

Ian McCormack

Carnegie Mellon University • Software and Societal Systems (S3D) • Pittsburgh, PA, 15213

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EDUCATION

Ph.D. in Software Engineering, Carnegie Mellon University

September 2021 - Present

- Coadvised by [Jonathan Aldrich](#) and [Joshua Sunshine](#)

University of Wisconsin-Eau Claire

summa cum laude, May 2021

- **B.S.**, Computer Science
- **B.A.**, English, Rhetorics of Science, Technology, and Culture
- **Minor**, Mathematics

PUBLICATIONS

A Study of Undefined Behavior Across Foreign Function Boundaries in Rust Libraries

Ian McCormack, Joshua Sunshine, Jonathan Aldrich

 [PDF](#) - Preprint, 2024.


A Mixed-Methods Study on the Implications of Unsafe Rust for Interoperation, Encapsulation, and Tooling

Ian McCormack, Tomas Dougan, Sam Estep, Hanan Hibshi, Jonathan Aldrich, Joshua Sunshine.

 [PDF](#) - Preprint, 2024.

Gradual C0: Symbolic Execution for Efficient Gradual Verification

Jenna DiVincenzo, **Ian McCormack**, Hemant Gouni, Jacob Gorenburg, Mona Zhang, Conrad Zimmerman, Joshua Sunshine, Éric Tanter, Jonathan Aldrich.

 [PDF](#) - Under minor revision for **TOPLAS**, 2024.

Plan B: Design Methodology for Cyber-Physical Systems Robust to Timing Failures

Mohammad Khayatian, Mohammadreza Mehrabian, Edward Andert, Reese Grimsley, Kyle Liang, Yi Hu, **Ian McCormack**, Carlee Joe-Wong, Jonathan Aldrich, Bob Iannucci, Aviral Shrivastava

 [PDF](#) - **TCPS**, 2022.

Computational Making via Bidirectional Parametric Modeling

Chris Johnson and **Ian McCormack**.

 [PDF](#) - **Bridges**, 2021.

One Program to Rule the Intersection - 🏆 (2nd)

Reese Grimsely, Edward Andert, **Ian C. McCormack**, Eve Hu, Bob Iannucci.

▶ [Video](#) - **CPS-IoT Week 2021, Student Design Competition: Networked Computing on the Edge**.

A Software Library Model for the Internet of Things

Ian McCormack

 [PDF](#) - **SPLASH SRC**, 2020.

EXPERIENCE

Research Assistant, Carnegie Mellon University's **REUSE** Program

June 2020 - May 2021

Mentors: [Bob Iannucci](#), Jonathan Aldrich

- Explored and prototyped a novel software repository system to allow mixing and matching disjointly-versioned software modules.
- Implemented a networking layer for the **TTPython** distributed programming framework to support an autonomous vehicle intersection that won 2nd place in the 2021 CPS-IoT Week's Student Design Competition.

Undergraduate Researcher, University of Wisconsin-Eau Claire*September 2019 - March 2021**Mentor: [Chris Johnson](#)*

- Designed Scute, a programming system for creating SVG files and animations. Users write code to create vector graphics—which they can directly manipulate—and Scute repairs their programs to match the result.
- Implemented a compiler and interpreter for Scute in C, designed a visual editor using React, and deployed both as a web app using WebAssembly for interoperation.

Technology Intern, Travelers Insurance, St. Paul, Minnesota*June - August, 2019**Mentor: [Mikko Niemioja](#)*

- Solved ongoing issues with configuring production environments by creating a .NET application to allow partial backup and restoration of Windows Registry configurations.
- Identified employees' shared frustrations with onboarding and provisioning and used Angular to create a wireframe application that would improve the experience for new hires.

AWARDS

2024 CyLab Presidential Fellowship - [Article](#)

2024-2025

National Science Foundation Graduate Research Fellow (NSF GRFP)

2021-2026

TALKS

Introduction to Rust.

- Guest Lecture at CMU for *Secure Coding* (14-735). August 2023 & 2024.
- Guest Lecture at CMU for *Programming Language Pragmatics* (17-363). November 2022.

[Slides](#)*Examining Rust Developers' Motivations for Using unsafe Code.*

- Guest Lecture, *Secure Coding* (14-735). CMU, November 9th, 2023.
- Talk, *2023 CyLab Partners Conference*. CMU, October 3rd, 2023.

[Slides](#)*Direct Manipulation for Computational Making.*Lightning Talk with Chris Johnson, *SPLASH-E*, November 20th, 2020.[Slides](#), [Abstract](#)**TEACHING**

Co-Instructor, *Software Engineering Reflection* (17-415)

CMU, Fall 2024

Teaching Assistant, *Software Engineering Reflection* (17-415)

CMU, Fall 2023

MENTORING

[Tomas Dougan](#), (Brown)

CMU REUSE Program, Summer 2023

[Timothy Zhou](#) (UCSD)

CMU REUSE Program, Summer 2022

SERVICE

Student Co-Director, Carnegie Mellon University's REUSE Program*August 2024 - Present*

- Assisted with data collection and analysis to support an application for a continuing grant from the National Science Foundation to remain an active REU site.

Student Organizer, **PLATEAU Workshop***2023-Present*