Tamilselvan Subramani

AI Specialist @ fischer

⊙ 4/73, Kothambadi 📞 +91 8940903097 @ thamizhselvan.subramani@gmail.com

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Profiles

in Tamilselvan Subramani

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Summary

As an AI Specialist with over 6+ years of experience, I excel in developing, deploying, and optimizing sophisticated machine learning models, including advanced clustering and state-of-the-art document summarization tools. My expertise in cloud integration spans Azure services, while my proficiency in Docker and Azure DevOps ensures the creation of robust deployment pipelines. Skilled in Large Language Models (LLM), I leverage LangChain, Qdrant, DVC, and MLflow for streamlined model management and version control. Additionally, my experience with neural networks and web frameworks like Chainlit, Streamlit, Gradio, and Langfuse allows me to craft interactive AI applications that consistently surpass project goals.Developer, or Engineer in an innovative product development environment.

Committed to pursuing dreams, I firmly believe that if an idea persists in your mind, it is worth taking the risk to achieve it.

Education

Birla Institute of Technology and Science, Pilani   2020-06-01 - 2022-06-01
Software Systems   M.Tech (WILP)
8.56
🔗 https://bits-pilani-wilp.ac.in

Earned a specialisation in Data Analytics, learned how to apply principles behind modern Data Analytics techniques; apply statistical and machine learning methods to real data; evaluate their performance and effectively communicate the results; and build expertise in advanced Artificial Intelligence topics such as Deep Learning and Natural Language Processing.

University College of Engineering- Thirukkuvalai- Nagapattinam.   2014-06-01 - 2018-04-01
Computer Science and Engineering   B.E
First Class
🔗 https://aucetk.edu.in/

Gained theoretical and practical Knowledge on computer programming, algorithm design and analysis, computer networks, database management, computer architecture, and software engineering. Also emphasized the development of analytical, problem-solving, and critical thinking skills.

Projects

Github   -
Gitrepo
🔗 https://github.com/Thamizhortan

StackOver Flow   -
Stackoverflow Profile
🔗 https://stackoverflow.com/users/10159144/tamil-selvan-s

Publications

Artificial Intelligence Powered Banking Chatbot   2018-03-05
🔗 https://www.semanticscholar.org/paper/Artificial-Intelligence-Powered-Banking-Chatbot-Kumar-Tamilselvan/14e9e8a7e98d1d40003bb8f69158ff87b2086478?p2df

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Certifications

Neural Networks and Deep Learning   2021-06-01
DeepLearning.AI

Programming in C++   2016-03-01
NIIT

Sun certified Java Developer (SCJD)   2017-04-01
Oracle

Introduction to AI   2020-12-01
University of Helsinki

Deep Learning with Python   2019-01-01
Udemy

Introduction To Python Programming   2019-06-01
Udemy

Python Intern   2018-02-01
Uniq Technologies

Languages

English
08
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Tamil
08
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Experience	**Fischer**	**Jan 2024 -**
	AI Specialist	Bangalore

🔗 https://www.fischer-international.com/en

- **AI Specialist – Fischer**

  Fixbot Project:
  - Developed a product and dealer recommendation chatbot using GPT-4 (Azure OpenAI) and LangChain.
  - Extracted data from PIM APIs and marketing catalogs using Azure Document Intelligence.
  - Utilized Qdrant (vector database) for similarity search and Azure Cosmos DB for conversation storage.
  - Deployed with Docker, Chainlit, and Langfuse for performance feedback.

  Clustering Model for Steel Anchors:
  - Designed clustering models with LSTM autoencoders to classify failure types.
  - Built training pipelines with MLflow for reproducibility and DVC for automated data pipelines.
  - Deployed as an Azure web app, with metrics visualized via dashboards and Streamlit for user feedback.
  - Won 2nd place in the global Fischer FPS Awards out of 300 projects.

  Document Summarizer Tool:
  - Developed a secure document summarizer supporting Word and PDF files with GPT-4.
  - Used Gradio for frontend, FastAPI for backend, and Azure Blob Storage for data handling.
  - Integrated AAD for authentication and token-based access.

