John Engle

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Education

The Ohio State University in Columbus, Ohio   **August 2020 - December 2024**
Bachelor of Science in Computer Engineering

Experience

Research Assistant at OSU - CFAES, Columbus, Ohio   **May 2022 - January 2025**
- Designed and developed full-stack web apps using Python/Flask, JavaScript, and PostgreSQL
- Utilized Ultralytics, PyTorch, and OpenCV to build a computer vision pipeline, resulting in object detection accuracy of 90%
- Created and maintained data visualization dashboards using matplotlib, Plotly, OpenLayers
- Reviewed over 100 papers on cutting-edge practices in deep learning and computer vision
- Wrote Python scripts to scrape, clean, and analyze data from publicly available datasets
- Automated a UAV image processing workflow using Pix4D's cloud API, reducing processing time by 55%

Publications

- Waltz, Katari, Hong, Anup, Colbert, Potlapally, Dill, Porter, **Engle**, et al. (2024). Cyberinfrastructure for machine learning applications in agriculture: Experiences, analysis, and vision. *Frontiers in Artificial Intelligence*, 7, 1496066.

Projects

Django Chatbot
- Built a Django REST API backend and a React frontend to form a full-stack web application
- Deployed the application to Heroku, using AWS DynamoDB for data storage
- Devised and implemented a CI/CD pipeline using GitHub Actions
- Used prompt engineering to integrate an LLM from Hugging Face into the application

FieldVision
- Trained a YOLO deep learning model on over 2000 annotated images to identify soybean crops in drone imagery
- Optimized hyperparameters of deep learning model to achieve a mAP50 accuracy score of 90% for object detection
- Deployed a web dashboard with PostgreSQL and AI integration, log-in, and file upload interface
- Integrated the model into a web application built using Python and Flask

Structured Light Camera
- Built a stereo vision system on Jetson Nano to reconstruct objects as 3D point clouds
- Collaborated in an Agile team to implement advanced triangulation algorithms with Python and OpenCV
- Developed a Flask-based web interface to visualize 3D models using Three.js

Skills

Languages: Python, JavaScript, Java, SQL, MATLAB   **Cloud**: AWS S3, DynamoDB, Lambda
Web Frameworks: Flask, Django, Ruby on Rails   **Version Control**: Git, Subversion
Other Tools/Technologies: PyTorch, Hugging Face, Docker