Tristan Knoth | Curriculum Vitae

3869 Miramar st., P.O. Box 3326, La Jolla, CA, 92092

650 200-7867 • tjknoth@gmail.com • tjknoth.github.io
tjknoth • tristanknoth

I am a first year Ph.D. student researching programming languages with the ProgSys group at UC San Diego. I'm interested in ways in which language design can make it easier for programmers to develop fast and correct software. To this end, I enjoy working with functional program, type systems, and formal verification. I'm also passionate about inclusion and diversity in computer science.

Education

Academic Qualifications

UC San Diego **San Diego, CA**
Computer Science Ph.D. Student *2017-Present*
- Researching programming languages with the ProgSys research group.

Grinnell College **Grinnell, IA**
B.A., Computer Science and Mathematics *2013-2017*
- Researched high-performance algorithms for selecting multiple order statistics with distributed networks of GPUs under Dr. Jeff Blanchard.
- Trustee Honors scholar

Related Experience

Fluxx Labs **San Francisco, CA**
Software Engineering Intern *2016-2017*
- As the lead developer on the project, designed, implemented, and shipped beta version of a native Android client for Fluxx's Grantmaker platform from scratch in the course of one summer.
- Enhanced Android application with support for SAML Single Sign-on.
- Improved and documented Javascript API for future Fluxx mobile developers.
- Integrated large-scale Ruby on Rails web application with Docusign's template functionality.

Grinnell College **Grinnell, IA**
Student Researcher *2015-2016*
- Developed parallel algorithm with CUDA C++ and Open MPI to select multiple order statistics from distributed data sets using NVIDIA GPUs.
- Improved upon existing order statistic selection algorithms by guaranteeing correct responses instead of relying upon approximate statistical methods.
- Mitigated security concerns by performing data analysis locally instead of passing potentially sensitive data over the network.
- Non-optimized software package can select one-tenth percentiles from 2^{27} random data points in approximately 70ms.

Technical and Personal skills

- **Computer Languages:** C++, C, Java, CUDA, MATLAB, Haskell, Scheme, Ruby, JavaScript, R

- **Other:** Linux, Mathematica, Stata, MPI, LaTeX, Arduino, Linear Programming, Woodworking, Machining, Spanish

Interests and Extra-curricular Activity

- I volunteer for UAW-2865, the University of California student workers' union.
- As an undergraduate, I was on the NCAA swim team, where I was recognized as an Academic All-Conference performer all four years.
- I have 9 years of experience playing water polo, and in 2016 was a CWPA Division III First-team All-American.