Bekal Brihith Shenoy

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Education

Sahyadri College of Engineering and Management Mangalore, Karnataka
Bachelor of Engineering in Artificial Intelligence and Machine Learning *Dec 2020 – July 2024*

Experience

AI Engineer August 2024 – Present
Zuploop Private Limited *Manipal*

- Developed and deployed a face recognition system achieving 80% accuracy, utilizing a fine-tuned FaceNet model for facial indexing with Qdrant and generating precise appearance timestamps.
- Engineered a speaker diarization system that has processed over 2,000 hours of audio, integrating speaker verification to identify individuals across multiple recordings. Built the pipeline using NVIDIA NeMo 2.0, Meta Demucs for audio source separation and noise suppression, and Whisper for high-quality transcription.
- Developed and deployed a scalable scene indexing application using NVIDIA's NVClip (NIMS framework) and Qdrant, enabling real-time multimodal search across video content via text and image queries.
- Optimized machine learning infrastructure by implementing container runtime improvements and efficient GPU pod scheduling with Kubernetes. Enhanced Kafka performance resulting in a 30% increase in parallel video processing throughput, significantly reducing client data processing times.
- Established DevOps pipelines including GPU slicing via MIG (Multi-Instance GPU), Helm charts for deployment configuration, Ansible playbooks for infrastructure-as-code, Git workflows for continuous integration, and ArgoCD for streamlined continuous deployment of ML services and workloads.
- Designed and implemented a cross-camera person re-identification system with 85%+ accuracy, incorporating emotion, age, and gender recognition across distributed data streams. Extended the system's capabilities to analyze behavioral patterns, such as detecting agitation in queue environments, providing actionable business intelligence.

Projects

SafeGaurdian | *Python, Firebase, Gemini, Nvidia cuOPT, Maps API, Docker and AWS* July 2024 – Present

- Developed an interactive RAG-based emergency response assistant to provide guidance and support to civilians during crisis situations. Implemented real-time location sharing functionality to connect civilians with nearby emergency response services
- Optimized emergency vehicle routing using NVIDIA cuOPT, calculating efficient paths from multiple response stations based on resource availability. Designed an intelligent priority-based routing algorithm incorporating factors such as injury severity, damage assessment, and proximity to optimize emergency response times
- Secured **First place** in the Nexa AI Agent Hackathon at Stanford Park, earning $4,000 in prizes and credits.

Chess Digitization | *Python Flask, TensorFlow, JavaScript and Git* Nov 2023 – March 2024

- Engineered a computer vision system for chess board digitization using deep learning models to convert physical chess positions captured via Mobile Camera into digital format.
- Devised a custom algorithm to convert Chess FEN notation to PGN format, enabling comprehensive online game analysis and replay functionality
- Enhanced model performance through transfer learning, augmenting the training dataset to achieve 88% piece detection accuracy

Credit Mangament System | *Java, JavaSwings, JDBC and SQL* Nov 2023 – March 2024

- Developed an automated credit and inventory management system featuring integrated billing, automated monthly credit alerts, and real-time balance notifications.
- Successfully digitized paper-based credit tracking processes for small business owners, resulting in improved accuracy and reduced manual bookkeeping time.

Technical Skills

Languages: Java, Python, C/C++, SQL, JavaScript, HTML/CSS,
Frameworks: PyTorch , Keras , FastAPI, Flask , FastAPI, Tensorflow, Nvidia TAO, Nvidia cuOPT, Intel OpenVino
Developer Tools: Kubernetes, ArgoCD , Git , Ingress , Nginx , Docker, Google Cloud Platform, Apache Kafka , Jupyter, Ansible
Libraries: pandas, NumPy, Matplotlib, Pydub, Langchain, Scikit-Learn