

Ketan Suhaas Saichandran

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EDUCATION

Boston University

MS in Artificial Intelligence — **GPA: 3.96/4.00**

Thesis track — Advisor: Dr. Vijaya Kolachalama

Boston, MA, USA

September 2023 — May 2025

Indian Institute of Technology Roorkee

B.Tech in Electrical Engineering — **CGPA: 8.65/10.00**

Roorkee, India

July 2019 — May 2023

RESEARCH EXPERIENCE

Kolachalama Lab, Boston University

Staff Scientist

Boston, MA, United States

June 2025 — Present

- Designed and developed a **vision-language model** for neuropathology images.
- Implemented AFA on clinical **LLMs** to advance AI-augmented interactive medical diagnoses.
- Contributed to a large-scale **multimodal medical LLM** project by processing large-scale medical data and LLM post-training.

Graduate Researcher

September 2023 — May 2025

- Introduced a **state-of-the-art** active feature acquisition (AFA) framework, achieving **1-10%** performance improvement.
- Developed a novel non-greedy method for AFA by utilizing expected SARSA and CMI-based rewards, improving performance by **2-3%**.
- Designed a **zero-shot classification** framework for EEG channels and introduced a novel training strategy.
- Contributed to a large-scale **multimodal medical LLM** project by processing large-scale medical data and LLM post-training.

Deepti Research Group, Boston University

Research Collaborator

Boston, MA, United States

Sept 2024 — May 2025

- Introduced a novel method, **SCoPE**, to **enhance alignment** in **diffusion models** for complex prompts.
- Performed several experiments to prove the effectiveness of SCoPE against **stable-diffusion**, **improving on 83%** of samples.
- Inspired by human artistic processes, created a schedule for text conditioning to interpolate between coarse-to-fine prompt embeddings.
- Developed mathematical methods for scheduling the interpolation on the CLIP hypersphere.

Banaji Implicit Social Cognition Lab, Harvard University

Research Assistant

Cambridge, MA, United States

May 2024 — May 2025

- Discovered humanlike cognitive patterns in **LLMs** and explored cognition models to enhance **LLM humanlikeness**.
- Developed **automated pipelines** for **multi-turn batch-processing** on LLMs for research experiments.
- Founded SHASM (The Science of Human and Artificial Social Minds) as a researcher.

SELECTED PUBLICATIONS

1. **Saichandran, K. S.**, Thomas, X., Kaushik, P., & Ghadiyaram, D. (2025). Progressive prompt detailing for improved alignment in text-to-image generative models. *AI for Content Creation Workshop, Conference on Computer Vision and Pattern Recognition (CVPR)*. <https://arxiv.org/abs/2503.17794> (oral presentation)
2. Guney, O. B., **Saichandran, K. S.**, Elzokm, K., Zhang, Z., & Kolachalama, V. B. (2025). Active feature acquisition via explainability-driven ranking. *International Conference on Machine Learning (ICML)*. <https://icml.cc/virtual/2025/poster/45710>
3. Lehr, S. A., **Saichandran, K. S.**, Harmon-Jones, E., Vitali, N., & Banaji, M. R. (2025). Kernels of selfhood: GPT-4o shows humanlike patterns of cognitive dissonance moderated by free choice. *Proceedings of the National Academy of Sciences, USA*, 122(20), e2501823122. <https://doi.org/10.1073/pnas.2501823122>
4. **Saichandran, K. S.**, Guney, O. B., Elzokm, K., & Kolachalama, V. B. (2025). Conditional mutual information-guided reinforcement learning for active feature acquisition. *IEEE Transactions on Artificial Intelligence* (under submission).
5. Singla, P., Singh, A., Garg, S., Garg, I., & **Saichandran, K. S.** (2025). Thinking About Thinking: Evaluating Reasoning in Post-Trained Language Models *AAAI* (under submission).

HONORS AND ACHIEVEMENTS

- **Optiver - Trading at the Close (Kaggle competition) - 2024**
Received a bronze medal.
- **International Collegiate Programming Contest (ICPC) - 2022**
Represented IIT Roorkee at Asia Regionals.
- **International Collegiate Programming Contest (ICPC) - 2021**
Represented IIT Roorkee at Asia Regionals.
- **JEE ADVANCED 2019 (AIR 1640) – FIITJEE AWARD**
Secured an All India Rank of 1640 out of more than 250,000 students selected from JEE MAIN, and received a cash prize of 100,000 INR.
- **JEE MAIN 2019 (AIR 1390)**
Secured an All India Rank of 1390 out of more than 1 million students.
- **KVPY Scholar-2019 (AIR 1237)**
Secured an All India Rank of 1237 in the KVPY exam.
- **Indian National Physics Olympiad-2019**
Cleared the NSEP exam with a state rank of 7 and competed in the INPhO.

