

Overview

Quality-focused engineer applying deep knowledge from nearly 20 years experience in software. Programming languages expert: DSLs, functional programming, type systems, gradual typing, variation, program analysis and transformation, modularity, and human factors. Excellent writer. Experienced teacher, public speaker, manager, and mentor. Ideal work uses my expertise and makes the world better.

Experience

Software Engineer, Savant Power

7/2021–11/2022

Developed smart/green energy software systems in Rust and Objective-C.

- Led design and implementation of scriptable simulated energy systems.
- Integrated Tesla Powerwall with the Savant Power host system.

Major contributor to Frame, a DSL based on Harel's statecharts.

- Led design and implementation of Rust code generator and runtime system.

Assistant Professor, Oregon State University

9/2014–6/2021

40+ academic publications in programming languages and software engineering.

Recruited, managed, mentored, and funded a highly diverse research group.

Won \$1.6M, 4.5-year grant to improve robustness of highly configurable systems.

- Led team of faculty, students, and staff working on the project.
- Designed and implemented the DSL that was our core technical contribution.
- Delivered software on-time that passed all evaluations.

Taught courses on PL theory, functional programming, and modularity.

- Designed curriculum; developed course materials, assignments, evaluations.
- Delivered multiple lectures per week to up to 200+ students.
- Earned consistently excellent course evaluations.

Organized, chaired, and obtained funding for events at international conferences.

Peer-reviewed and made publishing/funding recommendations for conferences, journals, and government agencies.

Founded and led a well-attended programming languages reading group.

Faculty advisor for the OSU Functional Programming Club.

Visiting Researcher, University of Marburg, Germany

7/2013–9/2014

Collaborated with an international team on programming languages research.

Organized and led weekly seminars on human factors of PL and modularity.

Other experience

Instructor, Oregon State University

1/2013–6/2013

Graduate Research Assistant, Oregon State University

9/2007–6/2013

Software Developer, Institute for Systems Biology, Seattle

10/2006–6/2007

Software Developer, Teranode, Seattle

1/2005–6/2006

Student Software Developer, Applied Physics Lab, UW

5/2003–12/2004

Education

Ph.D. Computer Science, 2013
Oregon State University

M.S. Computer Science, 2011
Oregon State University

**B.S. Computer Science +
minor Applied Math**, 2006
University of Washington

B.A. English, 2006
University of Washington

A.A., 2002
Edmonds Community College

Skills and expertise

Programming

- Expert functional programmer.
- Produce clean, modular, tested, reusable code in any paradigm.
- Working knowledge of dozens of languages in every paradigm.
- Can learn any language fast.

Programming languages

- Design and implement DSLs.
- Design and implement type systems, program analyses, and program transformations.
- Define and prove safety properties of programs/languages.
- Apply human-factors research to improve usability.

Communication

- Excellent writer.
- Experienced public speaker.
- Global collaborator.
- Effective mentor and manager.

Languages and tools

- *Expert*: Rust, Haskell, Java.
- *Experienced*: C, Objective-C, Ruby, Coq, Idris, SML, SQL.
- *Knowledgeable*: JS, Python, OCaml, Agda, many more...