Alexander C. Rucker

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Education

Stanford University
Ph.D, Electrical Eng.
Sep 2017 – Present

- Advised by Kunle Olukotun — GPA: **4.07**
- Stanford Graduate Fellowship (2017)
- I'm currently studying techniques to design and program energy efficient, high-performance reconfigurable accelerators for data processing and ML.

Cornell University
BS, Electrical & Comp. Eng.
Aug 2014 – May 2017

- *Summa cum Laude* — GPA: **4.07**
- Sibley Prize (Highest ECE GPA, 2017)
- Pertsch Prize (Highest ECE GPA, 2016)

Work Experience

Cavium
Architecture Intern
May 2017 – Aug 2017

- Profiled the instruction-delivery characteristics of modern cloud applications
- Designed and evaluated instruction prefetchers for ARM-based server processors
- Used a mixture of trace driven and cycle-accurate simulation to evaluate designs

Nvidia
GPU Architecture Intern
May 2016 – Aug 2016

- Analyzed performance simulator accuracy across multiple hardware configurations
- Identified possible causes of simulator performance not matching hardware
- Used Perl to automate functional verification tasks

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