Andre Kuhlenschmidt

Contact Information

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Research Interests

I am interested in designing and building compilers, runtime systems, and type systems that make it easier to produce quality software. My most recent work focuses on the implementation of type systems that provide the benefits from both static and dynamic typing (i.e. gradual typing) while minimizing overhead.

Education

Indiana University, Bloomington, Indiana USA
Ph.D. Candidate, Computer Science, **May 2020**
Advisor: Jeremy Siek
M.S., Computer Science, **May 2016**
B.S., Business, Major: Entrepreneurship, **May 2010**

Experience

Indiana University, Bloomington, Indiana USA
Graduate Research Assistant **January 2014 – Present**

- Evaluate implementation techniques for sound gradually typed programming languages.
- Develop an ahead of time compiler Grift.
- Measure performance improvements in compiler via benchmark experiments.
- Design semantics that facilitate safety and efficiency.

Indiana University, Bloomington, Indiana USA
Assistant Instructor **January 2016 – May 2018**
August 2012 – May 2014

- Planned and constructed course materials and software for courses in programming language semantics and implementation, operating systems, and embedded systems.
- Instructed lab sessions of 5-30 students.
- Recognized as Assistant Instructor of the Year in 2018.

Skills

Languages: Racket, C, Haskell, Java, Python, Coq, C++
Tools and Platforms: Bash, Git, Make, Linux, Mac OS, Chibi OS, ARM

Workshop Papers

An Efficient Compiler for the Gradually Typed Lambda Calculus Andre Kuhlenschmidt, Deyaaeldeen Almahallawi, Jeremy G. Siek. In Scheme and Functional Programming Workshop, 2018.

A Systematic Performance Evaluation of Gradually Typed Functions and References. Andre Kuhlenschmidt, Deyaaeldeen Almahallawi, Jeremy G. Siek. In Scripts to Programs Workshop, STOP, 2016.

Towards Absolutely Efficient Gradual Typing Andre Kuhlenschmidt, Deyaaeldeen Almahallawi, and Jeremy G. Siek. In Scripts to Programs Workshop, STOP, 2015.

Open Source Projects

Grift **May 2014 – Present**

- Lead developer of an optimizing compiler for a gradually typed Lisp to native code.
- Utilizes *space-efficient coercions* to enforce soundness of the static type system.

Professional Activities

IU SICE Graduate Education Committee, Student Representative — January 2018 - Present
OOPSLA Artifact Evaluation Committee — August 2018
SPLASH Student Research Competition Program Committee — August 2018