

Yoshiki Takashima

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4720 Forbes Ave, Room CIC-2119C. Pittsburgh PA 15213

RESEARCH INTEREST

I am interested in helping developers build more robust software by leveraging automated, language-aware solutions for testing and verification. Current work targets libraries written in Rust.

EDUCATION

Carnegie Mellon University 2019 → Present
PhD Student in Electrical and Computer Engineering Pittsburgh, PA

- Co-Advised by: Prof. Limin Jia and Prof. Corina Pasareanu.

UC San Diego 2017 → 2019
BS Mathematics - Comp. Sci. La Jolla, CA

- GPA: 3.95/4.00

Santa Monica College 2015 → 2017
IGETC Transfer Certificate Santa Monica, CA

- GPA: 3.86/4.00
- High school concurrent enrollment.

West Los Angeles College 2014
Credits Transferred Los Angeles, CA

- GPA: 4.00/4.00
- Concurrent enrollment.

PUBLICATIONS

2021

- **SyRust: Automatic Testing of Rust Libraries with Semantic-Aware Program Synthesis.** Yoshiki Takashima, Ruben Martins, Limin Jia, and Corina S. Păsăreanu. In Proceedings of the 42nd ACM SIGPLAN International Conference on Programming Language Design and Implementation (*PLDI'21*).

Paper, video, and artifact available here: <https://doi.org/10.1145/3453483.3454084>

2019

- **VeriSketch: Synthesizing Secure Hardware Designs with Timing-Sensitive Information Flow Properties.** Armaiti Ardeshiricham, Yoshiki Takashima (**presenter**), Sicun Gao, Ryan Kastner. In Proceedings of the 2019 ACM SIGSAC Conference on Computer and Communications Security (*CCS'19*).

Paper and video available here: <https://doi.org/10.1145/3319535.3354246>

TEACHING AND SERVICE

Teaching Assistant for 18-732 (Software Security)

January 2021 → May 2021

Professor: Bryan Parno

- This ECE course teaches students strategies for developing secure software, ranging from static analysis to formal verification using Dafny.
- Maintained infrastructure, conducted office hours and recitations.

Artifact Evaluation for VMCAI 2021

October 2020

Artifact Evaluation Chairs: Troels Henriksen and Klaus Gleissenthall

- Evaluated 4 artifacts for the VMCAI (Verification, Model Checking, and Abstract Interpretation) 2021.

ONGOING RESEARCH

Improving Test Case Quality for SyRust

2021 → ...

- Extend SyRust with heuristics to produce higher-quality test cases that efficiently achieve higher code coverage with less computational resources.

Robust Detection of Reflected Cross-Site Scripting (XSS)

2019 → ...

- Built a suite of tools for Reflected XSS detection, leveraging a modified browser, user interface fuzzing, and search engine mining for better coverage and improved vulnerability detection.

PERSONAL PROJECTS

Co-Opting Optimization Techniques for Finding Provable Global Minimum

2019

- GitHub Link: <https://github.com/YoshikiTakashima/dreal-cmake-example-project>

Recognition of Hand-Written Automata Diagrams with Machine Learning

2018

- GitHub Link: <https://github.com/YoshikiTakashima/GradeRegular>