Jeffrey Oduman

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EDUCATION

University of Pennsylvania, Philadelphia, PA | Computer Science BSE + Robotics Masters | AI concentration **Expected May 2028**

- **GPA:** 3.91 / 4.00
- **Coursework***:* Discrete Mathematics, Programming Languages and Techniques, Multivariable Calculus, Social Networks, Probability, Algorithms and Data Structures, Automata, Complexity, Computability, Big Data Analytics, Linear Algebra

African Leadership Academy, Johannesburg, South Africa | High School Diploma + Cambridge A Level **Sep 2022 - Jun 2024**

- Best in South Africa – A Level Mathematics (97%) & Computer Science (96%), Uganda National High School Chess Gold Medal
- Hack Club President, Science & Robotics President, Chess President, Student Government Academic Representative, House Captain

SKILLS

Languages: Python, Kotlin, Java, C++, OCaml, SQL, HTML, CSS, JavaScript

Libraries and Frameworks: Java Swing, Node.js, React.js, Pandas, Polars, Scikit-learn, Scikit-optimize, PyTorch, Matplotlib, Plotly, PySerial, Alpaca-Py, JSoup, Jetpack Compose, Robotics-Toolbox, Spatial-Math

Protocols: CAN, UART, I2C, SSH,

Tools: Visual Studio Code, Android Studio, IntelliJ, Canva, Git, Tableau, Room, Docker, Confluence, Windows Subsystem for Linux (WSL), Ubuntu, Raspberry Pi 4 (RP4), Arduino, Firebase

Machine Learning Models: Bert, Finbert, Faster-whisper, Random Forest, Logistic Regression, Multiple Linear Regression, Gradient Boost

PROJECTS

Quantum Trading: a trading terminal built to autonomously take advantage of market opportunities **Python, JavaScript**

- Executes trades via Alpaca Trading API, complete with back-testing library and informative dashboards for monitoring and control

Transparency Now: an Android prototype to democratize and audit public government data and welcome whistle blowers **Kotlin, Firebase**

- 3rd place at school-wide E-fest pitch competition. Qualified for the Africa-wide ALX Start-up Incubator

Chess**:** an app to play Player-Versus-Player chess **Java, Swing**

- Implemented complex game logic from scratch, followed MVVM architecture principles for modularity

NBA Predictor (group project): machine learning models to predict NBA game outcomes **Python, Pandas, Numpy, Scikit-learn**

- Led data prep, model training & hyperparameter tuning for the Logistic Regression (84.7% accuracy, 0.93 AUC). Also led EDA

Wiki Olympics: a Wikipedia scraper for querying data about the Olympics **Java, JSoup, Regex**

- Programmatically fetched and parsed Wikipedia pages to extract structured data, using a single page as the entry point for traversal

RELEVANT EXPERIENCE

JoyNet Project - SafeLab **Jan 2025 - Present**

Full-stack Web Developer| Undergraduate Researcher | Philadelphia | joynet-99b18.web.app

- Trained and deployed a sentiment analysis machine learning model using BERT and Faster-whisper to categorize videos by sentiment
- Created an automated infinite-scroll social media feed pipeline to stream content from Instagram, TikTok, and Threads simultaneously
- Implemented a social network with sharing and messaging features using Firebase API, allowing users to connect with each other
- Automated daily social media scraping using EnsembleData API to create a pipeline of content created by and for people of color

Penn Electric Racing **Sep 2024 - Present**

Electrical Software Engineer | Vehicle systems | Philadelphia

- Co-created PERDA, the team's first custom data visualization library, leveraging matplotlib, and NumPy for a custom data format
- Designed C++ code to integrate pitot tube air pressure sensors onto the aero rakes, offering actionable insights into aerodynamics
- Implemented tapered charging using PySerial to programmatically control a precision power supply for safe battery charging
- Debugged and fixed an existing I2C protocol library for communication between I2C sensors and the microcontroller

Sung Robotics Group **Apr 2025 - Present**

Undergraduate Researcher | Research award recipient | Compliant Origami Robots | Philadelphia

- Designed and implemented a configurable 3D CSC Dubins Path solver using ETS and SE3 from the RoboticsToolbox Python library
- Collaborated with a graduate researcher to adapt and extend 3D CSC Dubins Path theory into a novel robotic-arm kinematic formulation
- Developed a gradient descent-based inverse kinematics solver to solve the shortest Dubin's Path problem in 3D
- Developed a gradient descent-based optimization to minimize path length under task-priority Inverse Kinematic formulations

CIS 1200 (Programming Languages and Techniques) **Jan 2025 - Present**

Teaching Assistant | Debugging | Teaching | Philadelphia

- Resolved weekly homework issues raised in previous iterations to make homework instructions and code more robust
- Guided students in the process of debugging OCaml and Java program code
- Led weekly recitations, held office hours, graded assignments, and provided feedback to support student learning

Google Africa Developer Scholarship **Jun 2022 – May 2023**

Associate Android Development Trainee | Full stack Android development | Remote

- Built 6 apps using Kotlin and Java, showcasing functionalities like database integration (SQLite/Room) and networking (REST API)
- Implemented adaptive UI design, accessibility compliance, and backend integration with Firebase
- Mastered concepts including lifecycle management, MVVM architecture, and material design principles