Siddharth Magesh

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Career Objective

To pursue advanced research in Artificial Intelligence, with a focus on Natural Language Processing, Computer Vision, and Generative AI systems. I aim to contribute to cutting-edge research in Large Language Models and multimodal AI architectures that bridge theoretical foundations with practical implementations. My ultimate goal is to advance the field toward Artificial General Intelligence through innovative research and development.

Education

Expected 2026 **B.Tech in Artificial Intelligence and Data Science**
Velammal Engineering College, Anna University, Chennai, India
CGPA: 8.91/10.0

Expected 2026 **Minor in Full Stack Development**
Velammal Engineering College, Anna University
CGPA: 8.91/10.0

Expected 2026 **Bachelor's in Programming and Data Science**
Indian Institute of Technology Madras (Online Degree Programme)
CGPA: 6.83/10.0

2022 **Higher Secondary Certificate (12th Standard)**
Velammal Vidhyashram, CBSE Board
Percentage: 85%

2020 **Secondary School Certificate (10th Standard)**
Narayana E-Techno Kolathur, CBSE/IIT
Percentage: 82%

Research Experience & Projects

AI Research Intern – Scrapify Ecotech (Ecofloater Project) 2024-2025

Developed a fully autonomous self-thinking Ecofloater system for river cleaning using advanced computer vision models and custom synthetic datasets. Implemented sophisticated camera calibration mechanisms including stereovision and depth vision processing with Intel RealSense cameras. Created custom YOLO and Vision Transformer architectures with reinforcement learning for autonomous decision-making and successfully deployed on NVIDIA Jetson Nano with optimized real-time inference.

OSSARTH – AI-Powered Operating System 2024-2026

Research Paper - Ongoing Project

Developed a customizable operating system replacing traditional GUI and CLI with natural language interaction powered by large language models. Created a lightweight, performance-optimized system for low-powered hardware like Raspberry Pi while maintaining CLI speed without requiring complex command memorization. Implemented intelligent layer that interprets natural language input and executes file management, program execution, and system configuration in real-time with modular architecture supporting custom plugins.

MTERBS – Intelligent Emergency Traffic Control System 2023-2026

Research Paper - Ongoing Project

Developed AI-integrated traffic manipulation framework with customized algorithms for manipulation techniques fused with centralized AI model to create an intelligent self-thinking system. Implemented deep learning and IoT-enabled vision sensors for real-time traffic monitoring with dynamic ambulance prioritization through lane clearance, timed release, and adaptive one-way allocations. Designed ambulance-centric architecture ensuring minimal delay during golden hour while maintaining post-incident traffic stability with significant emergency response time reduction.

Technical Skills

Programming Languages	Python, C/C++, Java, Assembly (x86)
AI/ML Research	Deep Learning Architectures, Neural Network Optimization, Model Fine-tuning, Transfer Learning, Few-shot Learning, Attention Mechanisms, Transformer Architectures
AI Specializations	Large Language Models, Computer Vision, Natural Language Processing, Generative AI, Model Context Protocol, Agentic AI Models, Retrieval-Augmented Generation (RAG)
ML Frameworks	PyTorch, TensorFlow, Hugging Face Transformers, LangChain, OpenAI API, Anthropic Claude API
Backend Engineering	REST APIs (Flask, FastAPI), Node.js, Express.js, Microservices Architecture, API Gateway Design, Postman, Podman
Databases	MySQL, MongoDB, MongoDB Atlas, CRUD Operations, Database Design, Query Optimization
MLOps & DevOps	Git, AWS SageMaker, Docker, UV, Linux, CI/CD Pipelines, Model Deployment, Version Control

Professional Experience

AI/ML Intern – Inspire Solutions (Aladipattiyan Karupatti Coffee) 2023-2024

Built machine learning models for analyzing stock handling and verifying original supply amounts for restaurant operations. Developed computer vision models for automated cleanliness assessment of utensils and sanitization monitoring throughout the establishment. Created vision-based systems for real-time shelf inventory monitoring and implemented various automation tasks for restaurant management. Contributed to multiple open-source datasets for hospitality industry AI applications.

Lead Backend Developer – Velammal Engineering College Website 2024-2025 (Ongoing)

Led a team of backend developers in building comprehensive college website infrastructure and designed system architecture for scalable web applications. Managed collection and processing of large-scale institutional data while implementing robust security measures and performance optimization features. Developed code modularization strategies and created automation scripts with CI/CD pipelines for streamlined development workflows.

