Matthew Vilim

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Education

Stanford University
PhD, Electrical Eng.
Jan 2017 – Present

– Advised by Kunle Olukotun
– Language, compiler, and architecture design of reconfigurable accelerators for data analytics and ML.

GPA: **4.07**

Stanford University
MS, Electrical Eng.
Sep 2016 – March 2018

GPA: **3.95**

U of I (UIUC)
BS, Computer Eng.
Aug 2012 – Dec 2015

– Highest Honors
– University Honors (top 3% of College of Engineering)

GPA: **3.95**

Work Experience

NVIDIA
Santa Clara, CA
GPU Hardware Verification
Intern
March 2016 – Aug 2016

– Contributed to features and performance of Volta randoms program generator
– Worked with architecture team to test and verify Volta memory model

NVIDIA
Santa Clara, CA
Systems Software Intern
Summers 2014, 2015

– Developer on Mac OS X graphics drivers team
– Worked across all levels of the driver stack, including display and OpenGL drivers
– Ported features only implemented in Windows drivers to OS X drivers

Argonne National Laboratory (ANL)
Lemont, IL
Research Intern
Summers 2012, 2013

Developer on GREET (greet.es.anl.gov), a model of U.S. emissions

Research Experience

Prof. Olukotun
Stanford University
Jan 2018 – Present

– Adapted booksim with a custom simulator to evaluate networks for CGRAs
– Wrote a genetic-algorithm based placement tool for hybrid networks
– Zhang, Y., **Rucker, A.**, *et al.* "Compiler-Directed Hybrid Networks for Spatial Architectures." *ASPLOS, 2019.* (Submitted)

Prof. Dally
Stanford University
Sep 2017 – Dec 2017

– Adapted boolean satisfiability algorithms to allow efficient hardware acceleration
– Performed ASIC place-and-route to quantify accelerator hardware requirements
– Zhu, C., **Rucker, A.**, Wang, Y., Dally, W.J. "SATin: Hardware for Boolean Satisfiability Inference." *HPCA, 2019.* (Submitted)

Prof. Suh
Cornell University
Jan 2015 – May 2017

– Developed an online scheme to predict GPGPU kernel behavior and enable dynamic voltage and frequency scaling while meeting soft real-time deadlines
– Chen, T., **Rucker, A.**, Suh, G.E. "Execution Time Prediction for Energy-Efficient Hardware Accelerators." *MICRO, 2015.*

Extracurricular Activities

Oct 2012 – May 2017	**Long Hill FAS**	– Oversaw patient care on a 2–4 person BLS ambulance crew – Received life saving award for CPR save (Jan 2016)
Jan 2015 – May 2017	**Cornell EMS**	– EMT/Crew Chief with a 24/7 student-run BLS first response service
May 2016 – May 2017	**HKN Treasurer**	– Helped organize tutoring for introductory classes and other events
Spring 2017	**ECE 2400 TA**	– TA'ed first offering of C/systems programming class
Jan 2016 – Dec 2016	**DTD Risk Manager**	– Ensured guest safety during events and served as honor board chair
Fall 2015, Fall 2016	**Eng. Peer Advisor**	– Co-led weekly freshman seminar and provided advice about engineering
Spring 2016	**ECE 3140 TA**	– TA'ed embedded systems using new, ARM-based development boards
Fall 2015	**ECE 2300 TA**	– Redesigned digital logic labs to allow students to take them home