Samuel Grayson

Computer Science PhD Student

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Objective

I am pursuing an internship in compilers, systems, and architecture for the Summer or Fall of 2021. Below, my CV shows that I can combine CS theory with practical software engineering to solve real-world problems.

Education

Aug 2015–May 2019 **B.S. Computer Science, Physics Minor**, *University of Texas at Dallas*, (3.77).

Aug 2019–May 2026 **Ph.D. Computer Science**, *University of Illinois at Urbana Champaign*, 3.71.

Research Projects

Jan 2020–Present **ILLIXR: Illinois eXtended Reality Testbed**, *PI: Sarita Adve.*
A runtime for agumented and virutal reality headsets.

Jan 2020–Present **HPVM Spandex Compiler**, *PI: Sarita Adve.*
An LLVM compiler pass to emit specialized cache-coherence messages.

Sep 2019–Dec 2019 **Implementing Truly Parallel Threads in CPython**.
Implementation of parallel threads in CPython (unlike prior work, avoiding the GIL), beating traditional multiprocessing by 3x, while maintaining multi-threaded memory-safety.

May 2018–Aug 2018 **Naut DB**, *PI: Kyle Hale.*
A database unikernel for high-performance computing, 1.2x speedup over Linux.

Aug 2018–May 2019 **Computational Analysis of Self-Reported Business Risk Factors**.
Large-scale (hundreds of GB) text-mining pipeline on a distributed cluster.

Publications, Posters, and Talks

Nov 2018 Sam Grayson. "NautDB: Towards a Hybrid Runtime for Processing Compiled Queries." Poster at *SC '18*.

Jun 2018 Joseph Vade Burnett, Sam Grayson, Zachary Sullivan, Richard Van Natta, and Luke Bang. "Arithmetical Functions Associated with the k-ary Divisors of an Integer." At *IJMMS*. DOI: 10.1155/2018/9349245.

Feb 2017 Sam Grayson. "Creative Thinking in Math Class." Talk at *TEDxUTD '17*.

Awards and Honors

Aug 2019 ARCS Graduate Fellowship

Aug 2019 Graduate College of Engineering Fellowship

Aug 2016 Computer Science Honors student at UT Dallas

Aug 2015 Collegium V Honors student at UT Dallas

Aug 2015 Academic Excellence Scholarship (full-tuition scholarship) at UT Dallas

Dec 2014 Eagle Scout

Employment

May 2019–Aug 2019 **Software Engineering Intern**, *Facebook*, Reference: Xiaoyu Chen.
Worked on an internal tool for machine learning engineers, used by multiple teams.

May 2019–Aug 2019 **REU Student**, *Illinois Institute of Technology*, Reference: Kyle Hale.
See NautDB project.

May 2017–May 2018 **Machine Learning Intern**, *Snowfall Technologies*, Reference: Stephen Fox.
Designed ML product-suggestion algorithm, and managed REST microservices in Kubernetes.

Aug 2016–May 2017 **Computer Science Mentor**, *UT Dallas*, Reference: Vanessa Dixon.
Taught C, C++, Java, Unix, computer architecture, and discrete math in individual and group settings. Wrote my own open-source curriculum

May 2016–Aug 2016 **Software Engineering Intern**, *The Home Depot*, Reference: Stacy Devino.
Developed and implemented an algorithm for finding a user's location in a store based on the WiFi signal-strength (project presentation)

June 2015–Aug 2015 **Software Engineering Intern**, *Silicon Labs*, Reference: Stephen To.
Used lab equipment (multimiters, oscilloscopes, soldering irons, etc.) to test boards

Jun 2014–Aug 2014 **Lab assistant**, *University of Texas*, Reference: Hao Ling.
Created proof of concept for localizing and tracking with radar. Designed a system for remotely collecting radar data reducing collection time by 75%.

Open Source Contributions

I believe in giving back to the open-source community. Aside from open-sourcing all of my own research projects, I have contributed to these projects owned by others:

- ILLIXR
- gem5
- Dask Distributed
- Dask
- OpenVINS
- IMDbPY
- SuperMalloc