Steven Roberts | Curriculum Vitae

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Education

Virginia Tech
Ph.D. Student in Computer Science, 3.97 GPA — *Fall 2016 – present*

Virginia Tech
B.S. in Computer Science and B.S. in Mathematics, 3.98 GPA — *Fall 2012 – Spring 2016*
Highest GPA in both graduating classes

Skills and Qualifications

Programming Languages: Proficient in MATLAB and Mathematica, experienced with C (including OpenMP and MPI), CUDA, C++, C#, Python, and Java

Mathematics: Strong background in linear algebra, numerical analysis, and differential equations

Web Development: Experienced in HTML, ECMAScript 2018, Node.js, CSS, SASS, and creating Chrome Extensions

Databases: Experienced with SQL databases and basic querying

Work History

Lawrence Livermore National Laboratory
Intern — *Summer 2018 – 2019*
- Implemented and optimized finite element operations for GPUs using CUDA
- Achieved 10 to 100 times speedup over other other CPU and GPU implementations
- Contributed to the open-source project libCEED

Virginia Tech Computational Science Laboratory
Research Assistant — *Spring 2015 – present*
- Deriving, implementing, and testing new multirate time integrators for numerically solving differential equations

NASA Glenn Research Center
Intern — *Summer 2017*
- Developed 1D hybrid direct kinetic simulation of a Hall thruster in C++

Insurance Institute for Highway Safety
Intern — *Summer 2013 – 2016*
- Developed software in C#, much of which interacted with SQL databases
- Helped to develop several IIHS websites, which are visited by thousands daily

Web Developer
Freelance — *2016 – present*
- Designed and created websites for two VT Materials Science and Engineering professors' research groups
- Developed four Chrome Extensions used by more than 75,000 users

Virginia Tech
Undergraduate Teaching Assistant — *Fall 2014*
- Assistant for Software Design & Data Structures class (CS 2114)
- Held weekly office hours to help students with assignments
- Helped supervise two labs with approximately 30 students each

Volunteer Work and Involvement

Fall 2017 – Fall 2018: Volunteer for VT CSRC Career Fair

2016: Volunteer Math Tutor for Teacher Praxis Preparation

2013 – 2015: Galipatia Academic Committee Member

2014: Volunteer Android app developer for Institute of Industrial Engineers Mid-Atlantic Conference

Recognitions and Accomplishments

2018: Virginia Space Grant Consortium Graduate STEM Research Fellowship Recipient

2017: Davenport Fellowship Recipient

2016 – present: Member of Phi Beta Kappa Honor Society

2016: Winner of VT David Heilman Memorial Award for Outstanding Undergraduate Research

2016: Winner of VT Math Outstanding Senior, Applied Computational Option

2016: Pivot Point Hackathon - Third place

2014 – 2016: Winner of VT CS Sophomore, Junior, and Senior Scholar Awards

2012 – 2016: VT Dean's List with Distinction

Publications

[1] Steven Roberts, Arash Sarshar, and Adrian Sandu. Coupled multirate infinitesimal GARK schemes for stiff systems with multiple time scales. *arXiv preprint arXiv:1812.00808*, submitted 2019.

[2] Arash Sarshar, Steven Roberts, and Adrian Sandu. Design of high-order decoupled multirate gark schemes. *SIAM Journal on Scientific Computing*, 41(2):A816–A847, 2019.

Conference Presentations

Virginia Space Grant Consortium Student Research Conference **Hampton, VA**
Practical Multirate Time Integration Methods *April 8, 2019*
Steven Roberts, and Adrian Sandu

SIAM Conference on Computational Science and Engineering **Spokane, WA**
Implicit Multirate Generalized Additive Runge–Kutta Methods *March 1, 2019*
Steven Roberts, John Loffeld, Arash Sarshar, Adrian Sandu, and Carol Woodward