

Naveenraj Kamalakannan

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EDUCATION

- **New York University** New York, United States
Master's of Science in Computer Engineering; September 2024 – Present
- **The Construct** Barcelona, Spain (Remote)
Robotics Developer Bootcamp (Ranked in Top 1%); Score: 97.4% September 2023 – March 2024
- **Vellore Institute of Technology** Vellore, India
Bachelor's of Technology in Electronics and Communication; GPA: 3.75 (8.79/10.0) July 2018 – May 2022

EXPERIENCE

- **Zeeco Middle East** Dammam, Saudi Arabia
Control Engineer July 2022 – August 2023
 - Engineered a predictive model integrated with PID controllers, enhancing control efficiency by 30%.
 - Conducted extensive experimentation with Monte Carlo-based stochastic feedback loops to mitigate and monitor dynamic output transients and overshoots.
 - Architected a custom anomaly detection framework for circuit designs utilizing DCNNs with transfer learning.
 - Integrated Layer-wise Relevance Propagation (LRP) for interpretability and implemented the pipeline on distributed systems, resulting in a 40% reduction in manual verification hours.
- **Bajaj Finserv** Pune, India
Data Engineer - Intern January 2022 – July 2022
 - Streamlined Azure-based data migration pipelines, reducing migration time by 34% and saving operational costs during the transition from Data Warehouse to Cosmos DB, using Data Factory and Data Lake.
 - Engineered a machine learning model leveraging XGBoost, resulting in a 33.3% reduction in DWU resource consumption within Azure Synapse Analytics.
 - Optimized resource allocation by identifying non-optimal queries using advanced feature engineering and anomaly detection algorithms.

PROJECTS

- **Object Localization & UR3e Manipulation using DL and GAN** Barcelona, Spain (Remote)
Principal Investigator January 2024 – March 2024
 - Integrated Intel D435 RGBD camera with MoveIt2 Task Constructor and Scene Planning to enable precise localization of coffee cups, streamlining UR3e robotic arm manipulation.
 - Deployed a ResNet-based CNN trained on a diverse dataset of 10,000+ GAN-generated images, along with PointCloud2-driven 3D object segmentation, achieving a 95% accuracy rate. Designed and optimized a Soft Actor-Critic (SAC) reinforcement learning model, enabling efficient policy convergence.
- **Early Detection of Sepsis - National Hackathon** Vellore, India
Principal Investigator December 2019 – March 2020
 - Led a cross-functional team to detect the onset of Sepsis by the computation of critical biomarkers such as PCT and MDW.
 - Developed a severity classification model using an ensemble model and feature selection via RFE. Secured first place in the Design Category and earned a \$2,000 grant eligibility from VIT Incubator.

PUBLICATIONS

- Kamalakannan, Naveenraj, Shiva Prasaath Sudha Balamurugan, and Kalaivani Shanmugam. "A novel approach for the early detection of Parkinson's disease using EEG signal." IJEET 12.5 (2021): 80-95.
- Kamalakannan N, Macharla S, Kanimozhi M and Sudhakar M S. "Exponential Pixelating Integral Transform with Dual Fractal Features for Enhanced Chest X-Ray Abnormality Detection" CIBM - Accepted (2024).

SKILLS

- **Languages:** Python, Firebase, Node.js, GCP, Azure, Data Bricks, Docker, Java, C++, SQL
- **AI Stack:** Deep Learning, Reinforcement Learning, GAN, Visual Transformers, NERF 3D Reconstruction
- **Robotics:** ROS2, Nav2, SLAM, PID Controller, MoveIt2 (RRT, OMPL, IK-FAST, LMA), DDS, Zenoh, Path Planning - A*, PX4 Quadrotor Design, LIDAR, Point Cloud - Segmentation