1625 13th Ave Upper
Seattle, WA, USA
+1 707 766 4145

Jasper Tran O'Leary

jtranoleary@gmail.com
jasperoleary.com
github.com/jhaazpr

Full-stack software engineer with 7 years of experience building applications for robot programming research.

EDUCATION

Ph.D	Computer Science and Engineering	University of Washington	Sep 2017 – Jun 2024
M.S.	Computer Science and Engineering	University of Washington	Sep 2017 – Jan 2021
B.A.	Computer Science	University of California, Berkeley	Jan 2013 – Dec 2016

GPA: 3.88 (PhD/MS), 3.34 (BA). Selected coursework: algorithms, data structures, operating systems, networks, artificial intelligence, machine learning, graphics, programming language design and implementation.

SKILLS

Fluent: Javascript, Typescript, Python, Unix, Node.js, Git, HTML/CSS, Three.js, Autodesk Fusion 360.

Proficient: C, C++, React.js, Arduino, Java, PyTorch, Numpy, Scipy, OpenCV, Rust, SQL, MongoDB.

Exposure: Ruby, OCaml, Haskell, WebGL, WebAssembly.

EMPLOYMENT

Graduate Student Researcher University of Washington Sep 2017 – present

- Engineered 4 interactive software systems to help users of digital fabrication tools (e.g., 3D printing, laser cutting, lab automation robotics); published results as 4 papers in CS research journals.
- Pioneered the concept of digital fabrication-as-programming in human-computer interaction research.

Software Engineer Freelance May 2021 – Sep 2021

- Refactored a static PDF book catalog with a custom-built searchable library of book curricula.
- Leveraged vanilla Javascript and metaprogramming to implement dynamic functionality within existing Squarespace infrastructure without access to a backend.
- Work done for Hope in a Box, a non-profit for LGBTQ+ inclusive book curricula in public schools.
- Leveraged knowledge in Javascript, Google Sheets API, Git, and Github Actions.

Research Intern Adobe Feb 2017 – Sep 2017

- Prototyped a web-based UI design application that featured within-canvas graphical version control.
- Demonstrated in an experiment that use of the prototype correlated with increased confidence and recall in discussing previous design decisions compared to a baseline UI design tool.
- Published results in a CS journal (`doi:10.1145/3173574.3174109`) and as a patent (`US10896161B2`).
- Leveraged knowledge in Javascript, Meteor.js, and Git.

PROJECTS

Personal Website: `jasperoleary.com` (for additional information, projects, and publications)

Library for Fabrication Machine Control within Computation Notebooks ("Imprimer")

- Developed an open source library to enable computational notebook to replicate experimental two-sided CNC milling, milled 4 example objects as a proof-of-concept.
- Built multiple web backends: a Python add-in for Autodesk Fusion 360, a reactive web page rendering AR visualizations via a JSON grammar, and a server for CNC instruction parsing and dispatch.
- Technologies used: Typescript, Python, Node.js, Websockets, HTTP API design, CNC milling.

Web Application and Domain-Specific Language for Fabrication Machines ("Taxon")

- Built a full-stack web application that for representing digital fabrication machines as programs.
- Formalized a domain specific language and compiler for moving between programs and simulations.
- Technologies used: Javascript, Node.js, Three.js, Express.js, and MongoDB.

Browser-Based Programming Environment for Machine Control and Visualization ("Verso")

- Implemented a web-based code editor for direct machine control and visualization leveraging React.js and automatic code generation for custom within-code UIs.
- Leveraged language interpreter techniques for machine-specific visualizations with Three.js and OpenCV.
- Technologies used: Typescript, Node.js, React.js, Three.js, SQL, HTTP API design, and OpenCV.