Ian McCormack

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Software and Societal Systems (S3D)
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Education

Ph.D. Software Engineering, Carnegie Mellon University *September 2021 - Present*

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

Preprints

- **Ian McCormack**, Joshua Sunshine, Jonathan Aldrich, "A Study of Undefined Behavior Across Foreign Function Boundaries in Rust Libraries." *Preprint*. April 7th, 2024. PDF
- **Ian McCormack**, Tomas Dougan, Sam Estep, Hanan Hibshi, Jonathan Aldrich, Joshua Sunshine. ""Against the Void": An Interview and Survey Study on How Rust Developers Use Unsafe Code." *Preprint*, arXiv:2404.02230. April 2nd, 2024. PDF

Peer Reviewed Publications

- Jenna DiVincenzo, **Ian McCormack**, Hemant Gouni, Jacob Gorenburg, Mona Zhang, Conrad Zimmerman, Joshua Sunshine, Éric Tanter, Jonathan Aldrich. "Gradual C0: Symbolic Execution for Efficient Gradual Verification." *Under minor revision for TOPLAS*, arXiv:2210.02428. January 19th, 2024. PDF
- Chris Johnson and **Ian McCormack**. "Computational Making via Bidirectional Parametric Modeling." In David Swart, Frank Farris, and Eve Torrence, editors, *Proceedings of Bridges 2021: Mathematics, Art, Music, Architecture, Culture*, pages 359–362, Phoenix, Arizona, 2021. Tessellations Publishing. PDF

Competitions

- Reese Grimsely, Edward Andert, **Ian C. McCormack**, Eve Hu, Bob Iannucci. "One Program to Rule the Intersection". In: *CPS-IoT Week, Student Design Competition: Networked Computing on the Edge*, 2021. Won 2nd place. Video
- **Ian C. McCormack**. "A Software Library Model for the Internet of Things." In *ACM SPLASH Student Research Competition*, November 15–20, 2020, Virtual, USA. 10.1145/3426430.3428136. PDF

Honors & Awards

NSF Graduate Research Fellowship *2021 - 2026*

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.

Technology Intern, Travelers Insurance, St. Paul, Minnesota *June - August, 2019*

- 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.

Talks

Conferences & Workshops

- **Ian McCormack**. Examining Rust Developers' Motivations for Using `unsafe` Code. Talk at the *CyLab Partners Conference*. October 3rd, 2023. Slides
- **Ian McCormack**, Chris Johnson. Direct Manipulation for Computational Making. Lightning Talk at *SPLASH-E*, November 20th, 2020. Slides, Abstract

Invited Talks & Lectures

- Examining Rust Developers' Motivations for Using `unsafe` Code. Lecture at CMU for *Secure Coding* (14-735), taught by Hanan Hibshi. November 9th, 2020. Course, Slides
- Introduction to Rust. Lecture at CMU for *Secure Coding* (14-735) taught by Hanan Hibshi. August 31st, 2023. Course, Slides
- Introduction to Rust. Lecture at CMU for *Programming Language Pragmatics* (17-363/17-663) taught by Jonathan Aldrich, November 10th, 2022. Course, Slides
- Introduction to Rust. Lecture at CMU for *Secure Coding* (14-735) taught by Hanan Hibshi. November 9th, 2022. Slides

Mentorship

- Tomas Dougan. *CMU REUSE Program*, June - August, 2023.
- Timothy Zhou. *CMU REUSE Program*, June - August, 2022.

Service

- Student Organizer. PLATEAU2024 Workshop. Pittsburgh, PA, February 19-20, 2024.
- Student Organizer. PLATEAU2023 Workshop. Berkeley, CA, February 13-14, 2023.