

Aleksandar Krastev

• alexalex@mit.edu

• <https://alexalex.xyz>

• <https://github.com/Alaxe>

Education

Massachusetts Institute of Technology

EXPECTED JUN 2023

- Pursuing a B.S. in Computer Science and Engineering GPA 5.0/5.0
- Past courses: Computer System Architecture, Advanced Data Structures, Distributed Systems, Theory of Computation, Software Construction, Algorithms for Graphs and Matrices

Work Experience

Amazon.com / Software Development Engineering Intern

JUN 2021–AUG 2021

- Improved the Amazon Halo mobile app using React Native.

QuantCo / Software Engineering Intern

JUN 2020–AUG 2020

- Migrated Random Forests model training and validation from R to Python using rpy2.

Publications

F1: A Fast and Programmable Accelerator for Fully Homomorphic Encryption

Nikola Samardzic, Axel Feldmann, **Aleksandar Krastev**, Srinivas Devadas, Ronald Dreslinski, Christopher Peikert, Daniel Sanchez, in *Proceedings of the 54th annual IEEE/ACM international symposium on Microarchitecture (MICRO-54)*, October 2021 (to appear)

Research Projects

Hardware Accelerator for Fully Homomorphic Encryption

JAN 2021–PRESENT

- Came up with a novel design for a hardware matrix-transpose unit.
- Optimized the HDL implementations of other functional units.

Applications for a Hardware Stream Merger

FEB 2020–AUG 2020

- Implemented and evaluated BFS and triangle counting by running hardware simulations.

Informatics Problem Author

AUG 2019–PRESENT

- Developed two tasks for Bulgarian contests with 75+ participants from up to 7 countries.

High School Olympiads

International Olympiad in Informatics Gold (2018), Silver (2016, 2019)

Balkan Olympiad in Informatics Gold (2018), Silver (2016)

European Physics Olympiad Silver (2019)

Independent Projects

Nitwit Compiler for a made-up programming language (C++)

retropq Priority queue that supports changing past operations in $O(\log n)$ (Python)

Gemini Co-op puzzle platformer (JavaScript)

Stealth Top-down 2D game implemented (JavaScript)

Skills

Software C++, Python, Java, Go, JavaScript, TypeScript, RISC-V asm, Linux, LaTeX, Git

Languages English, Bulgarian, beginner German