  Knock Detection Model:
  - Created a real-time knock detection model for the Fischer DIY app, detecting 5 material types.
  - Preprocessed data with noise augmentation and feature extraction using YAMNET.
  - Deployed as a REST API integrated into mobile apps on Play Store and App Store.

  Technologies: Python, FastAPI, Streamlit, Chainlit, Gradio, Azure SQL/Cosmos DB, Docker, LangChain, Langfuse, Transformers, MLflow, Qdrant, DVC, Azure Web Apps, EntraID authentication.

Hella	**2019-08-21 - 2023-12-22**
Machine Learning Specialist	Chennai

🔗 https://www.hella.com/hella-in/index.html

Machine Learning Specialist – Hella

MLOps and Cloud Deployments:
- Researched and implemented MLOps frameworks for data science projects, deploying ML applications in the cloud using CI/CD pipelines.

Digital Twin Development:
- Developed a **Digital Twin** for component simulation using a multi-input, multi-output neural network model based on the Navier-Stokes Heat Transfer equation.

Real-Time DL Applications:
- Built a deep learning application to compute PWM rates in real time using temperature, current, and PWM rate inputs.
- Deployed the solution on the cloud with a mixed-input, mixed-output neural network using TensorFlow and Keras.

Plastic Fiber Orientation Analysis:
- Created an ML application to analyze fiber orientation in plastic materials for injection molding simulations.
- Utilized clustering methods for fiber alignment and deployed the solution on Azure.

Simulation Ecosystem for Engineers:
- Built an ML-driven ecosystem to provide simulation engineers with insights and recommendations on component properties, improving simulation efficiency and understanding.

LED Optimization Tool:
- Designed a comprehensive **LED calculator** for pre-development, selecting optimal LEDs based on PCB material, drivers, and efficiency.
- Applied ML techniques to optimize heatsink, PCB, and LED designs, analyzing heat transfer coefficients and thermal variations.

Technical Skills: Python, LangChain, GenAI (LLM), NLP, NLTK, C++, Java, TensorFlow, SQL, Git, GCP, Azure, AWS, Kubernetes, Bash, Docker, CI/CD.

Logituit	**2018-08-10 - 2019-08-09**
Software Engineer	Coimbatore

🔗 https://logituit.com/

Software Engineer – Logituit

Security and Surveillance Applications:
- Developed AI solutions for face, people, object, and vehicle analysis in security and surveillance systems using computer vision and deep learning techniques.
- Specialized in applying CNNs and RNNs for real-time analysis and detection tasks.

Deep Learning and ML Implementation:
- Built and deployed Deep Neural Networks (CNNs, RNNs) with TensorFlow and Keras.
- Applied ML algorithms (SVMs, Random Forests, Decision Trees) for various classification and regression tasks using Scikit-learn.

Web Scraping and Chatbot Development:
- Automated dataset creation through web scraping and developed chatbots using NLP techniques such as topic modeling, NLU, and LDA with libraries like Gensim and SpaCy.

Business Problem Solutions:
- Addressed business challenges by designing and implementing optimized ML/DL models tailored for specific requirements.

Technical Skills: Python, C++, Java, TensorFlow, Keras, NLP (NLTK, SpaCy, Gensim), Topic Modeling (LDA), SQL, Git, Machine Learning, Deep Learning.

Skills	**Python**

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c++

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GenAI

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Large Language models, Langchain, Qdrant, Prompt engineering, langfuse

VBA

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Deep Learning (CNN, NN, RNN, LSTM, ANN)

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NLP (Topic Modeling, NLTK, Chatbot)

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Frameworks (Tensorflow , Keras, NLP ,spaCy, Gensim ,SQL, OPenCV)

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Machine (Decision trees, KNN, KMeans, SVM, Linear and Logistic Regression,Random Forest, PCA, etc.,)

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Cloud (GCP, Kubernetes, AWS, Azure, GIT, Bash, CI/CD, Docker)

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Simulation Domain Knowledge (CFD, FEA)

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Simulation Software (Ansys Spaceclaim, Workbench , CFX_Pre, CFX_Post, Altair Hyperview)

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GenAI

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Feature Engineering

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