

KADRIPATHI KN

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PERSONAL STATEMENT

An aspiring Machine Learning Engineer with a profound background in Aerospace engineering, Software Development, and Artificial Intelligence (AI), specialized in developing Generative AI applications for advanced industrial applications. Passionate about transforming complex data into actionable insights and intelligent solutions. Known for adept problem-solving abilities, strong communication skills, and an analytical mindset. Actively researching Trust-Worthy AI (Explainable AI) and physics-informed models, seeking research opportunities in related fields.

KEY ACHIEVEMENTS

- Designed **Talking Machine** [patent pending], an innovative conversational AI agent, enabling Airbus landing gear digital twin to communicate real-time health status, predict potential issues, and recommend repairs in human-understandable language.
- Recipient of the prestigious **Young Scientist** title from Vignan Bharathi, Government of India, for innovative research on Electric Propulsion presented at the Young Scientists' Conference during the **India International Science Festival (IISF)** in 2020
- Featured in the **India Book of Records** for building the "**Highest Payload-to-Weight Ratio Brushed Nano Drone**" in 2020
- Received the **Karnataka State Innovation Hackathon Winner** award for developing an innovative technology that utilises acoustic waves to improve plant growth, organised by KSIT in 2020
- Finalist of the **India Innovation Challenge 2018**, a joint initiative by the Government of India and Texas Instruments, USA, in recognition of outstanding innovation

EDUCATION

MSc Applied Artificial Intelligence, Cranfield University, United Kingdom

Sept 2022 – Aug 2023

Modules: Statistical Learning Methods, Data Analytics and Visualisation, Deep Learning, Systems Engineering, Intelligent Cyber-Physical Systems, Search and Optimisation, Logic and Automated Reasoning

Individual Thesis:

- Collaborated with Airbus to develop a data-driven, real-time machine-learning model for fault detection and identification in landing gear actuation system at the component level, effective even with faulty sensors
- Designed a two-tiered fault diagnosis model, improving system efficiency by 6% over existing standards, marking a significant advancement in complex system diagnostics
- Incorporated explainable AI to ensure transparency and explainability in fault detection decisions, enhancing safety in aviation applications.
- Published findings in the AIAA Journal, additionally, designed and implemented Talking Machine, an innovative conversational AI agent featured in the AIAA Journal; this system facilitates real-time health communication, predictive maintenance, and repair recommendations in human-understandable language for Airbus landing gear

BTech Aerospace Engineering, Jain University, India

Aug 2017 – July 2021

Modules: Applied Engineering Mathematics, Thermodynamics, Aerodynamics, Fluid Mechanics, Engineering Mechanics, Aerospace Vehicle Design, Aerospace Structures, Engineering material and Manufacturing Process, Space Propulsion, Heat and Mass Transfer, Composite Materials, Flight Mechanics, Aerospace Control System, Operations Research, MEMS, Avionics, Helicopter Dynamics.

Final year project: Succeeded in the development of a 3D-printed Electro Hydrodynamic Thruster (EHT) for space application, pioneering the design, fabrication, and testing, with a high voltage corona discharge source and micro thrust measuring system. Demonstrated at the Young Scientists' conference during India International Science Festival, securing the second position among the delegates from 32 nations.

CAREER HISTORY

IONA DRONES LTD, United-Kingdom

Sept 2023 – Present

Full Stack AI Engineer

IONA Drones Ltd. is a UK-based startup revolutionizing rural logistics through autonomous drones. The company enhances last-mile delivery efficiency and sustainability, providing vital services to remote areas with its innovative drone technology and decentralized delivery network.

- Developed a hyper-realistic Digital Twin to enhance user experience.
- Integrated real-time data from drones via radio frequency and LTE technology.
- Created a software layer that seamlessly binds various hardware components.

