

Elias Mulhall

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I am a software engineer with six years of industry experience developing complex projects with a wide range of languages and tools. My primary interests, informed by my academic research experiences, lie at the intersection of programming languages and software architecture, namely: how do we design tools that better facilitate the construction of robust software?

Experience

Software Engineer, MojoTech

Providence, RI

Provide software consulting and web development services as part of MojoTech's in-house engineering team.

Summer 2016 - Present

- Experience spanning six client projects, including rehabilitating a legacy code base, co-leading two greenfield projects from inception to completion, mentoring external teams on new technologies, and developing new tools and libraries to address team needs.
- Engage in regular client communication, including daily stand-ups and short, deliverable-focused sprint cycles.
- Mentor junior developers and undergraduate interns on software development fundamentals.
- Apply both rigorous testing and functional programming techniques to ensure software quality and stability.

Software Foundations Guided Reading, Grinnell College

Grinnell, IA

Studied software verification and dependent type programming with Prof. Peter-Michael Osera.

Spring 2016

- Read and discussed *Software Foundations* by Pierce et al. and worked through exercises using the Coq proof assistant.
- Used Coq to verify Theorems 2.1.1 and 2.1.2 of Peter-Michael Osera's dissertation *Programming Synthesis with Types*.

Research Assistant, University of Massachusetts Amherst

Amherst, MA

Researched domain specific languages for declarative control of network routing with Prof. Arjun Guha.

Summer 2015

- Implemented a new compiler algorithm in OCaml for the NetKAT software driven networking language, utilizing the OpenFlow 1.3 network protocol to produce more compact and flexible compiled network switch instructions.
- Leveraged OpenFlow 1.3 to develop high-level language abstractions for configuring load balancing and fault tolerant networks.
- Attended ICFP 2015 and the pre-conference Programming Language Mentoring Workshop (PLMW).

MIST Educational Web Environment Independent Study, Grinnell College

Grinnell, IA

Developed a toolset for learning functional programming through art with Prof. Samuel Rebelsky.

Spring 2015

- Worked in existing Node.js code base for the Mathematical Image Synthesis Toolkit (MIST), a domain specific language and integrated web environment for creating visual art by means of simple function composition.
- Designed and implemented the MIST web API, in order to meet the interfacing needs of the MIST mobile app development team.

Intern Software Developer, eHealth Data Solutions

Yellow Springs, OH

Built and tested web-based analytical applications for the post-acute healthcare industry.

Summer & Winter 2013, Summer 2014

Technical Skills

Languages

Proficiency with Elixir, TypeScript, JavaScript, Ruby

Experience with OCaml, Elm, Scheme, Python, Java, Prolog, Go, Clojure, PHP

Frameworks

Phoenix, React, React Native, Ruby on Rails

Tools & Platforms

Git, SQL, Vim, RESTful APIs, Linux, NixOS, \LaTeX , HTML, CSS

Education

Grinnell College

Grinnell, Iowa

Bachelor of Arts in Computer Science

2012 - 2016