Camille Bossut

650-529-5432 cbossut21@gatech.edu

Education

Georgia Institute of Technology Expected May 2026

Doctorate of Philosophy in Computer Science (GPA: 4.00 / 4.00) *Atlanta, GA*

- **Relevant Coursework:** Advanced Operating Systems (C++), Information Security (C++), Advanced Software Engineering (React, Java), Graduate Algorithms, Programming Languages, Software Analysis and Testing, Applied Cryptography

Georgia Institute of Technology May 2021

Bachelor of Science in Computer Science (GPA: 3.80 / 4.00) *Atlanta, GA*

- **Relevant Coursework:** Computer Organization and Programming (C, Assembly), Computer Systems and Networking (C++), Operating Systems (Rust), Advanced Computer Architecture (C++), Processor Design (VHDL), Compilers (Java), Honors Algorithms, Advanced Algorithms, Automata and Complexity

Work Experience

MIT Lincoln Laboratory May 2024 – Aug 2024

Research Intern

- Developed a C++ image processing pipeline for an embedded system that successfully met constrained timing requirements on resource-constrained hardware (Group 99).

IBM May 2021 – Aug 2021

Research Intern

- Developed C and assembly-level optimizations for the Kyber post-quantum cryptography protocol on POWER PC using perf measurements and the POWER PC hardware pipeline simulation.

IBM June 2020 – Aug 2020

Research Intern

- Developed assembly optimizations for the SIKE (supersingular isongeny key encapsulation) post-quantum cryptography protocol for the IBM POWER PC architecture.

Teaching Experience

Object Oriented Programming, Computer Organization and Programming 2018, 2019, 2020

Undergraduate teaching assistant

- Taught recitation and mandatory lab weekly object oriented programming concepts, low level circuits, and computer architecture. Taught coding in Java, Assembly and C. Held weekly office hours, created and graded course materials (written exams, lab assignments, and homework).

Compilers and Interpreters, Software Analysis and Testing 2022, 2023

Graduate teaching assistant

- Held weekly office hours, created and graded of course materials (written exams, lab assignments, and homework).

Research Projects and Papers

Automated Vectorization of Cryptography Code | *C++*, *Python*

- Improving automatic vectorization of mathematical code, namely cryptographic primitives, through source-code transformations using e-graphs, equality saturation, and LLVM compiler feedback. Presented this work at a programming languages seminar, SERPL, at Augusta University in 2023.

Scalability of Cryptography Code for HLS | *C++*, *Python*

- Improving scalability of high-level synthesized cryptographic primitives for programmable hardware (FPGAs) using automated loop re-rolling and code re-structuring through equality saturation and informed by HLS feedback.

Static Code Analysis Techniques Optimization | *C++*

- *Context-Free Language Reachability via Skewed Tabulation*, Yuxiang Lei*, Camille Bossut*, Yulei Sui and Qirun Zhang (PLDI '24). Optimized algorithms for static program analysis (namely CFL-reachability). Optimized program-graph (CFG) traversal through input grammar analysis and transformation, and optimized traversal ordering for improved data locality and better cache performance. (*equal contribution)

Technical Skills

Languages: C, C++, Rust, Java, Python
Concepts: Compilers, Operating Systems, Virtual Memory, Cache Memory, Encryption, Decryption, Security, Optimization, HLS, Assembly Optimization