Shiv Akash

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EDUCATION

University of Wisconsin-Madison Sep 2025 - May 2027 (Expected)
Masters in Data Science
Coursework: Intro to Big Data Systems, Statistical Models for Data Science, Statistical Methods for Data Science

Vellore Institute of Technology, Vellore Aug 2021 – May 2025
Bachelor of Technology in Electronics & Communication Engineering **(GPA: 9.17/10)**
Coursework: Calculus, Probability and Statistics, Linear Algebra, Artificial Intelligence and Machine Learning

EXPERIENCE

Data Analysis Intern | Indian Institute of Technology Madras Jan 2025 – May 2025
- Built an **OpenCV-based image analysis pipeline** to quantify fluorescence cell counts across **10,000+ images**
- Improved **accuracy** and **processing speed** for **fluorescence-based assays** used in drug screening
- Designed a **Raspberry Pi point-of-care device** with a web interface for fluorescence spectra capture and analysis
- Achieved **2× faster biomarker detection** for infectious disease diagnostics compared to conventional methods

Deep Learning Academic Intern | National University of Singapore Dec 2022 – Jan 2023
- Applied **exploratory data analysis**, **preprocessing**, and **predictive modeling** to train **deep neural networks**
- Deployed the trained models on **Microsoft Azure**, improving **scalability** and **efficiency** with large datasets

PUBLICATIONS

Federated Learning for Predictive Maintenance Model Comparisons and Privacy Advantages (IEEE)
- Engineered a **federated learning framework** for **predictive maintenance**, enabling **decentralized training** across **1–200 distributed nodes** that ensured data privacy while maintaining up to **93% accuracy**
- Resolved class imbalance using **SMOTE**, applied **PCA** selectively for **dimensionality reduction**, and fine-tuned models with **PSO**, resulting in improved **precision** and **F1 scores** compared to centralized approaches

Collision Avoidance System using YOLO-Based Object Detection and Distance Estimation (IEEE)
- Integrated **object detection** with **single-camera distance estimation**, benchmarking **YOLOv6n, YOLOv8n, YOLOv9t, and YOLOv10n** on the **KITTI dataset** to optimize performance
- Achieved an **F1 score of 0.74**, enabling real-time distance prediction for **safer autonomous driving**

PROJECTS

Pennywise
- Developed a **React Native app** that uses **text categorization** and **Named Entity Recognition**
- Enabled users to **input spending details via** text to identify the amount and item, **automatically categorize** them and provides personalized insights into **spending patterns**, helping users improve **financial awareness**

P-Wagon
- Built a **deep learning license plate detection** system using a **CNN** trained on a **custom dataset**
- Integrated **Google's OCR** for accurate text extraction and deployed it on a **Raspberry Pi 4** to capture images
- Adapted the system for **Amber Alert networks**, sending instant alerts to support **rapid response** in emergencies

CineMate
- Created a web app to streamline movie selection for friend groups, **reducing decision-making time by 40%**
- Offered movie recommendations based on **combined group genre preferences** using a unique voting system
- Added a "**where to watch**" feature with up-to-date **streaming platform availability** and direct navigation links

SKILLS

Programming & Development: Python, R, Embedded C, JavaScript, TypeScript, React Native
Data Analysis & Visualization: Pandas, NumPy, Seaborn, Matplotlib, Power BI, Data Cleaning, Web Scraping
Machine Learning & AI: TensorFlow, PyTorch, Scikit-learn, Neural Networks, Computer Vision
Tools & Platforms: Git/GitHub, Docker, Flask, Linux, API Integration, UI/UX Design