Jamuna S. Murthy

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RESEARCH INTERESTS

Vision–language models and scalable AI systems — models that ground language in images, video, and audio, and the efficient architectures and infrastructure that run them from edge devices to the cloud. Current focus: **theory of controllable image generation**, treating controllability as a property of structured latent geometry, and measuring what generated images lose in meaning.

EDUCATION

M.Tech. in Computer Software Engineering, Ramaiah Institute of Technology, Bengaluru 2015 – 2017
Autonomous, affiliated to Visvesvaraya Technological University · GPA 9.30/10
Thesis: *Distributed Framework for Real-Time Twitter Sentiment Analysis and Visualization (TwitSenti)* — Best Master's Thesis Award

B.E. in Computer Science and Engineering, Dr. Ambedkar Institute of Technology, Bengaluru 2011 – 2015
Autonomous, affiliated to Visvesvaraya Technological University

PUBLICATIONS

Under Submission

1. **Jamuna S. Murthy**, Amin Karimi Monsefi, Rajiv Ramnath. Controlla: Learning Controllability via Graph-Constrained Latent Geometry. *arXiv:2605.16603*, May 2026. UNDER SUBMISSION · A*
2. **Jamuna S. Murthy**, Amin Karimi Monsefi, Rajiv Ramnath. KathaTrace: Diagnosing Semantic Trajectory Collapse in Generated Visual Narratives. *arXiv:2607.01312*, July 2026. UNDER SUBMISSION · A*

Journal Articles

3. **Jamuna S. Murthy**, G. M. Siddesh. Multimodal Humor Detection in Videos via Domain-Specific Representations and Deep Hybrid Fusion Networks. *Soft Computing* (Springer Nature), 2026. ACCEPTED SEP 2026
4. **Jamuna S. Murthy**, G. M. Siddesh. Multimedia Video Analytics using Deep Hybrid Fusion Algorithm. *Multimedia Tools and Applications* (Springer), 2025.
5. **Jamuna S. Murthy**, G. M. Siddesh. A Smart Video Analytical Framework for Sarcasm Detection using Adaptive Fusion and SarcasNet-99. *The Visual Computer* (Springer), 2024.
6. **Jamuna S. Murthy**, G. M. Siddesh, Wen-Cheng Lai, et al. ObjectDetect: A Real-Time Object Detection Framework for Advanced Driver Assistant Systems Using YOLOv5. *Wireless Communications and Mobile Computing* (Wiley), 2022.
7. **Jamuna S. Murthy**, G. M. Siddesh, K. G. Srinivasa. TwitSenti: A Real-Time Twitter Sentiment Analysis and Visualization Framework. *Journal of Information & Knowledge Management*, 2019.
8. **Jamuna S. Murthy**, G. M. Siddesh, K. G. Srinivasa. A Real-Time Twitter Trend Analysis and Visualization Framework. *International Journal on Semantic Web and Information Systems*, 2019.

Conference Papers

9. Abhay Bhandarkar, **Jamuna S. Murthy**, Amogh Kalasapura. CAMMEL-ViT: Context-Aware Memory with Lightweight Vision Transformers for Medical Image Segmentation. *Medical Image Understanding and Analysis (MIUA)*, University College Dublin, 2026.
10. **Jamuna S. Murthy**, Dhanashekar Kandaswamy, Wen-Cheng Lai. Towards Secure Video Surveillance: A Few-Shot Spatiotemporal Perception Transformer for Unseen Behavioral Anomalies. *IEEE International Conference on Advanced Visual and Signal-Based Systems (AVSS)*, Tainan, 2025. CORE A

PATENTS AND FUNDING

Surgeon's Eye: Intelligent Video Analytical Framework for Robotic and Laparoscopic Surgery 2025
Patent application No. 202541008338 · Jamuna S. Murthy, Dhanashekar Kandaswamy, G. M. Siddesh

FitQua: Smart Water Bottle for AI-Based Health Tracking — DST-funded project 2021 – 2022
Thermal control with sensor fusion (temperature, load, activity) for AI-driven hydration monitoring.

ACADEMIC APPOINTMENTS

Assistant Professor, Department of CSE, Ramaiah Institute of Technology, India 2022 – present
- Lab affiliation: Center for Imaging Technologies.
- Faculty sponsor, RIT ACM Student Chapter (2023 – present).

Assistant Professor, Department of ISE, BNM Institute of Technology, India 2020 – 2022
- Head, Google Cloud Center of Excellence.

Assistant Professor, Department of CSE, PES University, India 2018 – 2020
- Lab affiliation: Centre for Data Science & Applied Machine Learning (CDSAML).

Research Assistant, Department of Computational and Data Sciences, Indian Institute of Science, Bengaluru 2017 – 2018

INDUSTRY RESEARCH EXPERIENCE

AI Researcher, Verity Labs Inc. (AI-ACC-Stack), California (remote) Apr 2025 – Sep 2025
- Modular AI backend stack: retrieval-augmented generation, LLM integration, document ingestion, tool-calling agents, structured querying, and deployable AI services.

Faculty Mentor, Samsung PRISM (Samsung R&D), India Jun 2024 – Nov 2025
- Expression Correction in Photos: GAN-based affective computing models for emotion-aware image enhancement.
- NextGen AI Datastore for Video Retrieval (May – Nov 2025, completed): vector database for multimodal video retrieval with vision–language embeddings.

Intern, Amazon Jun 2016 – Jun 2017

ACADEMIC SERVICE

Reviewer
Machine learning: NeurIPS (2026) · AAAI (2025, 2026, 2027) · AISTATS (2026, 2027)
Computer vision: ICCV (2025) · ECCV (2026)
Multimedia: ACM Multimedia (2025, 2026, 2027) · ACM Multimedia Asia (2025, 2026)
Journals: **Gold Reviewer**, Springer Nature (2020 – present) — Scientific Reports · Journal of Big Data · Signal, Image and Video Processing · Discover Informatics · Language Resources and Evaluation · Discover Artificial Intelligence · International Journal of Machine Learning and Cybernetics · Journal of Ambient Intelligence and Humanized Computing · Discover Education · International Journal of Computational Intelligence Systems · The Journal of Supercomputing

Membership
Member, Association for Computing Machinery (ACM), since 2020
Lifetime Member, Indian Society for Technical Education (ISTE)

STUDENT MENTORING

Smart India Hackathon — Winning team, as faculty mentor (Grand Finale, Ministry of Education, Govt. of India) 2023
Unisys Innovation Program — Faculty mentor of finalist teams 2023, 2024, 2025
ICPC — Mentor and coach (incl. ICPC Asia Amritapuri Regional 2024) 2023, 2024, 2025
Samsung PRISM — Faculty mentor for two industry worklets with Samsung R&D 2024 – 2025

HONORS AND AWARDS

Young Researcher Award, STEM Research Society Nov 2024
Smart India Hackathon — Winner (as faculty mentor), Ministry of Education, Government of India Dec 2023
Best Master's Thesis Award, Ramaiah Institute of Technology May 2017
TEQIP-funded Graduate Teaching Assistantship, Ramaiah Institute of Technology 2016 – 2017

TEACHING

Ramaiah Institute of Technology, Department of Computer Science and Engineering (undergraduate courses)
Artificial Intelligence and Machine Learning (CS52) · Object Oriented Programming (CS34) Fall
Cloud Computing and Big Data (CS62) · Introduction to Deep Learning (CSE631) Spring