Dave Pagurek van Mossel

University of Waterloo Software Engineering, class of 2019

Work

Software Engineering Intern at Remind San Francisco, USA, Sept-Dec 2016

- Designed and implemented a REST API for district admins to manage user information in bulk, taking care to query efficiently
- Developed features for backend Ruby and Go payments services, plus accompanying client work in React and Redux

Software Developer Intern at Athos Redwood City, USA, Jan-Apr 2016

- Created a C++ library for defining signal processing pipelines by parsing a JSON-based language definition into a tree of filters, allowing variable scoping and mapping over lists
- Developed infrastructure and UI features in Objective C and Swift to allow users to run through athletic training plans and receive a score calculated from garment sensor data

Software Developer Intern at Shopify Ottawa, Canada, May-Aug 2015

- Developed Ruby scripts to transform and load sales data from sharded MySQL databases into central MySQL and Postgres databases on Amazon Web Services
- Introduced new language constructs in the Shopify Query Language parser allowing granular querying of data in Go and Ruby
- Awarded finalist in Shopify Hack Days with an iOS app version of the Shopify home feed in React Native

Projects

Raytracer, 2016
A 3D renderer written in Swift

- Organized the rendering of images into a multithreaded map and reduce over multiple render passes
- Used sampling and probability distributions to implement soft shadows, depth of field blur, motion blur, and refractive materials

Kandinsky, 2016
A declarative language for programming generative art

- Wrote a grammar to express visual components, using a decoration pattern for transformations and compositions
- Compiled syntax nodes to functional Javascript for dynamic SVG generation

Scala compiler, made for CS241E, 2015
A tool written in Scala to compile a subset of Scala into MIPS instructions

- Parsed input into an AST for the Scala grammar to compile
- Implemented closures, tail recursion, type checking, and garbage collection

Pluto, 2015
A home automation system and control panel for the Raspberry Pi

- Constructed music playlists based on who is in the house by having users tap an NFC tag to an Android phone to sign in or out

Open-source contributions, 2016-present

- Contributed bug fixes and features to **Radiant Player**, a **Facebook Messenger Mac client**, **Vim Auto-Pairs**, and **Emerald language**

About

Programmer, web developer, digital artist, and Regular Expression enthusiast

- dave@davepagurek.com
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Skills

- Demonstrated expertise with **HTML, (S)CSS,** and **JavaScript** (including **Node, Express, Lodash** and **React**)
- Extensive experience with **Git, Ruby, C++, Perl 6, Swift, Go, SQL,** and **Unix**
- Passion for creative approaches to visual and algorithmic design problems
- Highly proficient with Adobe CS4+ for design and animation
- Enthusiastic, self-motivated learner and active team leader and contributor

Awards

- University of Waterloo President's Scholarship, 2014
- Top 25% distinction on the Canadian Computing Competition, senior division, 2013 - 2014
- Jerry Dermer Memorial Prize in Engineering, 2014
- Ottawa-Carleton District School Board Silver Medal, 2010-2014

Leadership

- Organizer, **TerribleHack I - IV**, a hackathon for programming for its own sake rather than for a practical purpose, 2015-16
- Organizer, **Tech Retreat**, a hackathon for high school students, 2015-16