

Dave Pagurek van Mossel

Work

Full Stack Developer at [Butter Creatives](#), Toronto, Ontario, Sept 2020-Present

- Developed infrastructure for modular creative code components in a browser-based motion graphics video editor

Software Engineering Intern at [Figma](#), San Francisco, California, Sept-Dec 2018

- Added rendering system support for multiple layers of fill styles as backgrounds for components and frames
- Implemented "smart selections," enabling items within selections that look like lists or grids to be rearranged within their detected structure

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 additional computation time given 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

- Adapted machine learning models for Internet of Things devices

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

Software Developer Intern at [Athos](#), Redwood City, California, Jan-Apr 2016

Software Developer Intern at [Shopify](#), Ottawa, Canada, May-Aug 2015

Open Source

WebGL Steward for [p5.js](#), July 2022-Present

- Implemented support for framebuffer layers and 3D line caps/joins
- Fixed bugs related to shape and line drawing, shaders, gif handling, and math
- Wrote [p5.warp](#), a library to deform 3D models in real time in shaders
- Wrote [p5.buildGeometry](#), a library to dynamically construct 3D models
- Contributed [tutorials](#), [talks](#), and other learning resources

Miscellaneous, 2015-Present

- Contributed bug fixes and features to [rosvag.js](#), [Radiant Player](#), a Facebook Messenger [Mac client](#) and [CLI](#), and [Vim Auto-Pairs](#)

Research

[StrokeStrip: Joint Parameterization and Fitting of Stroke Clusters](#)

Co-authored with Chenxi Liu, Nicholas Vining, Mikhail Bessmeltsev and Alla Sheffer
SIGGRAPH 2021

- Developed an algorithm to fit clean lines to clusters of sketched vector strokes by modeling a discrete-continuous optimization problem that can be iteratively solved

[Controlling Procedural Modelling Interactively with Guiding Curves](#)

Co-authored with Abhishek Madan, Andrew McBurney, Paul Bardea and Tammy Liu
Proceedings of Graphics Interface 2019

- Defined a Sequential Monte Carlo sampling-based search function which lets artists search the output of a 3D model generating grammar in real time by drawing guiding curves

Education

- MSc in CS, University of British Columbia
Sept 2019 - Apr 2021
- Bachelor of Software Engineering,
University of Waterloo
Sept 2014 - Apr 2019

Contact

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- github.com/davepagurek

Skills

- Professional experience working with **Javascript, Typescript, C++, GLSL, Ruby, Java, Go, Swift, SQL, Git, and Unix**
- Professional experience employing a wide variety of real-time computer graphics techniques

Awards

- NSERC CGS-M Scholarship, Fall 2020
- Dean's honour list, Winter 2017, Fall 2017, Spring 2018, and Winter 2019
- Top 25% distinction on the Canadian Computing Competition, senior division, 2013 - 2014

Leadership

- Organizer, [Creative Code Toronto](#), a meetup and venue for talks for people making art with code, 2023-present
- Founder and Organizer, [TerribleHack](#), a hackathon for programming for its own sake rather than for a practical purpose, 2015-2022

Patents

- [Tool for arranging objects and adjusting spacing in a layout](#) (US-11662876-B2): Design for [Smart Selection](#) in Figma