Nishaant Swetharanyam Madhankumar

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Summary

Master's student specializing in Artificial Intelligence with the experience of applying AI solutions to real-world systems and products. Thorough grounding in applied ML, model assessment, and system integration within user-facing applications. Participation in supporting full AI cycles, inter-team collaboration, and conversion of ML results into efficient and scalable solutions being the main aspects of the expertise.

Technical Skills

- **Programming Languages:** Python, C, C++, SQL, MATLAB, Bash, Java
- **Frameworks and Libraries:** TensorFlow, PyTorch,Streamlit, OpenCV, TensorFlow Lite, Matplotlib, FastAPI, ROS2
- **Tools and Platforms:** GitHub, PostgreSQL, MySQL, PowerBI, Google Colab, Firebase, Jira, Jupyter Notebook, Google Cloud Platform, Terraform, Docker, CI/CD Pipelines
- **Design and Visualization:** Figma, Canva, Photoshop, Wireframing, Data Visualization

Education

- **Master of Science in Artificial Intelligence (CGPA: 3.74/4.0)** *Sept 2024 – Present*
  University of Michigan, Dearborn, MI
- **Bachelor of Technology in Electronics and Computer Engineering (CGPA: 8.65/10)** *2020 – 2024*
  SRM Institute of Science and Technology, Chennai, India

Professional Experience

- **Research Assistant**, University of Michigan, Dearborn *Nov 2024 – Nov 2025*
  - Focused on system reliability and deployment considerations, machine learning methods applied to intelligent vehicle systems.
  - Data sets of large scale (more than 10K+ records) analyzed with Python and SQL in order to evaluate model performance and to get valuable insights.
  - Took part in all stages of AI solution processes, such as data cleaning, model testing, model assessment, and deployment-focused analysis.
  - Wrote up technical reports and summaries of experiments in order to support both the design choices made about the system and the research results.
  - Worked together with people from different disciplines to make sure that AI solutions were compatible with system-level needs and limits.
  - Used both quantitative metrics and qualitative analysis to assess model performance, thereby facilitating system-level improvements.
- **Data Science Intern**, Lets Grow More *Feb 2023 – Apr 2023*
  - Developed and evaluated machine learning models using Python for predictive and analytical tasks.
  - Applied statistical analysis and feature engineering to improve model performance and interpretability.
  - Implemented image processing pipelines involving object detection and feature extraction.
  - Gained experience translating data-driven insights into practical, solution-oriented outcomes.

Projects and Publications

- **Trustworthy Intelligent Vehicular Networks: A Survey** *In Progress*
  Contributing to a research survey analyzing the deployment, reliability, and trust considerations of AI-driven vehicular systems. Focused on evaluating real-world challenges and system-level implications of intelligent networks.
- **TasteCode: A Food Recommendation Mobile Application** *Dec 2024*
  Developed a mobile application integrating machine learning–based recommendation systems with Android and Firebase. Implemented personalized recipe suggestions, authentication workflows, and search features. Emphasized ML model deployment, system integration, and usability considerations within a production-style mobile environment.
- **DriveI: Intelligent Vehicle Assistant for Road Safety and Awareness** *Oct 2024*
  Built a multimodal AI-driven vehicle assistant during Hack Dearborn 2024. Integrated voice interfaces and backend logic to deliver real-time traffic alerts and safety notifications. Contributed to system integration and applied AI feature design.
- **Wave and Play: Hand Gestures Redefining User Experience** *Dec 2023*
  Created a hand gesture-controlled virtual mouse and calculator. Published in IEEE - International Conference on Intelligent Communication Technologies and Virtual Mobile Networks 2024 (ISBN: 979-8-3503-8564-9). Leveraged Deep Learning and Computer Vision techniques.