Pierce Darragh

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pdarragh.github.io

Education

University of Maryland — **College Park, MD, USA**
2021–Present — *PhD in Computer Science, advised by Dr. David Van Horn*
Specializing in the usability of programming languages.
Selected coursework: program analysis (using Coq), randomized testing and verification.

University of Utah — **Salt Lake City, UT, USA**
2012–2018 — *BS/MS in Computer Science, Minor in Linguistics* — GPA: 3.3/4
Selected coursework: operational semantics, compilers, advanced OS, NLP, phonetics and phonology.

Research and Industrial Experience

University of Maryland — **College Park, MD, USA**
2021–Present — *Graduate Teaching Assistant* — CMSC 330 (Programming Languages)
• Hold office hours, teach weekly discussion, and help write and grade student quizzes and exams.

University of Utah — **Salt Lake City, UT, USA**
2020–2021 — *Research Associate* — PI: Matthew Flatt
Contributed to research on SweetPea: a Python DSL for specifying factorial experimental designs and automatically generating trial sequences according to given constraints using SAT sampling.
• Translated back-end from Haskell to Python, improving robustness to reduce possible errors.
• Expanded expressive capabilities and improved user interface to match.
• Implemented automated continuous integration with GitHub Actions.

2019–2020 — *Research Associate* — PI: Eric Eide
Contributed to research on Xsmith: a Racket DSL for creating random generators of semantically valid programs for any language. Xsmith is a spiritual successor to Csmith.
• Implemented Xsmith's Python language specification.
• Implemented a dedicated library to improve Xsmith's capabilities for exploring state spaces (Clotho).
• Published and presented *Clotho: A Racket Library for Parametric Randomness.*

2018–2019 — *Research Associate* — PI: Michael D. Adams
• Published and presented *Parsing with Zippers*, a new general parsing algorithm.

Apple, Inc. — **Cupertino, CA, USA**
Summer 2017 — *Software Engineer Intern* — Apple Information Security
• Designed, built, and presented a secure framework for creating proxy servers for penetration testing.

University of Utah — **Salt Lake City, UT, USA**
2016–2018 — *Research Assistant* — PIs: Matt Might, Michael D. Adams
Contributed to research on JAAM: a whole-program static analyzer written in Scala built for identifying potential side-channel vulnerabilities in compiled Java applications.
• Twice selected as one of three student lab members sent to DARPA competition for evaluating JAAM.

Publications

BehRes 2021 — *SweetPea: A standard language for factorial experimental design.* — pdarragh.github.io/p/sweetpea
Sebastian Musslick, Anastasia Cherkaev, Ben Draut, Ahsan Sajjad Butt, Pierce Darragh, Vivek Srikumar, Matthew Flatt, Jonathan D Cohen.

ICFP 2020 — *Parsing with Zippers (Functional Pearl).* — pdarragh.github.io/p/icfp20
Pierce Darragh and Michael D. Adams.

Scheme 2020 — *Clotho: A Racket Library for Parametric Randomness.* — pdarragh.github.io/p/scheme20
Pierce Darragh, William Gallard Hatch, and Eric Eide.

Awards, Leadership, and Service

2021–Present — Recipient of the Dean's Fellowship, sponsored by the University of Maryland's CS department.
2020–Present — Community manager for Dr. Jean Yang's `#PLTalk` Twitch stream and Discord server.
2019–2021 — Organizer of weekly Programming Languages Reading Group at the University of Utah.
2014–2015 — Men's Team Captain, University of Utah Club Swim Team.
2013, 2014 — Volunteer judge for elementary student projects at Salt Lake Valley Science and Engineering Fair.
2012–2016 — Recipient of the National Merit Scholarship, sponsored by E*TRADE.
2012–2013 — Recipient of the Merit Scholarship with Presidential Honors, sponsored by the University of Utah.