

EDUCATION

Master of Science, Robotics and Autonomous Systems May 2024

Arizona State University, Ira A. Fulton School of Engineering, Tempe, AZ GPA: 4/4

Coursework: Introduction to Deep Neural Network, Digital Image Processing, Perception in Robotics, Statistical Machine Learning, Linear Algebra, Robotics Systems, Python for Rapid Engineering Solutions, Linear System Theory

Bachelor of Technology, Electronics and Communication Engineering July 2019

APJ Abdul Kalam University (KTU), Kollam, India GPA: 8.06/10.0

Major Coursework: OOP, Soft Computing, Computer Communication, IT and Coding, Microcontrollers and Processors

TECHNICAL SKILLS

Programming Languages: Python, C/C++, Java, JavaScript, CSS.

Framework: ROS, PyTorch, TensorFlow, Pandas, Scikit-learn, NumPy, Matplotlib, OpenCV, AWS (Lambda,S3).

Tools: MATLAB, Docker, Linux, Canoe, Jira, winIDEA, GIT-(GitHub, GitLab CI/CD), MongoDB, DaVinci Configurator-Developer, Confluence, Candela, LaTeX, Advanced REST API, DOORS, BitBucket, ReactJS, Flask.

PROFESSIONAL EXPERIENCE

Tata Elxsi, Thiruvananthapuram, India: Senior Engineer Dec 2019 - July 2022

AUTOSAR Diagnostic Stack Development

- Spearheaded the development of application layer for the diagnostic module in the AUTOSAR architecture of sensor ECU.
- Implemented and tested security services using the PRNG cryptography algorithm to secure classified data.
- Contributed to core development discussions, providing expertise in requirements and debugging for robust development.

ACADEMIC PROJECTS

BioCAD (Biomedical Computer-Aided-Diagnosis): Multifaceted Image Analysis for X-ray Fall 2023

- Designed and implemented a neural network utilizing CUDA parallel processing for classifying, localizing, and segmenting chest X-ray images for biomedical applications.
- Achieved SOTA result for classification by training CheXpert, Chest X-ray 14, MIMIC, VinDr datasets with heterogeneous labels cyclically on Ark Model using 4 A100 CUDA GPUs. Improved AUC to 89.14% for CheXpert and 95.07% for VinDr.

Generative AI Chatbot using LLaMa-2, Chroma db, LangChain and RAG Summer 2023

- Developed an AI chat-bot on personal website, using LLaMa-2 model within Retrieval-Augmented Generation framework.
- Constructed the website using React.js and Flask, integrating the model to interpret the resume and respond to user queries.

Fashion Outfit Generation using Machine Learning Recommendation. Spring 2023

- Developed a recommendation system using a bidirectional LSTM model on the Polyvore dataset to suggest a suitable combination of fashion outfits.
- Improved AUC score to 0.829 using Resnet50 feature extraction on image dataset over state of art Inception_v3 model.

Stereo Image Depth Estimation using U-Net Feature Extraction. Spring 2023

- Developed stereo depth estimation on the KITTI2012 dataset using U-Net feature extraction and conducted experiments to finetune the results by optimizing the hyperparameters.
- Improved the feature extraction of base model using qualitative results and reduced the loss of validation data by 14%.

Propaganda Detection on News Articles. Spring 2023

- Developed language classification models that can identify propaganda techniques used in articles and conducted analysis of LSTM, BERT and RoBERTa models. Observed BERT outperform other models with 4.5% higher F1 score.

WORK EXPERIENCE

Arizona State University, Tempe, AZ: Head Teaching Assistant Aug 2022 - Present

- Solve 100+ students query and assist them in lab for the courses Signals Processing and Circuits.
- Mentored 22 students to achieve expertise in circuit design and PCB board development for their embedded lab course.