Friedrich Doku

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Education **University of Pittsburgh.** Pittsburgh, PA
Major **Double major in Computer Science & Mathematics** Graduating May 2024 (Expected)

Technical Skills

Programming Languages: Python, C++, C, Go, Rust, Assembly (Arm and x64), NodeJS, R
Software Tools: GDB, Vim, Linux, Bash, TensorFlow, PyTorch, Docker, AWS

Relevant Coursework: Algorithms and Data Structures, Object Oriented Programming Using Java, Operating Systems

Experience

Developed a Secure Contact Tracing System Named Khopesh Pittsburgh, PA
University of Pittsburgh Summer 2020

- I published a research paper on the project titled "Khopesh – Contact Tracing Without Sacrificing Privacy". See for details: https://link.springer.com/chapter/10.1007/978-3-030-63095-9_30
- I implemented the system in C++ and C https://github.com/MutexUnlocked/khopesh
- I used Docker, DigitalOcean, and R to test the system and evaluate performance results.
- Khopesh effectively hides the location data and contacts of users from attackers.

Research with Professor Paul Cohen, Dean of Computing, @ University of Pittsburgh Pittsburgh, PA
University of Pittsburgh Summer 2020-Present

- I'm an engineer for a machine learning project, currently spearheading its 1st web service, allowing the research to be disseminated to the broader research community.
- https://github.com/momacs/sim-server allows users to easily configure and run probabilistic relational agent-based models. These models can be used to run simulations on Covid-19.
- I implemented the webservice using Python.

Software Engineering Internship w/ Professor Juergen Konczak Minneapolis, MN
University of Minnesota - Twin Cities Winter 2019-Present

- I designed a robot that improves hand function for patients with somatosensory deficits.
- Added support for a Trusted Execution Environment that guarantees code and data with integrity and confidentiality.
- This work was done in C, C++, Rust, and Python.
- Developed designs for the system's architecture.

Awards

Chancellor's Undergraduate Research Fellowship Pittsburgh, PA
University of Pittsburgh November 2020

- Received funding to work on my own research project.
- The goal of my project is to remove sensitive information from camera feed.

Leadership Experience

Irondale Computer Science Club New Brighton, MN
President/Founder November 2018-Spring 2020

- Taught computer science fundamentals to students in Java. For loops, inheritance, derived classes, user input, basic data structures, binary search, linear search, merge sort, etc.
- Organized team projects such as creating a 2D platformer game.