Kavon Farvardin

kavon.farvard.in , kavon@farvard.in

Research Interests

Parallel functional programming languages and their implementations; scalable concurrent data structures.

Education

University of Chicago
Ph.D. in Computer Science — **2014 – present**

Pennsylvania State University
B.S. in Computer Science
B.S. in Mathematics — **2009 – 2014**

Experience

The Manticore Project — **Sep 2014 – present**
I developed a new LLVM backend for the compiler while investigating implementations of continuations. I also explored techniques for garbage collection to reduce thread communication overhead in the split-heap runtime system.

Penn State Applied Research Laboratory

Research Staff — **May 2014 – Aug 2014**
Distinguished Undergrad Researcher — **May 2012 – May 2013** ∪ **Jan 2014 – May 2014**
Lead developer researching new features for an immersive 3D data visualization program.

Intel Corporation

Software Engineering Intern — **June 2013 – Dec 2013**
Worked with a team developing a DSL and compiler based on LLVM for hardware validation. My primary task was to develop hardware tests according to a specification, analyze the compiler's output, and run tests on known-good CPUs to identify compiler bugs.

Pennsylvania State University

Undergraduate Researcher — **Aug 2009 – Aug 2011**
Built educational software, for pedagogical research with a professor, that employs an interactive, graphical tracing method to teach fundamentals of programming.

Teaching

Artifice

Chief Technical Officer, Curriculum Director — **Sep 2016 – present**
After-school Instructor — **Sep 2015 – Sep 2016**
Artifice is a non-profit, volunteer-run organization in Chicago that teaches youths valuable STEM skills. We run after-school classes for 4th–6th graders that provides a fun, hands-on experience with electronics and Arduino programming. As CTO, I led the switch to a visual language (Scratch) for Adriuno programming in the after-school classes.

Compilers for Computer Languages — CMSC 22600
Teaching Assistant UChicago, **Autumn 2016**

Functional Programming — CMSC 22300
Teaching Assistant UChicago, **Winter 2016**

Computer Science with Applications 1 — CMSC 12100
Teaching Assistant UChicago, **Autumn 2015**

Concurrent Scientific Programming — CMPSC 451
Teaching Assistant Penn State, **Spring 2014**

Programming Language Concepts — CMPSC 461
Teaching Intern Penn State, **Spring 2013**
Prepared and delivered the class's lectures on compilers, context-free and regular languages, memory management, garbage collection, and Prolog.

Introduction to Programming Techniques — CMPSC 121
Teaching Intern Penn State, **Fall 2012**
Prepared and delivered the class's lectures on Boolean algebra, sorting and searching algorithms, and basic data structures.

PAPERS

Compiling with Continuations and LLVM **Sep 2016**
Kavon Farvardin and John Reppy
ML Workshop

TALKS

Practical Conversion from CPS to Direct Style **Dec 2016**
Midwest PL Summit

LANGUAGE FAMILIARITY

Assembly, C, C++, Haskell, Java, LLVM, Prolog, Python, Scheme, Standard ML, *etc.*