Carl Chua

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Experience

Software Engineer | BlackRock

2022 - Current

- Implemented Retrieval-Augmented Generation (RAG) to fine-tune LLMs for a company-specific Copilot. Evaluated embedding models, comparing naive flat index structures to Hierarchical Navigable Small World (HNSW) indexes for optimized performance.
- Launched a gRPC-based server to integrate company APIs with the fine-tuned LLM.
- Processed and cleaned data in AzureML pipelines to enhance synthetic data generation for training models, speeding up training by 15%
- Improved observability by adding support to log Langchain execution traces to Grafana, while filtering sensitive PII data from logs to enhance security and compliance.
- Implemented streaming functionality on a Java-based server to improve user access to financial data

Data Science / Machine Learning Engineer | Rimble Esports Analytics

2021

- Created custom ML models to predict live-time and pregame statistics for esports. Did data cleaning to create training/test data. The models inherited from scikit learn models and outperformed existing betting numbers.

Computer Science Researcher | Swarm Lab, UC Berkeley

2020 - 2021

- Used OpenCV, homography matrices, and feature detection techniques such as SIFT to help detect and control state changes by re-orienting images at off-angles.
- Implemented ML pipeline – used JSON files to automate image extraction from videos and using CNNs for image classification. Worked on applying transfer learning to the current CNN model to improve performance.

Projects

NBA Predictor

- Implemented a Web Scraper + Machine Learning Model to predict the outcome of NBA games. Data was scraped using BeautifulSoup and Selenium.
- Used Keras to build the Neural Network, reaching a Test Set accuracy of 72%.

Education

University of California, Berkeley

B.S. ELECTRICAL ENGINEERING & COMPUTER SCIENCE (EECS)

GPA: 3.75

Relevant Coursework: Data Structures, Computer Architecture, Artificial Intelligence, Advanced Algorithms & Intractable Problems, Probability & Random Processes, Operating Systems, Machine Learning, Robotics, Deep Reinforcement Learning*

*Graduate level course

Skills & Others

LANGUAGES

Python, Java, C, Golang, C++, Matlab, SQL, HTML/CSS,

LIBRARIES, FRAMEWORKS, AND TECHNOLOGIES

gRPC, NumPy, Linux, Keras, TensorFlow, PyTorch, Selenium, Pandas, Git, Docker