

# Manu Mathew Jiss

Software Engineer | Backend Engineer | AI/ML Engineer | Data Engineer | Research Engineer  
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[Portfolio](#) | [LinkedIn](#) | [GitHub](#) | [Google Scholar](#)

## Education

[University of the Pacific](#), Stockton, CA May 2026  
Master of Science in Computer Science

[APJ Abdul Kalam Technological University](#), Kerala, India March 2023  
Bachelor of Technology in Computer Science and Engineering

## Technical Skills

|                                            |                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Programming Languages:</b>              | Python, C++, JavaScript, TypeScript, SQL, Bash/Shell Scripting, HTML, CSS, MATLAB                                                                                                                                                                                                                                                   |
| <b>Machine Learning &amp; AI:</b>          | Large Language Models (LLMs), Hugging Face Transformers, TensorFlow, PyTorch, Scikit-learn, Retrieval Augmented Generation (RAG), AI Agents, LangChain, LangGraph, Model Context Protocol (MCP), Prompt Engineering, OpenAI API, Natural Language Processing (NLP), Computer Vision, Explainable AI (SHAP, LIME), YOLOv5, ResNet-50 |
| <b>Databases &amp; Data Engineering:</b>   | PostgreSQL, MongoDB, ClickHouse, Redis, ETL Pipelines, Data Ingestion, Data Warehousing, Data Modeling, Database Design, Metadata Lineage, Incremental ETL                                                                                                                                                                          |
| <b>Backend, Frameworks &amp; Cloud:</b>    | Java, Spring Boot, FastAPI, Flask, Node.js, Express.js, Next.js, React, REST APIs, JWT Authentication, OAuth, Docker, Nginx, Git/GitHub, Azure, AWS, Streamlit                                                                                                                                                                      |
| <b>APIs &amp; Integrations:</b>            | OpenAI API, Reddit API, Twitter/X API, YouTube Data API, Yahoo Finance API, Finnhub API, NewsAPI, Google Cloud APIs, OpenWeather API                                                                                                                                                                                                |
| <b>Robotics &amp; Embedded Systems:</b>    | ROS 2, NVIDIA Jetson, Jetson Orin Nano, CUDA, OpenCV, LiDAR, ZED Stereo Cameras, Raspberry Pi, IMUs, Sensor Fusion, Arduino, Embedded Linux                                                                                                                                                                                         |
| <b>Cybersecurity:</b>                      | Network Security, Ethical Hacking, Vulnerability Assessment, Penetration Testing, Secure API Integration, Cryptography, Cloud Security Principles                                                                                                                                                                                   |
| <b>Data Analytics &amp; Visualization:</b> | Pandas, NumPy, Matplotlib, Seaborn, Plotly, Chart.js, Recharts, WordCloud, Power BI, Tableau, Excel Analytics                                                                                                                                                                                                                       |
| <b>Systems &amp; Developer Tools:</b>      | Linux (Ubuntu), Docker (ARM64), CMake, SSH/SCP, colcon, systemctl, journalctl, OS Flashing, System Debugging                                                                                                                                                                                                                        |

## Software Engineering Experience

- **Software Engineering Intern** May 2023 – July 2024  
[Equalizer](#), Dubai, UAE (Remote)
  - Engineered distributed backend microservices using Java, Spring Boot, PostgreSQL, Docker, and REST APIs to process real time telemetry streams supporting fault tolerant monitoring across cryptocurrency mining infrastructure.
  - Improved backend reliability by implementing fault tolerant telemetry pipelines enabling real time monitoring, failure detection, and high availability across distributed systems.

## Startup Experience

- **Co-Founder & Software Engineer** May 2025 – Present  
[Stock Crusher](#) (GenAI Trading Platform)
  - Built a full stack GenAI financial intelligence platform using Flask, React, multiple financial APIs, and four LLMs to generate explainable investment recommendations through an ensemble AI consensus engine.
  - Engineered scalable backend services integrating real time market, news, and Reddit data through REST APIs, enabling portfolio analytics, AI driven financial reasoning, and explainable investment insights.

- **Co-Founder & Software Engineer**  
**Meal Muse** (AI Recipe Assistant)

October 2025 – Present

- Developed a full stack AI recipe platform using SwiftUI, FastAPI, Node.js, PostgreSQL, OpenAI APIs, and OAuth authentication, delivering personalized recommendations through scalable cloud deployment.
- Built scalable backend services and REST APIs to manage recipe generation, user profiles, and structured application data while optimizing recommendation workflows using PostgreSQL and cloud infrastructure.

## Graduate Research Assistant – **University of the Pacific**

- *Dr. Solomon Berhe*

*May 2025 – May 2026*

- Engineered large scale NLP pipelines for Reddit software update discussions, implementing automated data collection, preprocessing, feature engineering, and machine learning workflows to distinguish Technical Problem Solving (TPS) from General Discontent (GDS).
- Developed author-community sentiment divergence metrics and evaluated NLP classifiers (Naive Bayes, Logistic Regression, RoBERTa); **paper accepted at IEEE ICMLA 2026** ([Conference Link](#)).

