Dave Pagurek van Mossel

University of Waterloo Software Engineering, class of 2019

Work

Software Engineering Intern at **Figma**, San Francisco, California, Sept-Dec 2018

- Will be working on the graphical vector editor using WebGL and C++

Software Engineering Intern at **Cruise**, San Francisco, California, Jan-Apr 2018

- Researched and developed a prototype library for general path planning, creating a quick initial path and using any given additional time to improve it
- Visualized interactive search trees generated from the path planner using WebGL, communicating with ROS for input

Software Engineering Intern at **Google**, Mountain View, California, May-Aug 2017

- Investigated ways of using machine learning to solve problems on Internet of Things devices
- Implemented Tensorflow and OpenCV computer vision models and evaluated their performance

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

- Introduced new language constructs in the Shopify Query Language parser allowing granular querying of data in Go and Ruby

Projects

The Engulfed Cathedral, 2018

- Created a raytraced 3D renderer and a short film produced with it for Waterloo's computer graphics course
- Implemented graphics techniques such as inverse procedural generation, photon mapped lighting, ambient occlusion, volumetric materials, constructive solid geometry, inverse kinematics
- Won the prize for top project in the class of Spring 2018

Fast inverse procedural modelling (Capstone project), 2018-present

- Researched cost functions and sampling techniques to control procedural modelling at interactive rates to enable iterative design
- Created an API and editor to design procedural models with real-time feedback
- Won the Yelp Early Bird prize for Capstone projects

Contact

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Skills

- Professional experience working with **Javascript, C++14, Ruby, Java, Go, Swift, C, SQL, Git,** and **Unix**
- Highly proficient with CSS layout models and experience writing performant animations
- Passion for creative approaches to visual and algorithmic design problems

Awards

- Dean's honour list, 2017-2018
- 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

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

Open-source

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