

Will Crichton

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Abstract

I make programming languages and systems easier to learn, use, and debug. I draw on research in programming languages, computer systems, human-computer interaction, software engineering, psychology, and learning science to answer questions like: what does it mean to understand how a program works? What are [cognitive design principles](#) for programming tools? How do you teach someone to “think mathematically” about programming? And most of all, why have we learned so little about the psychology of programming?

Education

- 2016-now **Stanford University**, Ph.D. in Computer Science.
Advisor: Pat Hanrahan
- 2012-16 **Carnegie Mellon University**, B.S. in Computer Science, minor in Chinese Studies.
Advisor: Kayvon Fatahalian

Research

- 2019 **Human-Centric Program Synthesis**. [Paper](#).
[Will Crichton](#). PLATEAU @ UIST 2019.
- 2018-19 **Rekall: Specifying Video Events using Compositions of Spatiotemporal Labels**. [GitHub](#). [Paper](#).
Daniel Y. Fu, [Will Crichton](#), James Hong, Xinwei Yao, Haotian Zhang, Anh Truong, Avani Narayan, Maneesh Agrawala, Christopher Ré, and Kayvon Fatahalian. AI Systems @ SOSP 2019.
- 2017-19 **From Theory to Systems: A Grounded Approach to Programming Language Education**. [Paper](#).
[Will Crichton](#). SNAPL 2019.
- 2018 **Identifying Barriers to Adoption for Rust through Online Discourse**. [Paper](#).
Anna Zeng, [Will Crichton](#). PLATEAU @ SPLASH 2018.
- 2016-19 **Scanner: Efficient Video Analysis at Scale**. [GitHub](#). [Paper](#).
Alex Poms, [Will Crichton](#), Pat Hanrahan, and Kayvon Fatahalian. SIGGRAPH 2018.
- 2015 **Lantern: A Query Language for Visual Concept Retrieval**. [Paper](#).
Senior thesis, advised by Kayvon Fatahalian.

Awards

- 2017-19 **Magic Grant** from the Brown Institute for Media Innovation for the [Esper project](#) (awarded twice).
- 2015 **Alumni Award for Undergraduate Excellence** for senior thesis at CMU.

Teaching

- fall 2017-19 **Programming Languages** ([CS 242](#)). Instructor, Stanford.
- spring 2017 **Computer Systems from the Ground Up** ([CS 107e](#)). TA, Stanford.
- fall 2015 **Compiler Design** ([15-411](#)). TA, CMU.
- spring 2015 **Parallel Computer Architecture and Programming** ([15-418](#)). TA, CMU.
- 2014 **Parallel and Sequential Data Structures and Algorithms** ([15-210](#)). TA, CMU.
- fall 2013-14 **Game Development on the Web** (1-unit mini course). Instructor, CMU.
- fall 2013 **Functional Programming** ([15-150](#)). TA, CMU.

Work

- summer 2017 **Snap, Inc.** Research intern, designed elastic video analytics system, reducing operational costs up to 10×.
- summer 2015 **Jane Street Capital.** Software engineering intern, optimized memory allocation in OCaml language runtime, refactored distributed incremental computation library.
- 2015 **Exp.ii.** Web developer, architected web front-end for education startup.
- summer 2014 **Palantir Technologies.** Software engineering intern, developed business logic engine for criminal case management system.
- summer 2013 **Tunessence.** Web developer, built interactive guitar tab learning tool for guitar learning startup.
- summer 2012 **Pioneer Hi-Bred.** Software engineer, built BI app for analysis of laboratory efficiency in Pioneer labs.
- 2010-12 **Webspec Design.** Web developer, created 30+ websites for clients across the country.