NIKHIL AMALA JERRIN J

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ABOUT ME

An aspiring engineer with an interest in building and creating the most effective engineering solutions for the better future. I have a master's in automation and robotics with a strong background knowledge in Cognition, Embedded systems and Artificial Intelligence. Getting a life changing product into the hands of people is my calling.

WORK EXPERIENCE

15/11/2023 – CURRENT Hamburg, Germany

WISSENSCHAFTLICHER MITARBEITER (DL) FRAUNHOFER CML

1. Advanced maritime data analysis along with enhanced DBSCAN algorithms to segment traffic into dynamic and stationary patterns for precise anomaly detection .
2. Implemented Dask along with basics of kubernetes for model deployment and Airflow for pipelining significantly enhancing efficiency and precision.
3. Developing a collision risk index as a part of master's thesis by creating a custom clustering algorithm (Unsupervised Learning) to evaluate and score risks based on multi vessel encounters.

07/02/2023 – 03/11/2023 Hamburg, Germany

WISSENSCHAFTLICHE HILFSKRAFT (ML AND RL) FRAUNHOFER CML

1. Developed predictive models using Folium, Geopy and AIS data to assess risks to undersea cables, incorporating error adjustments with algorithms to enhance GPS accuracy in decision-making.
2. Engineered a 2D grid world simulation using Geopandas and data from Spark Pool, Data Factory and implemented visual methods with Power BI.
3. Developed an OpenAI Gym framework; paralleled by developing a Q-learning algorithm with different policy selection and experimenting with Deepmind to optimize agent performance in complex state spaces.

07/06/2022 – 01/02/2023 Hamburg, Germany

WERKSTUDENT (DATA SCIENTIST) FRAUNHOFER CML

1. Automation of data ingestion pipelines using Python scripts and SQL queries, significantly reducing manual data handling time. Utilized Apache Kafka for real-time data streaming from various sources, ensuring efficient data flow and integration.
2. Applied descriptive and inferential statistical techniques to explore underlying patterns and relationships in the data, and leveraged SQL along with R for data extraction and transformation. Assisted in building predictive models using ML, enhancing data-driven decision-making.

08/04/2021 – 14/09/2021 Chennai, India

PYTHON DEVELOPER ZOHO CORPORATION

Designed and implemented an automated reporting system using Python, Zoho Books APIs, SAP BW/HANA and advanced data visualization tools such as Tableau to generate customized financial reports, significantly reducing manual effort and enhancing accuracy.

08/10/2020 – 05/01/2021 Tirunelveli, India

MACHINE LEARNING ENGINEER KIA MOTORS

1. Analyzed engine performance data featuring various pressures (lubricant, fuel, coolant) using Pandas for data manipulation.
2. Developed an AI-driven predictive maintenance system for vehicles, utilizing Gradient Boosting Machine (GBM) models for detailed predictions on maintenance needs and failure probabilities reducing operational costs.

10/2019 – 02/2020 Karaikudi, India

EMBEDDED SYSTEM INTERN CSIR-CENTRAL ELECTROCHEMICAL RESEARCH INSTITUTE (GOVERNMENT OF INDIA)

1. Worked as a Full time Student Research Assistant at Sensors Laboratory BITsathy under **Dr.-Ing Balamurugan Varadarajan** on groundbreaking research utilizing attenuated total reflectance (ATR) mid infrared (MIR) spectroscopy.
2. Developed robust classification models using PLSR , K-means derivative spectra and other state-of-the-art algorithms to classify different types of oil.

EDUCATION AND TRAINING

14/11/2021 – CURRENT Dortmund, Germany

MASTERS IN AUTOMATION AND ROBOTICS Technische Universität Dortmund

08/2017 – 10/02/2021 Chennai, India

BACHELOR OF ENGINEERING (B.E.) IN MECHATRONICS Anna University

LANGUAGE SKILLS

Mother tongue(s): **TAMIL**

Other language(s): **ENGLISH - C2** | **MALAYALAM** | **GERMAN - B1**

PUBLICATIONS

2021

Machine Learning Based Approach to Identify Neuro-Degenarative Disease

In order to differentiate abnormal and normal gait, we proposed a machine learning based approach.

2021

Classification of Groundnut Oil using Advanced ATR - MIR Spectroscopy and Chemometrics

Mid infrared (MIR) attenuated total reflectance (ATR) spectroscopy has been developed for analysis of different oils

PROJECTS

03/02/2024 – CURRENT

Advanced Collision Risk Index (CRI) Estimation for Maritime Safety

Led the development of a novel CRI estimation model for multi-vessel maritime encounters, utilizing historic AIS data and my custom clustering algorithm to analyze and predict collision risks.

10/10/2022 – 04/05/2023

Solder fault detection in power semiconductors and PCB using Deep Learning

Worked under Dr. Nils Jahn from the chair of Lehrstuhl für Energiewandlung for the project and implemented various methods such as Stero geometry,SIFT and CNN for finding out the faults in the soldering process.

10/2019 – 02/2020

Potentiostat Fabrication and Oil analysis using ML methods

Under the tri-pact agreement between CSIR-CECRI, Robert Bosch and our research laboratory, I worked on designing a potentiostat for performing electrochemical measurements and ML analysis.

QUALIFICATIONS AND SKILLS

ETL, SOLIDWORKS, TENSORFLOW, MATLAB, PYTHON, POWER BI, SPARK, NUMPY, SQL, PANDAS, JIRA,SAP BW/HANA, SAP DATASPHERE

Autodesk Certified Credential in CAD , Machine Learning Professional Certificate - IBM, CSWA (Certified Solid Works Associate)