



## 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

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

## 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