David Robinson

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Education

University of Central Florida December 2026
Bachelor of Science in Computer Science, Data Science Minor *3.93 GPA*
Certifications: AWS Cloud Practitioner
Awards: UCF Dean's Honor List x4, Florida Academic Scholar
Relevant Coursework: Computer Vision, Data Structures and Algorithms, Software Engineering, Linear Algebra

Technical Skills

Languages: Python, C/C++, R, SQL, Java, LaTeX, JavaScript
Tools & Platforms: AWS, Git, MongoDB, MySQL, PostgreSQL, MS Office Suite, Docker, Kubernetes
Libraries & Frameworks: PyTorch, TensorFlow, Pandas, NumPy, Matplotlib, Hugging Face, NodeJS, Flask, React

Experience

Undergraduate Researcher Orlando, FL
UCF Center for Research in Computer Vision *August 2024 – Present*
- Created a **stroke patient movement dataset** for action classification with **1,048 samples** and fine-tuned MotionBERT and R(2+1)D, achieving **96.2%** accuracy.
- Designed a motion analysis algorithm for stroke patient rehabilitation, integrating 3D pose estimation and action classification to assess movement quality.
- Researching **physics-aware enhancements** to the HOISDF 3D hand pose estimation model, incorporating **Fourier occupancy fields** and **neural radiance fields** for improved spatial accuracy and occlusion handling, and a **temporal transformer encoder** for smoother predictions.

Software Engineering Intern Orlando, FL
Dynamic Animation Systems *August 2023 – July 2024*
- Fine-tuned the **Mistral-7B** LLM with **Hugging Face's Transformers and PEFT** libraries to generate simulation scenario files compliant with an XSD schema.
- Developed a graph-based ordering system to manage transactional processes in a declarative rule-based engine, utilizing breadth-first search and parallel computing for optimized execution efficiency.
- Designed an ontology for simulation hosting, enabling deployment in on-premises and cloud environments using Docker and Kubernetes, with support for AWS and GCP.

Projects

SimplyASL | *PyTorch, Swift, Flask, OpenCV, OpenAI, Langchain, NumPy*
- Deployed **Meta AI's Sapiens Pose Estimation** model to generate 2D pose representations of ASL.
- Trained an LSTM-based model to generate intermediate frames between ASL signs for smoother transitions.
- Engineered few-shot prompting for OpenAI's GPT-4 **Seq2Seq** model to perform English-to-ASL Gloss translation.

Accelify | *PyTorch, MongoDB, Pandas, NumPy, Scikit-Learn, Flask, Python*
- Built and trained a PyTorch neural network combining **embedding layers**, **LSTM-based sequence modeling**, and **fully connected layers** to recommend ServiceNow Technical Accelerators, achieving a **95.83%** reduction in loss.
- Created a recommendation dataset using TF-IDF, co-occurrence matrices, and scoring mechanisms with **150+ entries** of sample company and ServiceNow product information.

BookMate | *PyTorch, Selenium, NextJS 13, Flask, Python, R*
- Leveraged **R** to track loss and accuracy curves for hyperparameter tuning and performance optimization.
- Trained the **YOLOv8** model on filtered barcode datasets, achieving **98.3 mAP** for identifying ISBNs.
- Built a PyTorch regression model to determine optimal selling prices for books, reaching **3.9 MSE Loss**.

Campus Involvement

UCF Programming Team Orlando, FL
Member *Sep 2023 – Sep 2024*
- Achieved **4th place** in the 2023 **ICPC North America South Regional** Contest out of **100+ Universities**.
- Created and judged problem sets for the UCF High School Programming Contest for **80+ teams**.