

# JONATHAN COULTER

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## EDUCATION

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**University of Pittsburgh • B.S. Computer Science** Dec 2025  
Mathematics & Economics Minors GPA: 4.0  
Frederick Honors College • J. Wray Connolly Jr. Scholar

## TECHNICAL SKILLS

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- Languages: Java, Python, C/C++, JavaScript, HTML, CSS, Rust, Swift
  - Tools: Git, Firebase, Docker, Linux, Excel, Jupyter
  - Libraries: Flask, OpenCV, SQLAlchemy, pandas, Matplotlib

## EXPERIENCE

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**Software Engineer Intern** – Carnegie Mellon University May 2024 – Present  
Pittsburgh, PA

- Collaborated with a team of interns within Dietrich Computing to develop a variety of research tools including Sway (swaychat.ai), a depolarization chatroom platform that engages users in discussions of controversial topics, used by researchers at Carnegie Mellon for social science studies
- Implemented multi-agent LLMs to guide and moderate discussions through live interventions and rephrasings
- Developed the website using Flask, hosted on a CMU Ubuntu server with NGINX, and deployed via Docker

**Undergraduate Teaching Assistant & Peer Tutor** – University of Pittsburgh Jan 2024 – Present  
Pittsburgh, PA

- Lead weekly Data Structures & Algorithms recitations for 25 students, hold weekly office hours available to 120 students, and assist students with understanding programming assignments, completing practice exercises, and walking through problem-solving methods on a group and individual level
- Engage students in 1-on-1 and group tutoring for a variety of core computer science courses
- Support students in understanding programming concepts, completing assignments, and tackling projects

**Research Fellow** – Center for Analytical Approaches to Social Innovation Aug 2023 – Apr 2024  
Pittsburgh, PA

- Leveraged Python, pandas, and Excel to gather and process unstructured data on the police-citizen complaint process from Allegheny County municipalities to create structured datasets for analysis
- Integrated structured data into an interactive map to empower the community through access to critical data

**Sales Associate** – Old Navy Jul 2021 – Dec 2023  
Monroeville, PA

- Consistently managed multiple tasks, including restocking, cashiering, and assisting customers during busy periods while maintaining a positive and productive attitude
- Communicated with customers to resolve concerns or apprehensions toward loyalty/credit card enrollment

## PROJECTS

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**Echo** – CMU TartanHacks Feb 2024  
Pittsburgh, PA

- Designed a full-stack web application using a Flask framework, integrating the Spotify API to dynamically create personalized playlists based on the user's detected mood
- Detected and pre-processed user facial images in OpenCV and utilized a DeepFace model for mood analysis

**Blink Buddy** – Pitt CSC Hacks Award Winner Oct 2022 – Nov 2022  
Pittsburgh, PA

- Collaborated with a team to develop an application that utilizes real-time computer vision to detect and display information regarding user's blinking frequency and habits in pursuit of improving ocular health
- Stores and tracks user's blinking analytics over time to be compared across work sessions
- Built in Python using OpenCV and Tkinter libraries

**Side Quest** – SheInnovates Hackathon Mar 2023  
Pittsburgh, PA

- Created an iOS app that gives users a daily side quest in a category of their choosing that they must complete that day to promote adventure and spontaneity
- Established front-end capabilities to implement social networking features in future development
- Developed in Swift with SwiftUI