



# Sravani Hukumathi Venkata

Data Scientist | 11 Years Automotive Expertise | Sorbonne AI Specialization

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## SUMMARY

High-impact Machine Learning Engineer with 11 years of automotive expertise and advanced Data Science training from Université Paris Panthéon-Sorbonne. Proven track record in developing AI-driven automation and real-time anomaly detection systems. Seeking a Data Scientist role to integrate Generative AI with Embedded Systems.

## SKILLS

**Data Science & Machine Learning:** LLMs (LangChain), RAG Architecture, Computer Vision, Time Series, Anomaly Detection, Classification, Regression, Clustering, PCA, Feature Engineering

**Deep Learning & Neural Networks:** Keras, PyTorch, TensorFlow, CNNs, DNNs, Transformers, Reinforcement Learning, Computer Vision

**Programming Languages:** Python, SQL, C++, Embedded C

**Embedded Systems & Other** AUTOSAR, CAN, CANFD, LIN, FlexRay, Ethernet, Microcontrollers (Tricore, RH850)

**Soft Skills:** Strategic Stakeholder Communication, Technical Mentorship, Agile Leadership

**Tools, Platforms & Libraries:** Github, Docker, AWS (basics), Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, Plotly, Linux Command Line, Streamlit, Davinci Configurator

**Others:** Data APIs, Web Scraping (BeautifulSoup), Graph Theory, Network Analysis

## PROJECTS

### CAN Bus Anomaly Detection (AI Safety)

**Methods Used:** The notebook employs an ensemble of unsupervised learning models, primarily Isolation Forest (for DoS detection) and Local Outlier Factor (LOF) (for Fuzzy anomaly detection), enhanced by a Heuristic Priority Logic, most notably the 'New ID Priority' rule, to accurately distinguish attack types.

**Features Used:** Key features for DoS detection include frequency\_hz and log\_iat, while Fuzzy detection relies on payload analysis through rolling\_volatility, hamming\_dist, and the critical is\_new\_id flag. General message attributes like can\_id\_dec and dic are also incorporated.

**Outcome:** The result is a robust anomaly detection system achieving high performance across all classes, specifically Fuzzy attack recall of ~97.6%, DoS attack precision of ~98.8%, and normal frame recall of ~99.9%.

Demonstrated the ability to detect various attack types, including DoS and Fuzzy attacks, by analyzing CAN ID frequency, inter-arrival times, and payload characteristics.

## PROFESSIONAL EXPERIENCE (LAST 11 YEARS: AUTOMOTIVE EMBEDDED SYSTEMS)

### Project Lead | Montbleu Technologies GmbH, Germany

Aug 2021 – Feb 2025

Directed full-cycle AUTOSAR MCAL adaptation for next-gen hardware, ensuring 100% OEM alignment.  
Engineered high-performance multicore solutions, optimizing data throughput by 20%.  
Spearheaded integration of safety-critical watchdogs, significantly enhancing system reliability.  
Acted as technical bridge between customer requirements and execution for Tier-1 partners.

### Lead Engineer | Avin Systems GmbH, Berlin

Sep 2019 – July 2021

Orchestrated BMS development for Mercedes-Benz, steering architecture for energy efficiency.  
Delivered AUTOSAR-compliant stacks, reducing system integration time and ensuring safety.  
Mentored 5 junior engineers, resulting in a 30% increase in team coding efficiency.

### Senior Software Engineer | KPIT Technologies, Munich

Oct 2013 – June 2019

Developed safety-critical software for BMW and Continental for millions of production vehicles.  
Mastered CAN/FlexRay protocols, establishing the foundation for advanced data analysis.  
Architected software designs to streamline integration and reduce development cycles.

## EDUCATION

### Advanced Data Science Training

Université Paris Panthéon-Sorbonne | Sep 2025 - Dec 2025

### Bachelor of Engineering

B.V.B College of Engineering, India | 2009 – 2013

## LANGUAGES

English (Fluent), German (B2), Telugu (Native), Kannada, Hindi