Max Willsey

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Education

University of Washington   Sep 2016 – present
Ph.D. Computer Science

Carnegie Mellon University   Aug 2012 – May 2016
B.S. Computer Science
Minor in Mathematics
University Honors and College Honors in Computer Science
Thesis: *Design and Implementation of Concurrent C0*

Current Projects

Rapid and Reliable Microfluidic Programming for Domain Experts   Jun 2016 – present
with Luis Ceze, Molecular Information Systems Lab
- Designing a high-level, reliable abstraction for digital microfluidic devices
- Collaborating with synthetic biologists to implement libraries for domain-specific operations

Domain-Specific Reconfigurable Accelerators   Sep 2016 – present
with Vincent Lee, Luis Ceze, Rastislav Bodik, Alvin Cheung
- Exploring methods for designing and programming DSRAs using techniques like program synthesis
- Automatically identifying building blocks that implement functionality across applications

Past Projects

Concurrent C0 Design and Implementation   Jan 2015 – May 2016
Senior Honors Thesis
Advisor: Frank Pfenning
- Worked on a concurrent extension to C0, a research project started as a well-defined subset of C
- Used guarantees from session typing for efficient message passing implementation including intelligent
  scheduling decisions, lower memory impact, and deadlock free execution

Abstractions for Concurrent Interactive Programs   Aug 2014 – Dec 2014
Advisor: Umut Acar
- Worked on a functional programming for interaction, including an implementation in OCaml

Teaching

Hardware/Software Interface (CSE 351)   Dec 2016 – Mar 2017
University of Washington

Operating Systems (15-410)   Aug 2015 – May 2016
Carnegie Mellon University Responsible for holding office hours and evaluating student projects, including
code review of several kernel implementations

Professional Experience

Apple   May 2014/15 – Aug 2014/15
iOS Performance (2015): investigated and tested changes to scheduler
Siri Operations (2014): created a system for anomaly detection in logs

SEI at Carnegie Mellon   May 2013 – Aug 2013
Created a Twitter-like application for hundreds of users to coordinate training efforts in real time

Publications

Max Willsey, Rokhini Prabhu, and Frank Pfenning. "Design and Implementation of Concurrent C0". Fourth International Workshop on Linearity, Electronic Proceedings in Theoretical Computer Science (EPTCS), June 2016

Awards

Qualcomm Innovation Fellowship   May 2017
Program Synthesis for Domain Specific Reconfigurable Accelerators
with Vincent Lee, Luis Ceze, Rastislav Bodik, Alvin Cheung

Exemplary Thesis   May 2016
Chosen by the senior thesis committee

Senior Leadership Award   May 2016

Andrew Carnegie Scholar   Sep 2016
40 seniors (of approx. 1500) selected by deans and dept. heads for leadership and academic excellence

Selected Coursework

University of Washington

599H	Computing for Social Good
548	Computer Architecture
507	Computer-Aided Reasoning
544	Database Management Systems

Carnegie Mellon University

15-417	Higher Order Compilation
15-411	Compiler Design
15-312	Programming Languages
15-410	Operating Systems
15-451	Algorithm Design/Analysis
15-213	Computer Systems
21-484	Graph Theory
15-396	Science of the Web