Co-Founder – GradGear (AI-Powered Consultancy) 2024-2025 (Ongoing)

Co-founded startup developing AI-driven application for personalized laptop recommendations based on user requirements, budgets, and use cases. Built dynamic web scraping tools and established local vendor network connections for real-time pricing data aggregation. Developed comprehensive analysis algorithms that generate detailed reports and tailored recommendations for optimal technology purchasing decisions.

Certifications & Professional Development

- **Natural Language Processing Specialization** (Coursera) – Classification & Vector Spaces, Probabilistic Models, Sequence Models, Attention Models
- **Generative AI with Large Language Models** (Coursera)
- **Advanced Diploma in Java Programming** (Computer Software College)
- **Introduction to Generative AI** (Duke University)
- **TensorFlow for AI, ML, and Deep Learning** (Coursera)
- **Supervised Learning: Regression and Classification** (Coursera)
- **Python for Data Science** (NPTEL)
- **Assembly Language Programming** (Udemy)
- **Power BI and Tableau** (Imarticus Learning)

Projects

Sentimatrix – Multi-modal Sentiment Analysis Platform **2023-2024**
AI-powered sentiment analysis and product intelligence tool designed to help businesses understand public sentiment across multiple channels. Combines multimodal sentiment analysis, autonomous web scraping, and interactive reporting capabilities. Developed comprehensive ecosystem including PyPI library, RESTful API, intelligent chatbot interface, and Business Analytics Tool (BAT) website for sentiment monitoring and decision-making support.

AgriHub – Integrated Agricultural Platform **2022-2023**
Comprehensive digital platform addressing multiple agricultural challenges through a unified solution. Integrates retail management, research databases, educational resources, and peer-to-peer guidance systems for farmers. Implemented AI-driven crop recommendation algorithms, IoT sensor integration, machine learning models for yield prediction, and blockchain-based supply chain transparency to enhance agricultural productivity.

MediNote-AI – AI Medical Assistant **2024-2025**
Intelligent healthcare automation system that streamlines clinical documentation through real-time conversation monitoring. Utilizes natural language processing and speech recognition to analyze doctor-patient interactions, automatically generating accurate prescriptions and medical records. Implemented transformer-based models for medical entity extraction and secure data processing pipelines to enhance clinical workflow efficiency.

Breathy-Sweet – IoT Health Monitoring **2023-2024**
Non-invasive glucose monitoring system leveraging IoT sensors and advanced machine learning algorithms for diabetic care management. Utilizes breath analysis technology combined with environmental sensors to predict glucose levels without blood samples. Developed real-time data processing pipelines, predictive analytics models, and Progressive Web Application interface for continuous health insights and personalized diabetic management.

Achievements & Recognition

Hackathons & Competitions

- **First Prize** – INNOTHAN'24, KCG College of Technology
- **Special Recognition Award** – PRABHIGNYAN, Puducherry Engineering College
- **Third Prize** – Tech Genesis'25, Velammal Engineering College
- **Second Prize** – Ideathon, Ananta Engineering College
- Active participant in Intel GenAI Hackathon'24, HackVerse'24 (SRM), and multiple national-level technical competitions

Academic Presentations & Publications

- Research presentation at NCAIBIA'25 National Level Conference on AI applications
- Technical paper presentation at Hackerz Conference, Chennai Institute of Technology

Leadership & Service

Technical Head – Youth Red Cross, Velammal Engineering College 2022-2025

– Lead technical initiatives and digital transformation projects for college YRC unit
– Previously served as Joint Secretary (2023-24) and Volunteer (2022-23)
– Developed mobile application for YRC and multiple software solutions including LifeConnect blood donor platform, automated event management system, and official YRC website
– Authored comprehensive operational protocols and rule book for organizational procedures and digital integration

Vice Chairman – WebOps Club, Velammal Engineering College 2024-2026

– Oversee web development projects and technical workshops for student community
– Mentor junior students in full-stack development and deployment practices

Blockchain Club – Member, Velammal Engineering College 2022-2023

– Participated in blockchain technology workshops and decentralized application development
– Collaborated on cryptocurrency and smart contract projects with peer learning initiatives

Coders Club – Member, Velammal Engineering College 2022-2026

– Active participant in competitive programming contests and algorithm challenges
– Contributed to open-source projects and collaborative coding initiatives within the college community

Community Service

- Regular blood donation volunteer and cancer awareness campaign participant
- Environmental conservation initiatives including lake cleaning and plantation drives
- Road safety awareness campaigns and fire safety education programs