

Shrinivas Sesadri

AI ARCHITECT · RESEARCHER · COMPUTATIONAL NEUROSCIENCE

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Profile

Founding AI engineer and researcher at the intersection of large language models and computational neuroscience, building brain-inspired AI systems for health and cognition. Developed *Quadis PD*, a five-modality digital biomarker platform for Parkinson's disease, at an IIT Madras-incubated startup, alongside research spanning medical imaging, legal LLMs, and large-scale retrieval.

Education

SASTRA Deemed University

Thanjavur, Tamil Nadu, India

B.TECH, COMPUTER SCIENCE & ENGINEERING

2021 – 2025

- CGPA: 7.62 / 10
- Relevant coursework: Natural Language Processing, Data Structures & Algorithms, Discrete Mathematics

Publications & Research

Submitted — ICML-ALGO

ARE PRE-TRAINED DEEP LEARNING MODELS SUFFICIENT FOR X-RAY IMAGE ANALYSIS?

2025

- Analysed the impact of data augmentation (CLAHE) and hyper-parameter tuning on VGG19, DarkNet19, and AlexNet for 14-category thorax-disease classification on ChestX-ray14, improving accuracy by ~10%.

Under review — Knowledge-Based Systems (Elsevier)

INTERACTIVE CAPTIONING OF MEDICAL IMAGES

2024

- Built a medical-image captioning and visual question-answering system using multimodal models (BLIP, LLaVA) on PathVQA, MIMIC-CXR, and ChestX-ray14 to reduce diagnostic delay.

Manuscript in preparation

AN EFFICIENT LLM FOR THE INDIAN JUDICIAL SYSTEM (INDICLEGAL-MISTRAL)

- Fine-tuned Mistral 7B Instruct v0.2 with LoRA adapters on domain-specific legal corpora for the Indian judicial system.

Research & Professional Experience

Neurogati (IIT-Madras Incubated Startup) & CNS Lab, IIT Madras

Chennai, Tamil Nadu, India

FOUNDING AI ENGINEER & RESEARCHER

Jun. 2024 – Present

- Full-time researcher at the Computational Neuroscience (CNS) Lab, IIT Madras; core contributor to the digital biomarker and neuro-health mission of the IIT-Madras-incubated startup Neurogati.
- Built *Quadis PD* (Quantitative Analysis and Diagnostic Biomarker Platform for Parkinson's Disease) — a five-modality digital biomarker system integrating computer vision and audio analysis; architected the full-stack application (mobile UI/UX, backend, AWS) to near-completion.
- Developed an indoor apartment navigation assistant for Alzheimer's patients as a multi-agent LLM + VLM pipeline, grounded in a graph-structured environment (Neo4j + GNN) with Q-learning exploration.
- Drove product and business strategy: market analysis, investor pitch deck, and participation in funding pitches.

Bungee Tech

Remote

MACHINE LEARNING ENGINEER INTERN

Jun. 2023 – Jul. 2023

- Engineered a Transformer-based model with Approximate KNN for large-scale retail product matching across 100M+ products.
- Managed and processed a 5 TB dataset spanning 50+ attributes (titles, images, descriptions, size, UPC, model number).
- Achieved a 96% F1 score on the WDC product-matching benchmark and 91% on the internal evaluation set.

Projects

Quadis PD — Quantitative Analysis & Diagnostic Biomarker Platform

FOUNDING AI ENGINEER, NEUROGATI / CNS LAB, IIT MADRAS

2024 – Present

- Five-modality digital biomarker system for Parkinson’s disease integrating computer vision and audio analysis. Designed and architected the complete full-stack application — mobile UI/UX, backend API, and AWS deployment — currently conducting clinical pilot tests.

Indoor Apartment Navigation Assistant for Alzheimer’s Care

MULTI-AGENT LLM + VLM SYSTEM, CNS LAB, IIT MADRAS

2024

- Multi-agent pipeline combining large language models and vision-language models to assist Alzheimer’s patients in navigating within their home environment. Grounded in a Neo4j graph-structured spatial representation with Q-learning exploration and GNN querying; presented at the 5th Annual CNSL Meet.

Personal Portfolio & Profile Hub

FULL-STACK WEB; PORTFOLIO.SHRINIVASSESADRI.IN

2024 – Present

- Designed and shipped a two-site personal-brand system (full portfolio + linktree-style hub) in Next.js 15, React 19, TypeScript, Tailwind CSS, and Framer Motion, with Aceternity UI components and Open-Graph metadata.

Generating Music from Text

INDEPENDENT RESEARCH PROJECT

- Reimplemented a text-to-music pipeline based on Google’s MusicLM, combining MuLan joint audio–text embeddings, the SoundStream neural audio codec, and w2v-BERT on the MusicCaps dataset.

Technical Skills

AI / ML	PyTorch, Hugging Face / Transformers, LangGraph, JAX, PEFT / LoRA, OpenCV, NumPy, Pandas, Matplotlib
Models	LLMs (Llama 3, Mistral 7B), LMMs (BLIP, LLaVA), GNNs, Q-Learning
Research Domains	Foundation Models, Model Fine-tuning, Multi-Agent Systems, Depth Estimation, Pose Estimation, Oscillatory Neural Networks, Computational Neuroscience
Software / Data	Python, Neo4j, AWS, Docker, Java, C, C++
Creative / Web	Next.js, React, React Native, Three.js, HTML/CSS, Blender, Unreal Engine, DaVinci Resolve, Figma (UI/UX)

Leadership & Creative Activities

Author, <i>Synchronized Chaos</i> — Personal technical blog	
3D Artist, Video Editor, Photographer, EStudios — Entrepreneurship Cell	SASTRA
3D Artist, VR Club	SASTRA

Interests

Music: Classically trained pianist — Trinity College London, Grade 8 (Piano & Music Theory).
Visual Arts: Digital & traditional art, 3D environment design, and photography (DeviantArt, ArtStation, Behance).