

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

- Implemented and optimized finite element operations for GPUs using CUDA
- Achieved 10 to 100 times speedup over 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*, in preparation 2018.

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

Conference Presentations

SIAM Conference on Computational Science and Engineering

Implicit Multirate Generalized Additive Runge–Kutta Methods

Spokane, WA

March 1, 2019

Virginia Space Grant Consortium Student Research Conference

Practical Multirate Time Integration Methods

Hampton, VA

April 8, 2019