

HARISH THANGARAJ

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EDUCATION

Bachelor of Technology in Computer Science

Vellore Institute of Technology, India

Aug. 2021 – Jul 2025

EXPERIENCE

CSIR-NAL

Jan 2025 – Present

Research Intern

Bengaluru, India

- Conducting research on Deep Reinforcement Learning algorithms to optimize exploration strategies in dynamic-reward environments.
- Working on Attention-based RL Exploration frameworks, enhancing sample efficiency and adaptability compared to traditional ϵ -greedy approaches.

Liquid Neurons Pvt. Ltd

Feb. 2024 – Feb. 2025

AI engineer (part-time)

Bengaluru, India

- Created a mass attendance monitoring system for a primary school using computer vision paradigms that can tag **20+** faces within a single frame.
- Built an ERP software for small scale educational institutions using manage student - employee information; Optimized, containerized, and deployed APIs on the company's linux based server.

University of Pretoria

Jan. 2024 – Oct. 2024

Research Intern

Remote

- Researched enhancements on multilingual NLP models for low-resource African languages utilized by **165+** users.
- Benchmarked cross-lingual and cross-domain transfer scenarios for multilingual and monolingual neural architectures; paper submitted to ACL.

Travellio

Oct. 2023 – Present

Founding Member

Chennai, India

- Founded an AI-driven travel application with **\$15,000** in credit funding from the Microsoft for Startups program. Focused on connecting like-minded travelers, providing AI-powered itinerary recommendations, and aggregating popular trips.
- Hired and managed **20** interns across various departments working towards developing the MVP.

ACADEMIC PROJECTS

VIT University Chatbot

Jul. 2024 – Sep. 2024

Lead Developer

At Vellore Institute of Technology

- Trained an RPA-based chatbot trained on **1000+** university documents to assist **20,000+** students and faculty with university queries.
- Fine-tuned Meta LLaMA within Rasa's intent-response framework, achieving **88%** accuracy in query resolution.
- Automated data extraction with UiPath, processing **30+** university portal web pages.

Spatial Attention based Glioma Segmentation

Sept. 2024 – Dec. 2024

First Author

At Vellore Institute of Technology

- Automated pediatric glioma segmentation using a novel 3D UNet architecture with spatial attention mechanism.
- Achieved a Dice Similarity Coefficient (DSC) of **79.4%** and Hausdorff Distance (HD95) of **12mm**, demonstrating improved segmentation accuracy in complex tumor structures on the Brats dataset; paper accepted in IEEE access.

Recommendation System for Academic Networking

Dec. 2023 – Aug 2024

Lead developer

At Vellore Institute of Technology

- Authored an NLP-based profile recommendation system leveraging TF-IDF and BERT, achieving **94%** matchmaking accuracy for academic collaborations.
- Deployed the system as a mobile app, enabling real-time access with profile query times under **5** seconds.

Gesture-Based Home Automation System

Feb. 2024 – April 2024

Core Developer

At Vellore Institute of Technology

- developed and deployed a hand-sign controlled home automation system, achieving **96%** gesture recognition accuracy.
- Collected and annotated a custom dataset including **5,000+** hand signature images in various lighting conditions.

PUBLICATIONS AND PREPRINTS

- AT-DQN: Attention-Based Exploration in Deep Reinforcement Learning (in draft for ICML)
- 3D Graph Attention Networks for High-Fidelity Pediatric Glioma Segmentation (Accepted in IEEE Access)
- Cross-lingual Transfer Analysis of Multilingual Models on African Languages (Submitted to ACL)
- A BERT-Based Hybrid Recommendation System for Academic Collaboration (Accepted and Presented at ICISS-24)

RELEVANT COURSEWORK

Machine Learning (VIT-BCSE424L), Complex Variables and Linear Algebra (VIT- BMAT201L), Calculus (VIT-BMAT101L, Probability and Statistics (VIT-BMAT202L), Algorithms (VIT-BCSE204L), Artificial Intelligence (VIT-BCSE306L), Data Science (IIT Madras(MOOC)-CFOC161M).

SKILLS

Languages: Python, C++, Java, JavaScript, R

Frameworks and Libraries: MERN, Scikit-learn, TensorFlow, PyTorch, Flask, NLTK, Spacy, OpenAI-gym

Data and API Tools: Tableau, Excel, Roboflow, Postman.

Others: Data Modeling, Agile Methods, User Research, Public Speaking.

LEADERSHIP AND OUTREACH

- Served as the department Lead for IEEE Robot Automation Society student chapter at VIT.
- Hired and managed intern workflow at Liquid Neurons Pvt. Ltd as development lead.
- Actively contributed to pitch deck development and strategic management of Travellio (startup).
- Led a user research team to drive insights and strategy for a community startup (Knowledge Ark Technologies).
- Organized fundraising initiatives to support education for underprivileged girls at Suvidha Foundation.