

Vigneswar Sundaramurthy

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EDUCATION

Drexel University

Master of Science in Computer Engineering

Honors: Magna Cum Laude

Philadelphia, PA

September 2022 - June 2024

Post Graduation program in Machine learning and Artificial intelligence

Masters in Artificial Intelligence and Machine learning

The University of Texas Austin, Online

March 2020 - September 2021

Bachelor of Technology in Electronics and Communications Engineering

Bachelors in Electronics and Communications Engineering

Kerala Technical University

June 2015 - December 2019

SKILLS

- **Programming Languages:** Python, C, C++, MATLAB, PySpark, SQL, R, JavaScript, HTML, CSS, Node.js and CAPL
- **Frameworks/ Platforms:** LangChain, LlamaIndex, TensorFlow, PyTorch, Caffe, JAX, Keras, OpenCV, Scikit-learn, Windows, Linux, Jupyter, Jupyter-Lab, Visual Studio Code, Databricks, Neo4j, Docker, Kubernetes, Google Cloud Platform, Azure Web Services
- **Specializations:** Artificial Intelligence, Deep Learning, Statistical Modelling, Data Analytics, Natural Language Processing, Recommendation Systems, Graph Databases, Vector Databases(Pinecone, Elasticsearch), Web Scraping

WORK EXPERIENCE

Zoetis

Data Science Intern

Parsippany, NJ

June 2023 - September 2023

- Engineered and delivered a **Virtual sensor for Zoetis, enabling precise measurement of Lactate Levels in Bio Reactors** project completed ahead of schedule, **within a 12-week timeframe**, ensuring timely product launch and market advantage
- Implemented machine learning techniques, achieving a **99% predictive accuracy** using Random Forests, SVM, CNN, and Gradient Boosting. These optimizations significantly enhanced real-time cell health monitoring
- Synchronized and analyzed **unstructured data** from 20+ sources, resulting in a 15% increase in cost-effectiveness, saving approximately \$25,000. Managed insights from over 1,000,000 data points
- **Tools:** Databricks, Data Analysis, Statistical Modelling, Feature Engineering, Git (Version Control), Data Integration, SQL Server Management Studio, Azure Blob Storage, Azure SQL Database, Shiny, Posit

Tata Consultancy Services

Systems Engineer

Bangalore, India

January 2020 - September 2022

- Diagnosed and optimized In-vehicle networks (CAN/LIN/Ethernet) with rigorous physical layer tests for seamless operation and compliance
- Streamlined defect detection & analysis through a machine learning model, reducing issues 25% in half a year as per SCRUM Agile Project Management
- Integrated machine learning into CAN testing slashed test time by 30%, boosted coverage by 15%, and reduced manual errors by 20%, saving \$50,000 annually
- **Tools:** CAN analyzer, AUTOSAR, Vector Canoe, UDS (Unified Diagnostic Services), OBD (On-board diagnostics)

PROJECTS

Patent NLP

Project Link: https://github.com/vigneswar96/Patent_NLP

Philadelphia, PA

November 2023 - July 2024

- Designed and implemented a sophisticated information retrieval system using semantic search techniques, improving patent similarity matching by 40% compared to traditional keyword-based methods.
- Utilized transfer learning techniques to fine-tune pre-trained language models on a corpus of over 1 million patent documents, achieving a 95% accuracy in patent classification tasks.
- **Tools:** PyTorch, Hugging Face Transformers, spaCy, NLTK, Elasticsearch, Flask, Docker, Google Cloud Platform

Reinforcement Learning: Training Atari Game Players with TensorFlow Agents

Project Link: https://github.com/vigneswar96/appliedML/tree/main/Tensorflow_agents/Notebooks

Philadelphia, PA

April 2023 - May 2023

- Optimized Atari games using TensorFlow agents, achieving peak performance with the highest score
- Executed diverse game levels utilizing TF-Agent, encompassing skill levels from Poor to Intermediate and High, and systematically preserved the outcomes
- **Tools:** Q-learning, SARSA, Deep Q Networks, Policy Gradient Methods, OpenAI Gym, RLLib, Google Cloud Platform

Integrating Vision and Generative Models

Project Link: https://github.com/vigneswar96/appliedML/tree/main/Generative_AI/Notebooks

Philadelphia, PA

March 2023 - April 2023

- Instituted a Real-time image processing with **Stable diffusion** for seamless subject replacement, ensuring precision and efficiency
- Engineered a sophisticated image processing pipeline that prompts users to designate the subject of interest for replacement. Systematized the image processing workflow to conform to specified requirements, ultimately producing the desired output with the replaced image
- **Tools:** YOLOv5, YOLOv8, Segment Anything Model (SAM), PyTorch, OpenCV

Research Publications

- Published IEEE Journal Paper titled: "Machine Learning Approach for Clustering of Countries to identify the best Strategies to combat Covid 19". Presented in IEEE Toronto 2021 International Conference
Project Link: <https://ieeexplore.ieee.org/abstract/document/9422621>
September 2020 - November 2020
- Published "Detecting Key Soccer match events to create highlights using Computer Vision" in arxiv
Project Link: <https://arxiv.org/abs/2204.02573>
June 2021 - September 2021