

Graham Gobieski

gobieski.com

5000 Forbes Avenue
Gates-Hillman Center
Pittsburgh, Pennsylvania 15213

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

Ultra-low-power CGRA generation framework and architecture

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

- Created SNAFU, a CGRA generation framework that can be easily extended with new processing elements
- Used SNAFU to generate ULP CGRA that minimizes energy and improves performance compared to prior state-of-the-art
- Paper will appear at ISCA 48

Ultra-low-power vector-dataflow architecture

- 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
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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
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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, RISC-V, ARM
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