

Kirthika Senathiraja

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Education	Information Institute of Technology , Colombo, Sri Lanka Affiliated with Robert Gordon University, Scotland BSc (Hons) Artificial Intelligence and Data Science Upper Second Class (Class 2.1)	September 2020-Present Graduation: June 2024
On-Going Publication	S. kirthika and J. Methmani <i>Systematic Literature Review on Automatic Hierarchical Product Classification</i> . [Short Paper].	
Poster - Presentation	Presented a project with a team of 3 <i>on Brain Tumor detection with explainable AI and a fine-tuned chatbot for assisting medical students with brain tumors</i> -Cutting Edge 2023 (project showcasing Event) event IIT	
Skills	Languages: Python, R, Java, JavaScript, HTML Database/Server: My SQL, MongoDB Frameworks: Hadoop, Spark, TensorFlow, Pandas, Seaborn, NumPy, NLTK, Node.js, Lime, Hugging Face, Lang chain Cloud Platforms and services: AWS: Amazon Sage Maker, AWS Lambda, Amazon Event Bridge, and Amazon ground truth labeling.	
Industry- Research Experience	Ascentic Pvt Ltd, Sri Lanka Data Scientist Intern	May 2022-August 2023
	<ul style="list-style-type: none">Product-categorization (Qvalia): Collaborated with the team in developing a Deep Learning Methodology on a retail hierarchical taxonomy classification, and thus improving a language model performance on product categorization task.Analyzed and pre-processed Postgre Database containing 78 million data points using DBeaver & Python identified Unique patterns in text features that had a direct impact on business operations utilizing Python, Seaborn, Excel, and MatplotlibExperimented with different Machine learning models and Sequential Models such as RNN, LSTM, and pre-trained models such as BERT for language classification tasksCollaborated and conducted a Literature Review on Research projects in the retail domain. Successfully Presented the POC of a Machine Learning Project with the team and impressed clients.Performed data retraining for different multi-class categories with AWS sage maker and explored other services such as S3, Textract, and Amazon Translate.	
Academic Research Experience	Recommending actionable improvement strategies for Hospitality Services in Hotels: Enhancing Decision-Making and Computational Efficiency with Senior Lecturer Prasan Yapa	July 2022-Present
	<ul style="list-style-type: none">Experiment with Large Language models like GPT-3 and Llama for sentiment analysis and prompting techniques for personalization of hotels using libraries like Langchain.Conducting a literature review on leveraging hotel customer reviews in context learningExperimenting with Knowledge distillation and synthetic data generation for implementing computationally efficient and scalable products using Amazon Sage Maker and Python	
	Data Science Group Project with Senior Lecturer, Miss Fathima Farat	September 2021- April 2022
	<ul style="list-style-type: none">Led a group of 4 members to develop an innovative website and an app for diagnosing COVID-19 using respiratory sounds and voice to self-monitor the COVID-19 patient's progress level.Designed and pre-processed a combination of audio data, creating, testing, and ensembling 6 CNN models to identify positive individuals using Python, Librosa, and TensorFlow.MERN stack, Flutter-for mobile application, and Agile project management using Click Up	

Highlighted Projects	Brain Tumor detection with explainable AI and a fine-tuned chatbot for assisting medical students with brain tumors	July 2023 -September 2023
	<ul style="list-style-type: none"> Collaborated with a team of 3, on detecting brain tumor types and segmenting the brain with pre-trained models such as Efficient Net and Mobile Net with explainability with LIME. Created a vector store of relevant research case reports on brain tumors and prompt tuned GPT 3.5 turbo for assisting medical students and doctors on new treatments for brain tumors 	
	Accident and Violence Detection at the Edge	March 2023-April 2023
	<ul style="list-style-type: none"> Led a group of 4 members to develop a mobile application to run a CNN model on the edge. The application is capable on having inferencing at the end device and retraining of the model in the cloud using AWS Lambda, amazon event bridge, Amazon sage maker and Amazon ground truth labelling. Utilized TensorFlow and TensorFlow lite for implementing CNN architecture and to make it scalable. 	
Key-Achievements	Data pipeline for Arvix research article trend analysis	April 2022
	<ul style="list-style-type: none"> The pipeline includes data cleaning using Spark. and monitoring using the Hadoop ecosystem to deliver it into a dashboard application. 	
	K-means cluster analysis with silhouettes of vehicles	March 2022
	Conducted K-means cluster analysis with several silhouettes that is related to vehicle types in R	
	Identifying path using search techniques in 8X8 matrix	Dec 2021
	Implemented Search technique (Informed and Uninformed) solutions for path in 8X8 matrix in Python and Java.	
	Participant, in a team in Datathon	August 2023
	<ul style="list-style-type: none"> Site selection for renewable energy generation in Sri Lanka using machine learning algorithms. Utilized k-means clustering techniques, SVM, decision trees and Artificial Neural network. Estimated cost-effective construction in regard to solar and wind power generation. 	
	2nd Runner Up as a Team in TADHack 2021	September 2021
	<ul style="list-style-type: none"> Mobile and websites were implemented to diagnose heart attacks and blood pressure. User-friendly application to schedule appointments with doctors for patients. MERN Stack was utilized with TensorFlow, flask, flutter, etc. 	
	Participant, her<HelloWorld>v1.0 hackathon	August 2021
	<ul style="list-style-type: none"> Developed an online pet shop with Node and HTML, CSS 	
Community Involvement	The annual prize-giving recipient, Belvoir College International	
	<ul style="list-style-type: none"> Developed an Award for Excellence in IAL Mathematics Awarded of Excellence for 3A*s AND A (IGCSE) in annual prize-giving 	
	Knowledge sharing session, Ascentic, <i>volunteer</i>	September 2022 -May 2023
	<ul style="list-style-type: none"> Conducted a session on Python about modules, packages, and Expectation handling to 20 industry members Conducted a presentation about internship experience for university students (KDU-General Sir John Kotelawala Defence University) for about 50 members. 	
	Vibe Booster, Ascentic, <i>volunteer</i>	November 2022 -January 2023
	<ul style="list-style-type: none"> Conducted online engagement sessions as a Host for a team of 10 in the industry 	
	We can project, Rotaract club, <i>chairperson</i>	Jan 2021-April 2021
	<ul style="list-style-type: none"> Community service project focusing on young women and sanitation, and it was awarded as one of the Most Outstanding Initiatives: Disease Prevention in the district (Colombo). 	
	Ignite project, Rotaract club, <i>Member</i>	September 2020-December 2020
	<ul style="list-style-type: none"> Community service project focusing on helping children with financial and other disabilities 	