Zachary Shaffer
Boston, MA 02118 | (661) 373-4152 | zshaffer13@gmail.com | LinkedIn Profile | GitLab Repo

---

AI Engineer

Professional Summary

AI Engineer with 4+ years of experience building machine learning models, computer vision solutions, and scalable cloud-based data pipelines. Skilled in applying cutting-edge research to practical, high-impact applications. Passionate about driving innovation through deep learning, generative AI, and real-time analytics.

Technical Skills

Programming: Python, MATLAB, SQL, NoSQL
ML Frameworks: TensorFlow, PyTorch, Keras, Scikit-Learn, XGBoost
Data Science: Pandas, Numpy, Matplotlib, Seaborn, A/B Testing
Computer Vision: OpenCV, PIL, Mediapipe
Generative AI/ LLMs: Hugging Face, OpenAI API, RAG, Prompt Engineering, LangChain
MLOps/ Deployment: Weights & Biases, Git, Docker, Kubernetes, Unit Testing, CI/CD
Cloud Platforms: AWS (Lambda, S3, EC2)
Tools: Jupyter Notebook, Spyder IDE, REST APIs

Professional Experience

AI Engineer
HyperSpectral, Boston, MA | September 2022 – November 2024

- Led development of innovative classification models of spectral data, boosting prediction accuracy by 10%.
- Designed automated data ingestion workflows using AWS Lambda, reducing preprocessing time by 25%.
- Researched and implemented cutting-edge academic methodologies for real-world product development.
- Optimized company-wide data preprocessing pipelines, improving scalability and model training efficiency by 20%.

Software Engineer II
HyperSpectral, Van Nuys, CA | July 2020 – September 2022

- Developed and deployed unsupervised machine learning models, improving R&D data analysis by 30%.
- Built a scalable simulation data pipeline processing 5M+ entries monthly.
- Authored detailed technical reports contributing to successful patent filings and IP development.

Data Collection Lead
HyperSpectral, Boston, MA | November 2020 – June 2021

- Coordinated multi-site clinical partnerships for COVID-19 sample collection and analysis.
- Managed sample processing workflows and ensured compliance with IRB protocols and HIPAA regulations.
- Acted as liaison between clinical partners and executive leadership, ensuring operational continuity.

Software and Technology Consultant
Augmenteum Inc., Pasadena, CA | June 2018 – August 2018

- Integrated AI-driven enhancements into augmented reality applications.
- Designed computer vision algorithms for real-time object detection and tracking.
- Developed Excel-based performance metric dashboards, reducing reporting time by 40%.
- Collaborated with executive leadership to align technical solutions with company strategy.

Projects

Facemask and Emotion Detection
Home Project | March 2025 – April 2025

- Used Keras and Tensorflow to build efficient Convolutional Neural Networks trained on open source data sets.
- Data preprocessing was accomplished using Torchvision.
- Separate models determined if people in images were wearing face masks and what emotion was showing on their face.
- Performance on unique testing sets was over 95% accurate for each model.

Workout Pose Detection
Home Project | March 2025 – April 2025

- Used Google's Mediapipe model to automatically detect what workout pose was being performed.
- Tracking is able to be done on real time webcam video or from saved videos.
- Number of reps counted for set tracking.

Human-Like Robotic Hand Design
WPI Major Qualifying Project | August 2019 – May 2020

- Designed and assembled a hydraulically powered robotic hand featuring feedback control.
- Built custom electronic control systems for industrial robotic arm integration, demonstrating project viability to a review panel.

Smart Home Plant Tracker
Electrical and Computer Engineering Design Project | January – March 2019

- Developed an IoT plant monitoring device with 1 km wireless transmission capability using Arduino and Python.
- Conducted competitive market analysis, delivering a comprehensive business value assessment.

Education

Worcester Polytechnic Institute (WPI), Worcester, MA
Bachelor of Science in Electrical and Computer Engineering | May 2020