Ashton Wiersdorf

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PUBLICATIONS

Conference papers

Type Tailoring ECOOP 2024

Ashton Wiersdorf, Stephen Chang, Matthias Felleisen, and Ben Greenman

FlowFPX: Nimble tools for debugging floating-point exceptions JuliaCon 2023

Taylor Allred, Xinyi Li, **Ashton Wiersdorf**, Ben Greenman, and Ganesh Gopalakrishnan

Invited Talks & Lectures

Monads 2024
University of Utah

Lecture on monads, delivered in a course on functional programming. Lecture notes and slides available on my website.

Type Tailoring 2023
CPU Reading Group, University of Utah

Informal presentation on the ideas behind type tailoring.

Introduction to Elixir Macros 2019
Utah Elixir Meetup

Presentation on the basics of writing macros in Elixir. Talk recording and materials available on my website.

TEACHING

Miscellaneous

Private math tutor 2023

Tutored high schoolers and adults who needed help with arithmetic, geometry, and algebra

RESEARCH EXPERIENCE

PLT 2023–Present
University of Utah

- Ongoing work on types and macro systems with Ben Greenman
- Developed tools for diagnosing floating-point errors with Ben Greenman and Ganesh Gopalakrishnan

Flux Research Group 2022
University of Utah

- Developed a DSL for building xApps in O-RAN enabled 5G base stations with Eric Eide

Undergraduate Research 2021
Brigham Young University

- Developed novel control-flow analysis techniques with Kimball Germane

PROJECTS

See a full list of projects on my personal site and related sites such as Codeberg and GitHub.

Research projects

Chorex — Project on GitHub

Choreographic programming in Elixir

Dyn — Project on GitHub

Adding dynamic typing to Rhombus through type tailoring

FloatTracker — Project on GitHub

Automatically track floating-point exceptions in Julia code

Personal projects

Ysue — Project on Codeberg

Simple text editor written in Haskell featuring a rope data structure

Type inference with errors — Project on Codeberg

Type inference for a small lambda calculus with precise error messages

µKanren — Project on Codeberg

Walkthrough of the µKanren embedded logic language

lambda-x86 — Project on GitHub

My first compiler, which compiles a small Lisp to x86

LANGUAGES

- **English** Native language
- **German** Fluent, CEFR level: C1–C2

SCHOLARSHIPS AND AWARDS

- Departmental Fellowship 2023
- Academic scholarship for half tuition 2017–2019
- Runner-up, Utah Sterling Scholar 2014
- 1st place, Utah State Science Fair 2013