TALKS & PRESENTATIONS

AI4CC Workshop, CVPR 2025	Nashville, TN
Oral presentation	June 12th, 2025
Graduate School of Arts & Science, Boston University	Boston, MA
Thesis Defense	May 17th, 2025

TEACHING EXPERIENCE

Faculty of Computing & Data Sciences, Boston University	Boston, MA, United States
Teaching Assistant — DS 320: Algorithms for Data Science	January 2024 — April 2024
<ul style="list-style-type: none">• Customized course curriculum aimed at enhancing students’ competitive programming skills.• Conducted discussions, facilitated office hours, assessed assignments, and helped with student questions online/offline.• Designed and organized additional assignments and interactive sessions to support students.	

INDUSTRY EXPERIENCE

Clairyon	CA, United States
AI Engineer	May 2025 — Present
<ul style="list-style-type: none">• Built autonomous AI agents using Mastra and Model Context Protocol (MCP) servers and deployed on AWS at scale for hospitals.• Developed agentic AI systems for automating clinical workflows, patient management and interacting with FHIR data.	
NourishedRx	Stanford, CT, United States
AI Engineer Intern	May 2024 — August 2024
<ul style="list-style-type: none">• Developed and deployed Generative AI applications to enhance user experience and internal efficiency, including automation workflows.• Built and deployed AI solutions, such as <i>AskBetty</i>, an AI chatbot using AWS Bedrock and ReactJS on AWS Amplify, leveraging RAG for personalized health recommendations, and LLM agents to query BigQuery and Google FHIR, automating data retrieval and summarization.• Designed and integrated APIs using AWS Lambda, and implemented pipelines to transcribe and summarize Amazon Connect call recordings via Amazon Transcribe and AWS Bedrock LLMs, streamlining documentation and patient note generation.	
Slice	Bengaluru, Karnataka, India
Software Development Engineer Intern	May 2022 — July 2022
<ul style="list-style-type: none">• Designed and optimized RESTful APIs in Java Spring Boot for Juspay payment integration, enabling high-throughput, low-latency transactions with endpoints for order creation, status retrieval, and payment authentication.• Collaborated with front-end, DevOps, and security teams to enhance payment reliability, reducing transaction failures by 15% through improved error handling and retry logic.	

UNIVERSITY EXPERIENCE

Outreach Cell, IIT Roorkee	Roorkee, India
Member	Oct 2020 — Oct 2021
<ul style="list-style-type: none">• Volunteered within the Outreach Cell at IIT Roorkee, a student-led initiative operating under the purview of the Dean of Students’ Welfare, IIT Roorkee. Assumed a pivotal role in facilitating connections between the external world and the distinctive culture and ethos of IIT Roorkee.	
Esports IITR, IIT Roorkee	Roorkee, India
Co-founder	Dec 2020 — May 2023
<ul style="list-style-type: none">• Co-founded a gaming group for students and organized university-level events that improved our visibility in the national-wide gaming communities.	
Watch Out!, IIT Roorkee	Roorkee, India
Multimedia Editor	Oct 2020 — Oct 2021
<ul style="list-style-type: none">• Shot, edited and designed multiple media releases, hosted several events on campus for our student media body at IITR.	

PROJECTS

Zero-shot EEG classification	September 2024 — Jan 2025
Kolachalama Lab, Boston University	
<ul style="list-style-type: none">• Developed a framework that can zero-shot classify with any new EEG channel during inference.• Conceptualized that trained channel embeddings lie on a manifold resembling physical positions on the scalp.• Introduced a training method by interpolating between channel embeddings for zero-shot inference with new EEG channels.	
Gesture Controller	February 2024 — April 2024
CS 585: Image and Video Computing	
<ul style="list-style-type: none">• Created a pioneering gesture-based video-game controller package for RPG, FPS, and Racing games.• Optimized the code heavily to consider the movement of every landmark on the body and process the custom gestures.• Designed gestures that sync with real movements - Walking on the spot, holding the steering wheel, striking and blocking.• Developed a user-interface to map gestures to keys on the keyboard.	

OPEN-SOURCE CONTRIBUTIONS

- **AWS Strands Agents** PR: Contributed to a major PR that introduces new functionalities to fetch and list the prompts from MCP servers.

TECHNICAL SKILLS

- **Programming Languages:** Python, C++, SQL, JavaScript, TypeScript
- **Tools/Software:** Anaconda, VS Code, Git, Docker, Terminal, WandB
- **AI Techniques:** QLoRA, CLIP, VLMs, RAG, RLHF, Quantization, LoRA, Attention, Agentic AI
- **Full-Stack Development:** ReactJS, NodeJS, Git, Docker, Gradio, Streamlit, AWS Bedrock, GCP Vertex AI, Lambda, Amplify, ReactJS, NodeJS, Spring Boot, Kubernetes, BigQuery, FHIR, AWS, GCP, Kubernetes
- **AI tech stack:** vLLM, Langchain, LlamaIndex, Pinecone, HuggingFace, MCP, unsloth, PyTorch, PyTorch Lightning, CUDA, TorchServe, Keras, TensorFlow, FastAI, Scikit-learn, OpenCV, Mastra