Graham Gobieski

gobieski.com

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Gates-Hillman Center
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Education

Carnegie Mellon University 2017 - Present
PhD Candidate
Advised by Prof. Nathan Beckmann, Prof. Brandon Lucia

Columbia University 2013 - 2017
BA Computer Science, Minor Chemistry

Research

Energy-efficient architectures for Low Power Embedded Systems

Prof. Nathan Beckmann, Prof. Brandon Lucia
Carnegie Mellon University
2017 - Present

- Developed the vector-dataflow execution model and implemented MANIC, an energy-efficient vector-dataflow co-processor
- Took full-stack approach: custom compiler, LibC, functional simulator, complete RTL for MANIC and scalar core
- Paper accepted to MICRO 52

Neural Network Inference on Intermittent Embedded Systems

- Built SONIC & TAILS – systems that leverage the regular structure of linear algebra operations to accelerate inference
- Optimized network structure for embedded devices and built automated testing framework with MSP430 and Powercast harvester
- Papers accepted to ASPLOS'19 and SysML'18

"Shuffler: Fast and Deployable Continuous Code Re-randomization"

David Williams-King, Prof. Junfeng Yang
Columbia University
2015-2016

- Helped create system to defend against code-reuse attacks
- Implemented system in user space with minimal compiler flags
- Paper accepted to OSDI 2016

"Clickable poly (ionic liquids): A materials platform for transfection"

Prof. Luis Campos
Columbia University
2013-2016

- Designed novel post-polymerization functionalization strategy to synthesize polymers with cyclopropenium-ion functional groups
- Studied polymer applications to fuel cells and biological vectors
- Paper appeared in Angewandte Chemie 128

Professional Experience

MongoDB Software Engineer Intern 2016

- Assisted in building proxy service that translated/compiled SQL queries into the MongoDB query language
- Wrote compiler frontend and distributed backend in GoLang

Technical Skills

- Programming languages: C, C++, System Verilog, Python
- Hardware synthesis utilizing System Verilog and Cadence CAD tools
- Embedded systems including those based on MSP430, RISCV, ARM