

Dave Pagurek van Mossel

University of Waterloo Software Engineering, class of 2019

Work

Software Engineering Intern at [Remind](#) San Francisco, California, Sept-Dec 2016

- Designed and implemented a REST API for district management, efficiently querying the graph of districts, schools, and users
- Developed features for backend Ruby and Go payments services, plus accompanying client work in React and Redux

Software Developer Intern at [Athos](#) Redwood City, California, 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, 2015-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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- (613) 875-4951

Skills

- Demonstrated expertise with **JavaScript** (including **Node**, **Express**, **Lodash** and **React**), as well as **CSS** and **HTML**
- Extensive experience with **Ruby**, **Go**, **Swift**, **C++**, **Perl 6**, **SQL**, **Git**, and **Unix**
- Passion for creative approaches to visual and algorithmic design problems
- Highly proficient with Adobe CS4+ for design and animation

Awards

- First place in Waterloo EngHack, both fall and winter 2015
- 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