- *Dr. Don Lee*

*August 2025 - December 2025*

- Built an end to end autonomous vehicle platform using NVIDIA Jetson, ROS 2, CUDA, Docker, and ZED 2i, integrating perception, sensor fusion, and embedded AI for real time autonomous navigation.
- Developed **SignSight**, a CLIP based multimodal vision language framework for robust traffic sign recognition, improving accuracy by 38% over CNN baselines; **CVPR 2026 under review** ([OpenReview](#)).

- *Dr. Tapadhir Das*

*December 2024 – May 2025*

- Designed scalable machine learning pipelines for sentiment, toxicity, and account authenticity classification using XGBoost, feature engineering, and explainable AI (LIME), achieving 96.9% accuracy.
- Built a risk-profiling framework for bot, scam, spam, and real account detection; **paper accepted at IEEE SMC 2026** ([Conference Link](#)).

- *Dr. Tapadhir Das*

*July 2025 – March 2026*

- Built LIMFADD, a large scale LLM generated Instagram dataset through automated data collection, preprocessing, validation, and synthetic data generation, enabling multi class account authenticity classification with 97% accuracy.
- Designed automated data validation and explainable AI (XAI) pipelines to improve dataset quality and support reliable multi class account authenticity analysis; **paper accepted at IEEE ISTAS 2025** ([TechRxiv](#)).

- *Dr. Pramod Gupta*

*December 2025 – May 2026*

- Developed a hybrid emotion analysis framework using RoBERTa, LLMs, and the GoEmotions dataset, integrating deep learning and explainable AI for personalized mood inference.
- Built **AIMoodDiary**, an AI powered journaling platform integrating hybrid emotion inference, LLM based diary analysis, and personalized mood analytics; **paper accepted at IEEE ICMLA 2026** ([Conference Link](#)).

## Graduate Teaching Assistant – University of the Pacific

• *Dr. Sethuraman Kuruvimalai*

*February 2026 – May 2026*

- Assisted in teaching a cybersecurity analytics course covering SOC workflows, SIEM, and Splunk, supporting assignment design and evaluation.
- Guided students in Linux environments, virtual machines, and log analysis, improving hands-on investigation and reporting skills.

## Selected Projects & Research

### End-to-End Multi-Database Weather Data Engineering Pipeline

*November 2025*

- Built an end to end weather data engineering platform using the Open Meteo API, MongoDB, ClickHouse, Redis, Express, and Chart.js, implementing scalable ETL workflows, metadata lineage, caching, and interactive analytics dashboards for historical weather intelligence.
- Designed incremental ETL workflows with metadata lineage, Redis caching, and interactive Chart.js dashboards, improving scalable data processing, traceability, and low latency analytics. ([GitHub Repo](#))

### Intelligent Plant Monitoring Platform

*April 2025*

- Developed scalable backend services using FastAPI, PostgreSQL, REST APIs, and JWT authentication to collect, synchronize, and manage real time IoT sensor data from Raspberry Pi devices through cloud based data pipelines.
- Built a full stack IoT monitoring platform using React, TypeScript, FastAPI, Docker, Azure, and Nginx to visualize real time sensor analytics and support scalable cloud based monitoring and device management. ([GitHub Repo](#))

### On Tree Arecanut Fruit Maturity Detection

*July 2023*

- Developed a computer vision system using YOLOv5 to detect arecanut maturity from plantation images, enabling automated harvesting decisions in complex outdoor environments.
- Built image preprocessing and object detection pipelines for agricultural datasets, improving maturity classification for smart farming applications.

### Crop Monitoring and Maturity Detection Platform

*December 2024*

- Developed a deep learning based crop monitoring platform that analyzes plantation images to detect crop maturity and identify disease and pest conditions.
- Designed image preprocessing and CNN based classification pipelines for agricultural analytics, improving automated crop monitoring and decision support.

## Selected Publications

- **LIMFADD: LLM-enabled Instagram Multi-Class Fake Account Detection Dataset**  
*IEEE ISTAS 2025* (Published)
- **A Three-Phase Pipeline for Sentiment, Toxicity, and Account Authenticity on Social Media Comments**  
*IEEE SMC 2026* (Accepted)
- **Template-Guided Vision–Language Modeling Towards Resilient Traffic Sign Recognition for Autonomous Vehicles**  
*CVPR 2026* (Under Review)
- **AIMoodDiary: Hybrid Emotion Inference for Reflective Journaling and Mood Analytics**  
*IEEE ICMLA 2026* (Under Review)
- **Distinguishing Technical Problem Solving and General Discontent in Reddit Software Update Discussions**  
*IEEE ICMLA 2026* (Under Review)