PIERCE DARRAGH

pierce.darragh@gmail.com
pdarragh.github.io

EDUCATION

	University of Maryland	**College Park, MD, USA**
2021–Present	*PhD in Computer Science, advised by Dr. David Van Horn*	
	University of Utah	**Salt Lake City, UT, USA**
2012–2018	*BS/MS in Computer Science, Minor in Linguistics*	GPA: 3.3/4

RESEARCH AND INDUSTRIAL EXPERIENCE

University of Maryland — **College Park, MD, USA**

2021–Present — *Graduate Research Assistant* — PI: David Van Horn
- Develop a86 interpreter and debugging environment for CMSC 430.
- Keep up to date with recent literature.

2022–Present — *Graduate Teaching Assistant* — CMSC 430: Compilers
- Hold office hours, answer online questions, and help write and grade quizzes and exams.
- Implement and revise assignment autograders.
- Keep notes from student interactions to discuss course pedagogy with instructors.

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

GPCE 2023	*Generating Conforming Programs with Xsmith.*	http://www.flux.utah.edu/paper/hatch-gpce23
	William Gallard Hatch, <u>Pierce Darragh</u>, Sorawee Porncharoenwase, Guy Watson, Eric Eide.	
BehRes 2021	*SweetPea: A standard language for factorial experimental design.*	pdarragh.github.io/p/sweetpea
	Sebastian Musslick, Anastasia Cherkaev, Ben Draut, Ahsan Sajjad Butt, <u>Pierce Darragh</u>, Vivek Srikumar, Matthew Flatt, Jonathan D Cohen.	
Scheme 2020	*Clotho: A Racket Library for Parametric Randomness.*	pdarragh.github.io/p/scheme20
	<u>Pierce Darragh</u>, William Gallard Hatch, and Eric Eide.	
ICFP 2020	*Parsing with Zippers (Functional Pearl).*	pdarragh.github.io/p/icfp20
	<u>Pierce Darragh</u> and Michael D. Adams.	

AWARDS, LEADERSHIP, AND SERVICE

2021–Present	Recipient of the Dean's Fellowship, sponsored by the University of Maryland's CS department.
2020–2022	Community manager for Dr. Jean Yang's #PLTalk <u>Twitch stream</u> and <u>Discord server</u>.
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.