Roshen Process Solutions, Milton Keynes, United Kingdom

Sept 2023 – Present

Junior Machine Learning Engineer

An IT startup providing software consultancy solutions, affiliated with a UAE-based parent company specializing in procurement services

- Developed an intelligent conversational assistant for sales procurement, boosting client acquisition by 40%. This system leverages customer behavior analysis to recommend tailored quotations, maximizing profit margins.
- Designed a real-time recommendation system for Aramco's industrial machinery. This innovative solution analyzes IoT data to proactively identify potential equipment failures and streamline the parts procurement process.
- Designed industrial-grade software package enabling the smooth functioning of IoT devices.
- Experienced in developing custom software and website development (<https://roshenps.com>).

Tata Consultancy Services (TCS), Bangalore, India

Dec 2021 – Aug 2022

Graduate Software Programmer – Python

Global IT services and consulting company with a strong presence in over 46 countries, providing innovative solutions to clients across various industries.

- Developed predictive models for credit risk assessment and fraud detection, enhancing security and minimizing losses in the banking sector.
- Utilized data analytics to predict customer churn, reducing attrition rates through targeted retention strategies.
- Utilized data analysis techniques to segment customers based on their financial behavior, leading to targeted marketing strategies.

TECHNICAL SKILLS

- **Programming Languages (Expert):** Python (Data structures, Libraries, Frameworks), SQL (data queries), HTML, CSS, JavaScript (Front-end development frameworks).
- **Machine Learning Frameworks:** Experienced with TensorFlow, PyTorch, Keras
- **Data Manipulation Tools:** Skilled in NumPy, Pandas, Scikit-learn
- **Deep Learning:** Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs) (LSTMs, GRUs)
- **Natural Language Processing (NLP):** Proficient with NLP tools like transformers and BERT, NLTK, SpaCy
- **Computer Vision:** Knowledgeable in using OpenCV for image and video analysis
- **Statistics and Mathematical Modeling:** Strong background in statistics, probability, and mathematical modeling
- **Data Visualization:** Proficient in Matplotlib, Seaborn, Plotly
- **Software Engineering Practices:** Experienced with Docker for Containerization, GitHub for Version control, Basic knowledge of Azure, Hadoop and Spark for cloud computing and big data

RESEARCH PUBLICATION

Author of eight research papers on AI, Aerospace Technology and Applied Physics, published in highly reputed international journals, including IEEE and AIAA

- "Revolutionizing Human-Machine Interaction: Conversational AI for Intuitive Aircraft Landing Gear Diagnostics," *AIAA, SciTech 2025*(under review), January 2025.
- "Beyond Black Boxes: A Trustworthy and Explainable Two-Tier Machine Learning Model for Aircraft Landing Gear Fault Detection," *AIAA, SciTech 2025*(under review), January 2025.
- "Advancing Fault Diagnosis in Aircraft Landing Gear: An Innovative Two-Tier Machine Learning Approach with Intelligent Sensor Data Management," *AIAA*, January 2024.
- "Performance Study of Electrohydrodynamic Thruster under the Influence of External Magnetic Fields," *IEEE*, December 2021.
- "De-authentication Attacks on Rogue UAVs," *IEEE*, March 2020.
- "An Innovative Technique for Optimizing the Efficiency of Transformers and Inductors," *IJRTE*, July 2019.
- "An Innovative Device to Monitor Material Quality Using Magnetic Permeability," *IJRTE*, 2018.
- "Railway Track Crack and Obstacle Detector," *IJARTET*, March 2018.

SKILLS, INTERESTS & EXTRACURRICULAR ACTIVITIES

- **Languages:** Fluent in English and native Kannada speaker
- **Individual Interests:** Passionate about teaching physics, reading personal development books, UAV piloting, walking, fitness, and cooking
- **Volunteering:** Maaruthsakha Aerospace Labs - NGO providing solutions for societal problems. Played a significant role in disinfecting hospital surfaces using UVC sterilizers and UAV disinfectant spray during the COVID-19 pandemic outbreak
- **Memberships:** The Royal Aeronautical Society, London