David Robinson

davidrobinson.info drobinson@ucf.edu linkedin.com/in/davidrobinson05 github.com/DRobinson4105

Education

University of Central Florida May 2026
Bachelor of Science in Computer Science, Intelligent Robotic Systems Minor *3.94 GPA*

Experience

Undergraduate Researcher August 2024 – Present
UCF Center for Research in Computer Vision *Orlando, FL*

- Optimizing state-of-the-art 3D pose estimation models to extract joint angles for quantitative stroke mobility analysis.
- Benchmarked neural networks (R3D, R2Plus1D, Video Swin Transformer, Video MViT, MotionBERT, PoseConv3D, MS-G3D) for movement analysis, achieving up to **90.18%** accuracy on the StrokeVision-Bench dataset.

Machine Learning Engineer March 2025 – May 2025
Contract *Remote*

- Designed and trained a neural network using Embedding-LSTM modules and an MLP, achieving **90.7%** accuracy and **93.59%** precision on a custom dataset of **4,000** labeled string pairs.
- Deployed an ONNX-optimized model through a Flask API, improving inference speed by 4x and supporting efficient batch predictions.

Software Engineering Intern August 2023 – July 2024
Dynamic Animation Systems *Orlando, FL*

- Fine-tuned the Mistral-7B LLM with Hugging Face's Transformers and PEFT libraries to generate simulation scenario files compliant with an XSD schema.
- Designed an ontology for simulation hosting, enabling deployment in on-premises and cloud environments using Docker and Kubernetes, with support for AWS and GCP.

Publications

StrokeVision-Bench: A Multimodal Video and 2D Pose Benchmark for Tracking Stroke Recovery
David Robinson*, Animesh Gupta, Rizwan Qureshi, Qiushi Fu, Mubarak Shah*
Accepted to IEEE MLSP 2025

Projects

Accelify | *PyTorch, MongoDB, Pandas, NumPy, Scikit-Learn, Flask, Python*

- Developed a PyTorch recommender system for ServiceNow accelerators on a dataset of **2,000** company-product pairs, reducing loss by **95.8%** and deployed with Flask for inference.
- Built a recommendation dataset using TF-IDF and co-occurrence scores on product usage data with **150+ entries**.

BookMate | *PyTorch, Selenium, NextJS 13, Flask, Python, R*

- Trained the **YOLOv8** model for identifying ISBNs, achieving **98.3 mAP** on a combined barcode dataset sourced from multiple public datasets.
- Created a PyTorch regression model to determine optimal selling prices for books, reaching **3.9 MSE Loss** on a self-collected dataset of **200** Amazon listings.

SimplyASL | *PyTorch, Swift, Flask, OpenCV, OpenAI, LangChain, NumPy*

- Built a dataset mapping **70 distinct ASL signs** to 2D pose representations using **Meta AI's Sapiens** pose estimation model.
- Constructed an LSTM-based model to interpolate pose keypoints and generate temporally-smooth ASL transitions.

Competitions and Awards

1st Place of 26 Teams — Waymo Mobility Challenge, ShellHacks 2025 (BirdsEye)

1st Place of 104 Teams — Assurant Way Challenge, ShellHacks 2025 (BirdsEye)

4th Place of 113 Teams — Division 2, ICPC NA Big South Regional 2023 (UCF-JV Saragossa)

Technical Skills

Certifications: AWS Solutions Architect, AWS Cloud Practitioner
Languages: Python, C/C++, SQL, Java, JavaScript, R, LaTeX
Machine Learning: PyTorch, TensorFlow, Scikit-Learn, Transformers, ONNXRuntime, OpenCV, YOLO, TorchScript
Tools and Platforms: AWS, Docker, Kubernetes, Flask, Git, MongoDB, MySQL, PostgreSQL, Pandas, NumPy