

Benjamin Sepanski

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Skills

Programming Languages	Python, Java, C++/CUDA, Rust, R
Software & Tools	Git, Maven, CMake, Unix shell, LaTeX, ggplot/matplotlib, Excel, <i>(some experience with)</i> Docker, Github Actions CI/CD, x86-64 assembly

Education

University of Texas at Austin *August 2020 – Current*
M.S. in Computer Science
Studied and researched programming languages in the UToPiA group
Advisor: Dr. Isil Dillig

Baylor University *August 2016 – May 2020*
B.S. in Mathematics, Minor in Computer Science
45 hours of graduate coursework in mathematics, computer science, and statistics
Advisor: Dr. Robert Kirby

Work Experience

Research Scientist *May 2021 – August 2021*
Lawrence Berkeley National Labs

- DOE CSGF Practicum supervised by Dr. Samuel Williams and Dr. Hans Johansen
- Extended C++/CUDA high-performance data layout Bricks library to reduce metadata usage, support complex types, and compute FFTs using NVIDIA's cuFFT library
- Used roofline analysis and the Bricks layout to optimize high-dimensional stencil computations from the GENE code—a phase-space SciDAC Fusion Code.

Undergraduate Research Assistant *January 2019 – August 2020*
Baylor University

- Applied nonlocal boundary integral equations to foster finite element methods on wave equations in an unbounded domain with Dr. Robert Kirby and Dr. Andreas Klockner.

Director's Summer Program Participant *May 2018 – August 2018*

Director's Program at the National Security Agency

- Received Top Secret // Sensitive Compartmented Information clearance with Agency special background investigation and full scope polygraph examination.
- Submitted detailed findings in an internal refereed technical paper.
- Designed, implemented, and tested graph optimization algorithms.
- Applied and extended language modeling and n-gram techniques to a high-priority classified project.

Research Assistant

May 2017 – August 2017

Research Experience for Undergraduates at San Diego State University

- Researched Numerical Semigroups at San Diego State University

Publications

Synthesizing fine-grained synchronization protocols for implicit monitors (with Dr. Kostas Ferles, Rahul Krishnan, Dr. James Bornholt, and Dr. Isil Dillig) Proc. ACM Program Lang. 6, OOPSLA1, 2022

Finite Elements for Helmholtz equations with a nonlocal boundary condition (with Dr. Robert Kirby and Dr. Andreas Klockner) SIAM Journal on Scientific Computing, 2021

Augmented Hilbert series of numerical semigroups (with Christopher O'Neill, Jeske Glenn, and Vadim Ponomarenko) Integers 19 (June 3, 2019), #A32

Awards and Honors

2020 Department of Energy Computational Science Graduate Fellow

2019 Goldwater Scholar

Recipient of Mathematical Association of America (MAA)'s Student Travel Grant to the 2018 Joint Mathematics Meetings

2018 & 2019 Outstanding Math Student at the J. Harry and Anna Jeanes Academic Convocation

Recipient of Baylor Mathematics Scholarships

Jerry Johnson Scholarship (2018 & 2019)

KL & Vivian Carter Scholarship (2017)

Schultz-Werba Math Scholarship (2017)

Gene & Ruth B Royer Scholarship (2018 & 2019)

Howard / Anita Rolf Scholarship (2017)

Carlile Engineering Scholarship (2016)

Received President's Gold Scholarship at Baylor University