250 986 0250 | sandy@sandymaguire.me | Senior Software Engineer

SANDY MAGUIRE

"Impassioned by big ideas and systematic self-iteration."

SUMMARY OF SKILLS

Programming Experience

- C++ *(decade)*
- Haskell *(8 years)*
- C#, JavaScript, Lua, PHP, Python *(5 years)*

WORK EXPERIENCE

Project Lead » Wingman for Haskell October 2020 → ongoing

- Developed an interactive tactic metaprogramming engine for Haskell.
- Interfaced with the GHC API to provide robust, type-aware code synthesis.

Senior Software Engineer » Takt September 2016 → January 2018

- Led a team of four to reimplement a core subcomponent of the product – increased the cadence of new feature development from months to days.
- Directed a team of three to implement a high-throughput, low-latency brokered streaming library. Resulting library is slated to become the company's core interservice communication protocol.

Engineer (Identity and Access Management) » Google September 2015 → September 2016

- Led the architectural design effort of a user-defined permission model for the cloud – the team's only project for the next quarter.
- Took ownership over an unmaintained, service-critical internal compiler; improved compile times by 96% and test coverage by 65%.

Engineering Intern (Ads Ranking) » Facebook January → April 2014

- Analyzed the advertising platform's spending behaviors and subsequently implemented algorithmic changes resulting in a 0.5% revenue increase.
- Parallelized the backend graph ranker, resulting in site-wide response time gains of 0.4%.

PUBLICATIONS

Algebra-Driven Design September 2020

algebradriven.design

- How to discover leak-free abstractions, and to automatically derive implementations.

Thinking with Types October 2018

thinkingwithtypes.com

- Take yourself from a competent programmer to one whose compiler does the work for you.

How These Things Work November 2017

reasonablypolymorphic.com/book/preface.html

- A technical and philosophical journey into how computers work, starting from first principles.

FORMAL EDUCATION

Honors Software Engineering 2010 → 2015

Bachelor of Software Engineering, University of Waterloo, ON

Relevant Courses

- Adaptive Search – stochastic means of approximating global maxima for chaotic functions
- Compilers – resulting Java compiler was most correct from class of 50 students
- Networking – socket programming; robust protocol design; routing principles
- Numerical Computation – computational error correction; solving differential equations

MISCELLANY

Interests

music, functional programming, compilers, robotics, skateboarding, electronics, math pedagogy