PRANAVI PATHAKOTA

+1-979-599-6579 | pranavi.pathakota@tamu.edu | College Station, TX | LinkedIn

WORK EXPERIENCE:

American Airlines

Cargo Operations Research Intern **Jun. 2025 - Aug. 2025**

- Built and fine-tuned ARIMA models for time series demand forecasting, and designed a dynamic pricing model leveraging machine learning algorithms for spot rate booking optimization.
- Deployed models using AzureML pipelines, enabling scalable, automated workflows and seamless integration into airline revenue management systems.

Tata Consultancy Services, TCS Research

Systems Engineer **Sep. 2020 - Aug. 2024**

- Deployed AI solutions in real world applications to enhance performance and efficiency.
- Applied deep reinforcement learning to optimize complex network flows in supply chain management, achieving cost reduction and operational improvements.
- Designed novel machine learning techniques and successfully demonstrated their application in the fields of robotics and recommender systems.
- Engineered scalable and computationally efficient algorithms for handling large real-world datasets, ensuring seamless AI integration and system performance.
- Conducted safety and reliability testing of AI solutions using DGX A100 GPUs, ensuring robust performance.
- Parallelized AI experiments across multiple GPUs, achieving faster training and improving model convergence.

PROJECTS:

Optimizing Cost-to-Serve in Supply Chain

- Modeled and solved an approximate optimization problem for retail supply chain management.
- Developed a Reinforcement Learning agent that performs 20x faster comapred to traditional ILP(integer linear programming) solutions, achieving 94.8% of the optimal solution.

Learning Action Representations in Reinforcement Learning

- Addressed exploration and sample inefficiency in RL agents for large action spaces.
- Validated the proposed method on robot navigation in a maze (simulation) and on real world recommender system (fashion industry of 100K+ Users and 20K SKUs) resulting in a 2x improvement in (MRR) scores compared to traditional machine learning algorithms.

Multi-Objective Language Model Alignment

- Researched and implemented multi-objective alignment techniques for large language models (LLMs), such as Llama 7B, to reduce biases and enhance model adaptability to diverse user preferences.
- Developed and integrated unified training frameworks to optimize multiple objectives simultaneously, improving overall model performance and alignment using RLHF techniques.

SKILLS:

- **Programming languages :** Python, R, Matlab, MySQL, C, Java, JavaScript, Assembly Language
- **Frameworks :** Tensorflow, Pytorch, Keras, Stellargraph, Pytorch-Geometric, Huggingface

EDUCATION:

Texas A&M University (TAMU), College Station **Aug. 2024 - May. 2026 (expected)**

Master of Science in Computer Science (MSCS) GPA : 4.0 / 4

- **Courses:** Large Language Models, Operating Systems, Computer Vision & Robot Perception

Indian Institute of Technology, IIT Palakkad **Aug. 2016 - May. 2020**

Bachelors of Technology in ELectrical Engineering GPA : 8.24 / 10

- **Courses:** Computer Organization, Probability and Stochastic Process, Digital Image Processing

SELECTED PUBLICATIONS:

"DCT: Dual Channel Training of Action Embeddings for Reinforcement Learning with Large Discrete Action Spaces", extended abstract - **AAMAS 2024** (Paper)

"Multi-Agent Learning of Efficient Fulfilment and Routing Strategies in E-Commerce", **(GenPlan) Neurips 2023** (Paper)

Method and System for Reinforcement Learning based Robotic Navigation using Dual Channel Trained AutoEncoderDecoder (**Patent**)