

Jeffrey Ching

PHD STUDENT · DUKE CS

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Education

Duke University

PHD COMPUTER SCIENCE

- Advisor: Dr. Danfeng Zhang

Durham, NC

2023 - 2027

The Pennsylvania State University

PHD COMPUTER SCIENCE, TRANSFERRED

- Advisor: Dr. Danfeng Zhang

State College, PA

2021 - 2023

Syracuse University

MS COMPUTER SCIENCE

- Advisor: Dr. Kristopher Micinski

Syracuse, NY

2019 - 2021

Research Interests

My research focuses on language-based security, where I apply programming language techniques to both identify vulnerabilities through program analysis and theoretical proof. I translate these theoretical concepts into practical tools, which includes implementing an LLVM-based static analysis tool. My current work targets applications within Trusted Execution Environments (TEEs). Previously, my master's thesis focused on a related application: using programming language techniques for binary analysis and reverse engineering.

Projects

- **Dynamic Information flow Policy:** We defined a generalized dynamic IFC policy and proves the soundness of the policy.
- **IFC in Rust:** We build static program analysis tool using Rust without modifying the compiler based on our information flow theoretical model.

Professional Experience

2023-Present	Graduate Research Assistant , Duke University
2021-2023	Graduate Research Assistant , Penn State University
2021 Fall	Graduate Teaching Assistant , Penn State University
2019-2021	Research Assistant , Syracuse University
2018	Army , Taiwan, ROC
2016	Internship , ForteMedia

Publications

Paper related to rust static analysis (In submission)

Paper related to Enforcement of Dynamic Information Flow Policy (In submission)

Yihao Sun, **Jeffrey Ching**, Kristopher Micinski 2021. Demand-Driven Reverse Engineering. The NDSS workshop on Binary Analysis Research (BAR'21)

Thesis _____

Jeffrey Ching 2021. Enhancing Usability of Malware Analysis Pipelines with Reverse Engineering, Master's Thesis

Skills _____

C, Python3, formal methods, Haskell, Linux, LLVM

Courses _____

Quantum Algorithms, Algorithms, Compilers, Security, programming languages

Teaching Experience _____

Fall 2021 **CMPSC461 Programming Language Concepts**, Teaching Assistant
2019-2021 **Syracuse Athletic Tutoring**, Academic Tutoring

Awards, Fellowships, & Grants _____

2019 **Merit Scholarship**, Syracuse University

Outreach & Professional Development _____

SERVICE AND OUTREACH

2022 **PLDI**, Student Volunteer
2021 **ICFP**, Student Volunteer

DEVELOPMENT

June, 2022 **PLMW**, PLDI 2022 at San Diego

San Diego, CA