Sergio Peterson

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Education

University of California Berkeley   Graduation date: Dec. 2024

B.A. Data Science with a focus on ML and Software

Relevant Materal: Machine Learning,Data Mining,Computer Vision,Probability/Random Processes,Robotics,Efficient Algorithms,Dynamic Data Structures,Computer Architecture,Discrete Math,Probability Theory,Linear Algebra,Databases

Experience

Lexius   May. 2024 - Aug. 2024
CV/ML Summer Intern   *CV, Optimization API, AWS, GCP, PyTorch*

- Achieved **5% accuracy** and **19% F1-score** improvement by integrating RGB data with various window sizes, temporal resolutions, and normalization techniques.
- Migrated infrastructure from **GCP Kubernetes** to **AWS Batch**, enhancing scalability and training performance.
- Fine-tuned models like Video **Swin Transformer** and **Conv3D**, reducing false positives to **under 3%**.
- Implemented and optimized **database schemas**, improving data retrieval speeds by **30%** and ensuring data integrity across the system.
- Designed and implemented robust backend services using **RESTful APIs** to support high-performance, data-driven applications, ensuring scalability and efficiency.
- Improved precision by **11%** and recall by **19%** through **cross-attention mechanisms** and person masking.

Koer A.I., Inc. - Project AEI   Jan. 2024 - May. 2024
Web & Cloud Development Intern   *Python, SQL, ML/DL, TypeScript, AWS, Big Query*

- Developed AI-driven wellness analytics platform using **React**, **React Native**, and **TypeScript** for front-end and cross-platform functionality. Leveraged **Firebase** and **BigQuery** for optimized data, speed increased by **10%**.
- Implemented AI-powered emotion recognition using **Python**, **TensorFlow**, and **Hugging Face Transformers** for voice data analysis, enhancing user engagement and personalized wellness insights.
- Streamlined user authentication with **OAuth 2.0** and **Firestore**, integrating Single Sign-On solutions and enforcing robust data security protocols for over **100k users**.

Berkeley Artificial Intelligence Research (BAIR)   Sep. 2024 - Current
LLM Research - Under PhD Akshat Gupta   *Python, LLM, GTO, DL, Pytorch*

- Developing an **LLM** specialized in poker strategy using Python, **NLP** techniques, and **GTO** poker theory to enhance reasoning and decision-making.
- Conducting data analysis and visualization to evaluate model performance, utilizing tools like **Pandas**, **Matplotlib**, and **TensorFlow/PyTorch**.

Robotics Open Autonomous Racing (ROAR)   April. 2024 - Current
Simulation and Perception Research - P.I. Dr. Allen Yang   *ROS, Sim, Azure, DevOPs, Docker, Packer*

- Built **CI pipelines** with **GitHub Actions** for automated testing and deployment on **Azure VMs**, utilizing custom **Docker** scripts for resource management and SSH access.
- Optimized cloud infrastructure for AI Racing Tech's autonomy stack with **Packer** and **Terraform**, automating VM provisioning and resource deallocation post-simulation.
- Integrated simulation tools like **OSSDC Simulator** and custom asset management via **GitHub CLI** for improved vehicle dynamics and testing.
- Implement ghost car **multi-agent** for better controller model improving movement and decision, by a factor of **3x**

Projects

Rate My Anime Software   *React.js, PostgressSQL, MangoDB, ML, API*

- Developed an software that evaluates anime using **supervised learning** and **KNN**,classifing and ranking users.
- Built a **full-stack** web application with **ReactJS** and **PostgreSQL** to rate a user's MyAnime List based on popularity, genre, and user ratings.
- Integrated Auth 2.0 and MyAnimeList **API** for user login and data retrieval integrated Auth 2.0 and MyAnimeList API for user login and data retrieval.

Skills

SWE: Java, PHP, SQL, JavaScript/TypeScript, Rust, Kotlin, MongoDB, Flask, AWS, React, API's, PostgresSQL, C/C++, Java, Django, Flask, MySQL, PyTest, Golang

ML/DS: NN, Sentiment Analysis, Docker, Pandas, TensorFlow, PyTorch, SKlearn, SLAM, ROS, NLTK, RL, GCP