



Patrick Dwyer

2023 Northwestern Graduate. Double major in Computer Science and Math. Skilled in Software Engineering, Design, Data Analysis, and model development.

Technical Skills

Languages

[Racket](#), Python, Javascript, CSS, SCSS, HTML, C++, Bash(Unix shell)

Tools

[Clang](#), [Tower](#), git/GitHub, GitHub Actions, Visual Studio Code, [Jupyter](#)

Libraries

[Node.js](#), [NumPy](#), [PyTorch](#), [Matplotlib](#), [Pandas](#), [OpenCV](#), [Flask](#)

Experience

Schwartz Lab: *Lab Tech*

July 2023 – Sep 2023

- Developed supervised 3d Convolutional Neural Network in PyTorch
- Set up extrinsic camera calibration routine by implementing [Levenberg-Marquardt](#) for [Bundle Adjustment](#)
- Extended PyTorch [torch.autograd.Function](#) class to integrate 3d→2d point projection into [autograd](#)
- Manually labelled 8,544 ground truth 2d points using self-made image labeling program

Manifold Group: *Data Science Intern*

July 2022 – Aug 2022

- Collaborated with head of data analytics to build a modular and extendable data pipeline in Python using Pandas and NumPy
- Visualized data for head of data analytics and partners using Matplotlib and Altair

Manifold Group: *Data Analysis Intern*

July 2021 – Aug 2021

- Wrote market analysis for [Yellowbird](#) which contributed to firms's decision to invest a sum which in the past two years (as of 06-20-23) has increased in value by 250%
- Sourced, prepared, and analyzed market, financial, and founder data for ventures at various stages in the investment pipeline

Home Partners of America: *Software Intern*

July 2021 – Aug 2021

- Integrated diverse data streams concerning their RealSure website into an interactive, cohesive, and comprehensible Google Data Studio dashboard for insight generation
- Created and visualized metrics in relation to pre-defined "north star" metric.

Education

BA: *Mathematics, Computer Science*

Sep 2019 – June 2023

Northwestern University, Evanston, IL — Weinberg College of Arts and Sciences — 3.43/4.00 GPA

Projects

patrickdwyer.com

Summer 2023-Present

- Responsive CV website built from scratch using no pre-built libraries and industry best practices

LLVM Compiler (Class: [Compiler Construction](#))

Fall 2022

- Built an LLVM→Assembly compiler in C++

Story Painter (Class: [Practicum in Intelligent Information Systems](#))

Fall 2022

- Collaborated on a team of three people to create a system that takes in a short story and outputs a picture book that fits the story
- Built as a web app using Python (Flask) for the backend and html/css/js for the frontend which utilized a fine-tuned OpenAI GPT-3 model in conjunction with DALL-E 2 to generate novel and relevant picture books

Garbage Collector and Racket Interpreters (Class: [Programming Languages](#))

Fall 2022

- Built a two-space copying garbage collector in Racket.
- Built a series of interpreters for various racket style languages that highlight key concepts underlying many programming languages.