Donald Pinckney

Sunderland MA, 01375
dpinckney@cs.umass.edu · https://donaldpinckney.com · (530) 220-3327

Education

University of Massachusetts Amherst Sep 2018 – Present
PhD in Computer Science, ***GPA: 4.00***

- Advised by Dr. Arjun Guha and Dr. Yuriy Brun, focusing on type systems and formal semantics in programming languages
- Relevant courses: Compilers (A), Programming Languages (A), Advanced Programming Languages (A), Algebraic Topology (A), Machine Learning (A), Neural Networks (A)

University of California Davis (graduated with highest honors, top 4%) Sep 2014 – Jun 2018
B.S. in Computer Science & Engineering, ***GPA: 3.935***
B.S. in Mathematics, ***GPA: 3.951***

- Advisors: Dr. Zhendong Su and Dr. Thomas Strohmer
- Relevant courses: Programming Languages (A), Graduate Programming Languages (A+), 3 Quarters of Abstract Algebra (A, A, A+), Type Theory Special Study Course (P)
- Awards: Outstanding Senior in Computer Science & Engineering, Regents Scholarship Recipient, University Honors Program Member

Experience

UMass Amherst, PLASMA Research Group, *Graduate Researcher* 2018 – Present

- Formulated precise formal semantics for the execution of serverless functions
- Formally proving (in Idris) a bisimulation result on serverless semantics
- Exploring compilation support for algebraic effect handlers in WebAssembly by extending Cranelift IR

UC Davis, Dr. Zhendong Su's Lab, *Undergraduate Researcher* 2017 – 2018

- Researched uniform sampling from context-free grammars in order to more efficiently fuzz test compilers
- Explored verification oriented approaches for defending against adversarial machine learning examples

UC Davis, Dr. Thomas Strohmer, *Undergraduate Researcher* 2017 – 2018

- Investigated and attempted to characterize the complex training dynamics of generative adversarial networks
- Applied compressive sensing and random projection techniques to compress and accelerate neural networks

Apple Inc., *macOS Frameworks Team, Intern* Summer 2016, 2017

- Performed maintenance, fixed bugs, and shipped new features for AppKit, the macOS system UI API with ∼15 co-workers
- Independently implemented "Show All Tabs" feature for AppKit Window Tabs which shipped in macOS High Sierra
- Presented the "Show All Tabs" project to a panel including Apple senior vice president Craig Federighi and was chosen as a top 10 intern project across Apple
- Investigated constraint solving and optimization for building an iOS / macOS app developer-facing tool

FileMaker Inc., an Apple subsidiary, *FileMaker Go Team, Intern* Summer 2015

- Developed a complete user interface unit testing environment for the FileMaker Go iOS app
- Contributed UI feature implementations and bug fixes to the iOS app

Teaching and Volunteering

UMass Amherst COMPSCI 220, *Teaching Assistant* Fall 2019

- Led discussion sections, graded assignments, and proctored exams

Holyoke Codes, *Volunteer Workshop Instructor* July 2019

- Helped run a weeklong middle school and high school workshop on interactive robot programming with JavaScript
- Students went from zero JavaScript knowledge to writing collaborative robot soccer programs

CS4K, *Volunteer Instructor* Spring 2017

- Assisted students in a local junior high school programming club with robotics programming in Scratch
- Taught students in a local elementary school programming in Swift, up to coding a maze solving algorithm

PUBLICATIONS

OOPSLA 2019 **Distinguished Paper Award:** *Formal Foundations of Serverless Computing*. Abhinav Jangda, Donald Pinckney, Yuriy Brun, Arjun Guha. OOPSLA 2019.