

Larry Diehl

SOFTWARE ENGINEER · RESEARCHER

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Education

Portland State University

PH.D. IN COMPUTER SCIENCE

- Defense planned for November of 2016.

Portland, OR

2012 - present

University of Central Florida

B.S. IN INFORMATION SYSTEMS TECHNOLOGY

- Minor in Computer Science.
- University Honors.

Orlando, FL

2005 - 2009

Languages

Programming Agda, Haskell, Javascript, Ruby

Spoken English, German

Experience

Portland State University

GRADUATE RESEARCH ASSISTANT

- Generic dependently typed programming over type theoretic models using Agda.
- Formal correctness proofs of programming languages (especially semantic termination) using Agda.
- Implementation of dependently typed languages (Ditto and Spire) using Haskell.
- NSF/CISE/CCF grant #1320934.

Portland, OR

Aug 2012 - present

Engine Yard

SOFTWARE ENGINEER

- Worked on a cloud hosting platform on top of Amazon AWS.
- Ruby web application and API programming using Ruby on Rails and Sinatra.
- Ruby system automation using Chef.
- Unit testing using RSpec.
- Integration testing using Cucumber and Selenium.

San Francisco, CA

May 2009 - Aug 2012

IZEA

SOFTWARE ENGINEER

- Worked on a social media advertising platform.
- Ruby web application and API programming using Ruby on Rails.
- Unit testing using RSpec.

Orlando, FL

Jan 2007 - Aug 2008

Bear Den Designs

SOFTWARE ENGINEER

- Worked on medical resident management software.
- Ruby web application programming using Ruby on Rails.
- Unit testing using Test::Unit.

Jacksonville, FL

May 2006 - Jan 2007

Publications

Generic Lookup and Update for Infinitary Inductive-Recursive Types

PROCEEDINGS OF THE 1ST INTERNATIONAL WORKSHOP ON TYPE-DRIVEN DEVELOPMENT

Larry Diehl & Tim Sheard

2016

Hereditary Substitution by Canonical Evaluation (SbE)

TECHNICAL REPORT

Larry Diehl & Tim Sheard

2014

Generic Constructors and Eliminators from Descriptions: Type Theory as a Dependently Typed Internal DSL

PROCEEDINGS OF THE 10TH ACM SIGPLAN WORKSHOP ON GENERIC PROGRAMMING

Larry Diehl & Tim Sheard

2014

Leveling Up Dependent Types: Generic Programming over a Predicative Hierarchy of Universes

PROCEEDINGS OF THE 2013 ACM SIGPLAN WORKSHOP ON DEPENDENTLY-TYPED PROGRAMMING

Larry Diehl & Tim Sheard

2013

Verified Stack-Based Genetic Programming via Dependent Types

PROCEEDINGS OF AAIP 2011 4TH INTERNATIONAL WORKSHOP ON APPROACHES AND APPLICATIONS OF INDUCTIVE PROGRAMMING

Larry Diehl & Tim Sheard

2011

Software

Ditto

DEPENDENTLY TYPED PROGRAMMING LANGUAGE

Haskell

2015

- Open universe of types.
- Dependent pattern matching.
- Implicit arguments via dynamic pattern unification and constraint postponement.
- Mutual functions, induction-recursion, and induction-induction.
- Eta-equality for functions.
- Interactive holes and case splitting.
- Novel enhanced form of coverage checking.

Spire

DEPENDENTLY TYPED PROGRAMMING LANGUAGE

Haskell

2013

- Proof of concept.
- Closed universe of types.
- Generic constructors and eliminators.

Lemmachine

FORMAL WEB FRAMEWORK

Agda

2010

- Proof of concept.
- Request headers correct w.r.t. previous headers.
- Response headers and code correct w.r.t. previous request and headers.
- Verified HTTP parser.

Dataflow

DATAFLOW CONCURRENCY LIBRARY

Ruby

2009

- Dataflow concurrency for Ruby inspired by the Oz programming language.