Sathish Kumaran

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WORK EXPERIENCE

Data Science Intern   Jul. 2023 − Present

MiiCare   London, UK · Remote

- Designed and deployed a real-time cough detection pipeline for resource-constrained hardware, achieving 97% accuracy and 96% F1-score using classical ML models; led end-to-end audio data collection, preprocessing, feature engineering, and iterative model refinement.
- Contributed to the development of voice-based health assessment models, including GRBAS voice quality rating, delirium detection, and Type 2 Diabetes Detection model.
- Developed a highly customizable dashboard framework with a custom data caching system, data processing pipelines, and interactive visualizations to support diverse client requirements, facilitating analysis from individual user health data to cohort-level trends and summaries.
- Conducted exploratory analysis on large IoT and clinical datasets from individual users to cohorts and developed activity detection algorithms to uncover behavioral patterns.

PROJECTS

MazeHarvest   Jan. 2025

- A custom reinforcement Learning environment to train autonomous navigation agents for stochastic and partially observable environments similar to real world. Implemented and benchmarked PPO, Rainbow DQN, and LSTM-PPO, with LSTM-PPO yielding better performance.

Rentit   Nov. 2024

- Full-stack MERN (MongoDB, Express.js, React, Node.js) house rental platform with real-time chat and booking updates via Socket.io, geocoded property search, and deployed on Render.

NN & DQN from Scratch   Apr. 2023

- Implementation of feedforward neural network with SGD optimizer and momentum. Trained a 43-parameter Deep Q-Network using the FFN to solve the CartPole environment.

ML from Scratch   Mar. 2023

- Implemented core machine learning algorithms (e.g., linear/logistic regression, decision trees, k-means). Created visualizations to compare convergence patterns and performance.

TicTacToe AI   Dec. 2022

- Tic-Tac-Toe AI using the Minimax algorithm with alpha-beta pruning. It has support for variable board sizes, adjustable search depth, and interactive game state editing.

EDUCATION

B.Tech in Artificial Intelligence & Data Science   2021 − 2025

Sri Muthukumaran Institute of Technology (SMIT)

TECHNICAL PROFICIENCIES AND TOOLS

Programming Languages: Python, C, C++, R, JavaScript, TypeScript, Go, SQL, Rust

Technologies & Tools: Linux, PyTorch, Git, React, Next.js, Docker, MongoDB

Core Competencies: Machine Learning, Data Science, Software Engineering

LANGUAGES

Tamil: Native

English: Professional Working Proficiency