Muhammad Abdullah

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Education

Drexel University — Philadelphia, PA
Bachelor of Science in Computer Science — *Sep. 2022 – Dec. 2025*

Experience

Software Developer Intern | *WebApp* — Apr. 2024 – Present
Sharing Excess — *Philadelphia, PA*

- Led the development of React.js and Firebase web app that monitored the delivery of 50 million pounds of leftover food to date from donors to recipients, saving over 500 hours of manual work per month
- Spearheaded 5 projects in 5 months with donors to meet their needs, focused on leading the development of organization analytics, allowing 19+ organizations to visualize their impact and generate reports for their contribution, increased donor satisfaction rate by 70% - one of my recent demos

NASA High Altitude Ballooning | *Bash, C, Raspberry Pi, Python* — Jan. 2023 – Apr. 2024

- Led an 8-member NASA funded team, studied ozone level variations and the formation of gravity waves during solar eclipses through High Altitude Ballooning
- Oversaw hardware & software for video streaming and tracking of our balloon, programmed a RaspberryPi in Bash using FFMPEG (CLI program used to process video and audio) for recording video, compressing it, and uploading live stream to YouTube, successfully live streamed video & data for 6 hours
- Wrote an algorithm in C to decode hexadecimal ozone level measurements (100% accuracy) recorded by an ozonesonde, contributing to accurate data analysis. Analyzed collected data using matplotlib to enhance experimental hypotheses, presented findings at AAAS
- Wrote a bash script to send commands with single key presses for pressure control in our balloon instead of typing email commands (reduced latency by 99%). Successfully slowed ascent rate to achieve neutral buoyancy, gathered data for 90% of totality, the only team to do so

Head Teaching Assistant — Aug. 2023 – Present
Drexel University — *Philadelphia, PA*

- Wrote test cases to grade 500+ student assignments, ensured accurate evaluation and feedback while grading
- Conducted labs to guide students through practical exercises to reinforce concepts and enhance their understanding

Projects

Understanding Transformers | *Python, Jupyter Notebooks, PyTorch, Numpy, Matplotlib* — March 2023

- Deployed a 2-layer neural network, detected digits from an MNIST image (86% accuracy rate). Used numpy & matplotlib to create it from scratch, demonstrated deep understanding of the mathematics involved in neural network architecture
- Implemented an autoregressive character-level language model. Covered model training, sampling, and loss evaluation. Showcased proficiency in natural language generation and neural network optimization
- Expanded the initial bigram model by implementing a multilayer perceptron. Understood learning rate tuning, hyperparameter optimization, evaluation techniques, and train/dev/test splits to mitigate under/overfitting

Youdownload | *Python, Selenium, Pytube, React, Mongodb, openai API, Typescript* — May 2024

- Deployed a full stack web app that allows user to download any youtube video, implemented a recommendation system based on user's downloads. Used by 55 users to date
- Leveraged Selenium for web scraping, used GPT-4o API to get the video the user is looking for if they describe what video they're looking for instead of a URL

MakerSpace | *Node, Supabase, React, Google Meet API, Spotify API, Typescript* — June 2024

- Developed a full stack web app using Vercel (cutting deployment time by 80%) that allows people to work together, Philly CodeFest Winner
- Executed auth, live-streaming, a live chat, used Google Meet API to allow screen-sharing, used Spotify API to integrate with user's Spotify account and stream music. 220 users to date

Technical Skills

Languages & Libraries: Java, Python, C, Bash, JavaScript, Pytorch, Selenium, pandas, NumPy, Matplotlib
Developer Tools & Frameworks: React, Node.js, Git, Docker, Neovim, Jupyter Notebooks, GitLab CI/CD