPA: 3.83/4.00**
- **B.S., Physics & Applied Mathematics, Indiana University of Pennsylvania** *2012*
  (Dual Bachelorette Degrees) Minor: Computer Science **QPA: 3.95/4.00**

EMPLOYMENT

- **Member of the Technical Staff, The Aerospace Corporation** *Jun 2015 - Present*
  Create a test suite for the Genetic Resources for Innovation and Problem Solving (GRIPS) program.
- **Graduate Teacher of Record, Clemson University** *Aug 2015 - Present*
  Teach MATH 1060 (Calculus of One Variable I)

INTERNSHIPS

- **_Member of the Technical Staff, The Aerospace Corporation_**   _Jun 2015 - Aug 2015_
  Developer and analyst of multiple software packages including: GRIPS, ViCE, and UNCOLA.

RESEARCH APPOINTMENTS

- **_Research Assistant, Clemson University_**   _Aug 2013 - present_
  Simulate problems in thermal convection using ASPECT software package.
  Compare nonlinear stabilization schemes for advection-diffusion equations using deal.II.
- **_Web Analyst, Indiana University of Pennsylvania_**   _Sep - Dec 2012_
  Prepare and interpret multiple web traffic reports for the Communications Department.
  Find efficient ways to query and maintain a large database of web traffic information.
- **_ASPECT Hackathon, Various Universities_**   _May 2015 & May 2014_
  Helped graduate students in the geoscientific community program in deal.II and use ASPECT.
- **_deal.II Hackathon, Texas A&M University_**   _Aug 2015_
  Served as research and personal mentor to participants at this workshop.

CONFERENCE PRESENTATIONS, SEMINARS, and PANELS

Given over **10** contributed talks, presented **1** poster, and have been on **2** panels, including:

- **_2015 SIAM Conference on Computational Science and Engineering_**   _Mar 2015_
  The Calvin L. Rampton Salt Palace Convention Center, Salt Lake City, UT   **Poster**
  <u>Title:</u> "Comparison of Nonlinear and Linear Stabilization Schemes for Advection-Diffusion Equations"
- **_Fall Southeastern Sectional Meeting of the American Mathematical Society_**   _Nov 2014_
  The University of North Carolina at Greensboro, Greensboro, NC   **Talk**
  <u>Title:</u> "Comparison of Nonlinear and Linear Stabilization Schemes for Advection-Diffusion Equations"
- **_Pennsylvania State System of Higher Education Mathematics Association_**   _Apr 2013_
  Clarion University, Clarion, PA   **Talk**
  <u>Title:</u> "Immersed Boundary Modeling of Journal Bearings in a Viscoelastic Fluid"

SERVICE AND VOLUNTEER WORK

- **_Graduate Student Government Senator, Clemson University_**   _Aug 2015 - present_
  Also serving as a member of the financial committee
- **_SIAM Webmaster, Clemson University_**   _Aug 2014 - present_
  Maintainer of the website: <http://people.clemson.edu/~siam/>
- **_Volunteer Firefighter, Portage Area Fire Department_**   _Jul 2012 - May 2013_
  Respond to emergency calls such as QRS, fire, and hazardous materials calls.
- **_Volunteer Assistant, Cambria Residential Services_**   _Aug 2006 - Jun 2012_
  Take individuals with mental health disabilities into the community on social outings.
  Cook, clean, and transport individuals with mental health disabilities.

HONORS, AWARDS, AND SCHOLARSHIPS

Received over **$30,000** in honors, awards, and scholarships combined.

- **_Travel Support_**   _2013 - present_
  Received travel support for **7** conferences, seminars, and panels totalling around **$4,000** over **4** years.
- **_S-COAM, Indiana University of Pennsylvania_**   _2009 - 2013_
  Scholarship renewed **7** times totalling around **$25,000** over **4** years.