Morgan Thomas

morgan.a.s.thomas@gmail.com • (734) 355-3870 • Boulder, CO, USA
GitHub: https://github.com/morganthomas
LinkedIn: https://www.linkedin.com/in/morgan-thomas-29a923b7

Software Engineer with Leading-Edge Applied Math

Versatile problem-solver employing best practices in analysis, engineering, algorithms, and code.

Objective

I wish to make a positive impact on others' lives.

Core Competencies

Delivering correct software based on solid engineering
Clear technical communication tuned to audience and context
Sound and innovative mathematical analysis of real-world problems

Selected Skills

Programming languages
Haskell JavaScript C# dabbled in many
Software engineering
Agile Testing/TDD Git Web frontends and APIs Linux Windows
Concurrency (locks, STM, streams, ...) Functional programming OOP
Computer science
Data structures Complexity analysis (big-O, etc.) Theory of languages
JavaScript technologies
Node.js Vue React Angular ES6+ Webpack
Applied math
Logic Statistics and probability Graph theory
Calculus Linear algebra Numerical optimization
Communication
Documentation/technical writing Teaching Self-teaching Good listener

Professional Experience

Consultant. Platonic Systems LLC. Mar 2020 – present.
Research and development in user interfaces and numerical computing.

Software Engineer. Holland & Hart LLP. Sep 2019 – Mar 2020.
Developed legal work automation products using Haskell, JavaScript (Vue), Kubernetes, and Microsoft Azure cloud. Wrote the team's first automated end to end tests and testing system.

Developer, Co-Founder. Kassir.io. Jun 2018 – Mar 2020.
Used Haskell to develop an algorithmic cryptocurrency trading system. Focus on math algorithm design, dev, and automated testing.

Contractor. Spectrum. Sep 2018 – Sep 2019.
M&E for legacy JavaScript frontend for flagship set top box product, including bugfixes, refactoring, build system overhaul, and memory management overhaul.

Developer & Algorithms Specialist. InnoTrade.io. Mar 2018 – Jun 2018.
Used Haskell and Rust to develop an algorithmic cryptocurrency trading system. Built a working MVP in a short time, focusing on math algorithm design and dev with rapidly changing requirements set by non-technical leadership.

Developer. IHS Markit. Oct 2015 – May 2018.
Created and maintained Web based financial research tools for some of world's largest investment management companies, using ASP.NET and JavaScript (jQuery, React, Vue, Node). Contributed to established projects, and led architecture and dev of a state of the art ETF research UI with browser automation testing.

JavaScript Instructor. Saisoft, Inc. (contractor for).
Nov. 2015 – Dec. 2015.
Trained IT professionals in JavaScript using self-developed courseware.

Graduate Assistant. University of Connecticut. 2013 – 2015.
Explained mathematical logic and rhetoric to undergraduates of diverse majors.

Selected Talk

Concurrency in Haskell with Streamly. LambdaConf 2020.
https://www.youtube.com/watch?v=ijiykwuZvRQ
Explains some techniques for writing fast, reliable concurrent software using synchronziation variables (MVars), software transactional memory (TVars), and composable streams (Streamly). Includes some original research.

Selected Projects

FreeCat https://github.com/morganthomas/freecat
A programming language descending from Haskell and Idris, founded on new ideas in type theory. Developing in Haskell.

Fairy Chess https://github.com/morganthomas/fairy-chess
A networked game of chess where the rules are different every time. Built using Angular, MongoDB, and node.
Demo: https://www.youtube.com/watch?v=fBlJpnxy0fs

2048 https://github.com/morganthomas/2048-js
Plays a puzzle game called 2048 with itself; plays much better than most human players, including me. Demo: http://206.189.66.150:3001/

purescript-group https://github.com/morganthomas/purescript-group
The PureScript library implementing the concept of groups from abstract algebra.

Education

University of Connecticut. Philosophy, MA. 2013 – 2015.
Mathematical research resulted in three publications in top logic journals. Cumulative GPA 4.1. Graduated Spring 2018 (due to delay filing papers).

Arizona State University. Psychology, BS. 2009 – 2013.
Minors, Mathematics and Philosophy. Thesis on philosophy of computation. Developed EEG headset interface software in C++ as part of a Psychology Department research project. Cumulative GPA 3.83.

Academic Honors

Top scorer, Putnam Mathematical Competition at Arizona State University. 2013.
National Merit Scholar. 2009.