Siddharth Magesh

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PROFESSIONAL SUMMARY

USC Computer Science master's student focused on vision-language models, multi-agent systems, and reusable Python tools. Experience includes model fine-tuning, PyTorch architecture implementations, and ongoing research in autoregressive–diffusion answer verification.

EDUCATION

University of Southern California — Los Angeles, CA
Master of Science in Computer Science — *Expected May 2028*

Velammal Engineering College, Anna University — Chennai, India
B.Tech, Artificial Intelligence and Data Science. CGPA: 8.97/10.0 — *May 2026*
Honors in Full Stack Development

EXPERIENCE

Sudha Gopalakrishnan Brain Centre, IIT Madras — Chennai, India
Large Language Model Researcher — *Dec 2025 – Feb 2026*

- Fine-tuned OpenCLIP and BLIP-2 on million-scale histology imaging datasets for neuroscience research.
- Built internal AI tools and RESTful APIs to support model inference and neuroscience research workflows.

Scrapify Ecotech — Chennai, India
AI Research Intern (Ecofloater Project) — *2024 – 2025*

- Developed YOLO and Vision Transformer models for aquatic debris detection; integrated RealSense depth sensing for navigation.
- Deployed computer vision inference on NVIDIA Jetson Nano to support on-device perception for autonomous river cleaning.

Inspire Solutions (Aladipattiyan Karupatti Coffee) — Chennai, India
AI/ML Intern — *2023 – 2024*

- Built machine learning models for stock analysis and supply verification across restaurant operations.
- Developed computer vision models for automated cleanliness assessment and real-time shelf inventory monitoring.

PROJECTS

Sentimatrix — *Aug 2024 – Jun 2026*
Open-Source Project: Multimodal Sentiment Intelligence Platform

- Published a Python package on PyPI combining asynchronous data collection, sentiment/emotion analysis, and multimodal inputs.
- Built cloud/local LLM provider integration, CLI and RESTful API interfaces, and structured exports for analysis and reporting.

OSSARTH — *May 2024 – Mar 2026*
Research Project: LLM-Native Operating System Prototype

- Proposed an LLM-native OS architecture where language models interpret user intent, plan tasks, and guide scheduling and resource management through hierarchical agents and MCP tools over a Linux kernel.
- Built orchestration components and a simulated task-management prototype with a seven-panel system monitor; co-authored a research manuscript submitted for publication.

TECHNICAL SKILLS

- **Programming:** Advanced Python (async programming, package development); C++ and CUDA programming (intermediate).
- **Multi-Agent Systems:** Hierarchical orchestration, LLM routing, provider failover, Model Context Protocol (MCP), RAG.
- **Model Development:** PyTorch, Hugging Face Transformers, vision-language fine-tuning, CLIP, GPT-2, transformer architectures.
- **AI Systems Engineering:** RESTful APIs (FastAPI, Flask), batch processing, pipeline orchestration, caching, structured logging.
- **Current Research:** Diffusion language models, answer verification, verifier ensembles, error correlation and calibration.

LICENSES & CERTIFICATIONS

- **Diploma in Data Science** – IIT Madras — 2022 – 2026
- **TensorFlow for AI, ML, and Deep Learning** – Coursera — Nov 2024
- **Generative AI with Large Language Models** – Coursera — Aug 2024
- **Natural Language Processing** – 4-Course Specialization, Coursera — Jul 2024

ACHIEVEMENTS & HONORS

- **Inquisitive Innovator Award, Riddhi-26** – Research and product development, Velammal Engineering College — Mar 2026
- **Research Presentation, NCAIBIA 2025** – National Conference on AI Applications — Mar 2025
- **1st Place, INNOTHAN 2024** – Sentimatrix, KCG College of Technology — Sep 2024

TECHNICAL LEADERSHIP & SERVICE

Vice Chairman & Lead Backend Developer, WebOps Club, Velammal Engineering College — 2024 – 2026
Led college website backend development, CI/CD integration, and security controls; conducted workshops and mentored students in full-stack development.

Youth Red Cross – Volunteer, Joint Secretary, then Technical Head; built LifeConnect and internal software. — 2022 – 2025