Sai Nikhil Kunapareddy

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Experience

Zahnradfabrik Research and Develpoment Centre — India

Senior Computational Engineer — Jan 2023 - Jul 2023

- Programmed a supervised machine learning model using PyANSYS, Python and Jupyter that computes the physical behavior of an e-motor with 97.2% accuracy in comparision to the test data.
- Implemented Python automation code that eliminates laborious tasks involved while building simulation models, leading to 20% improvement in workflow automation and an overall cost savings of €13,000.
- Applied computational modeling and Monte Carlo simulation to simulate physics and identify potential failures in a rotor, utilizing sensor datasets with ANSYS and Python.
- Performed synthetic dataset generation of various frequency response function tests by utilizing and mimicking surrogate model benchmark datasets.

Computational Engineer — Sep 2020 - Dec 2022

- Enforced exploratory data analysis to understand the behaviors of various standard engineering components, showcasing expertise in data-driven decision-making.
- Crafted insightful data visualizations, reports and dashboards to convey analysis results to non-technical stakeholders, ensuring effective communication of complex information.
- Engineered PowerShell scripting techniques for monitoring and managing network drive storage, leading to a significant improvement in overall storage efficiency and streamlining storage management processes.

Projects

Traffic sign and obstacle detection system using OpenCV

- Developed an image processing algorithm using OpenCV that identifies the class of a predefined road sign using dominant color extraction and contour detection.
- Designed a Convolutional Neural Network (CNN) using Keras with a TensorFlow backend, boosting the image classification accuracy of the machine learning model.
- Modelled an Arduino Uno using C++ to integrate an ultrasonic sensor for obstacle detection and motor drive control, enhancing the device's capability to navigate and respond to environmental obstacles.

Optical character recognition on shopping receipts

- Engineered a computer vision application capable of extracting item details and prices from shopping receipts utilizing Tesseract OCR technology.
- Integrated the processed image findings into a budgeting application with a graphical user interface developed using Tkinter.

Technical Skills

Languages: Python, R, SQL, VBA and C.
Libraries and Frameworks: OpenCV, PyTorch, Keras, Matplotlib, Scikit-learn, Seaborn, NumPy and Pandas.
Developer Tools: Tesseract, Power BI, Tableau, Jupyter, Git and Visual Studio.

Education

Northeastern University (4.0/4.0) — Boston, MA

Master's of Science in Data Science — Jan 2024 – Aug 2025

Koneru Lakshmiah University (3.9/4.0) — India

Bachelor's in Mechanical Engineering — Jul 2016 – May 2020

Relevant Courses: Algorithm, Data Structures I, Data Structures II, Machine learning, Artificial Intelligence, Introduction to Data Managaement and Processing, Single Variable Calculus and Matrix Algebra, Multivariate Calculus, Probability and Numerical Methods, Complex Variables and Transforms.