

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

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.