Mayur Akewar

Ph.D. Student & Research Assistant
Florida International University (Miami, FL, USA)

10899 SW 4th St
Miami, FL 33174
+1 (786) 824 9853
makew001@fiu.edu
Google Scholar
LinkedIn

Research Summary

Develops intelligent, adaptive systems that learn from runtime signals to optimize reliability, performance, and energy in classical computing stacks and in noise aware quantum machine learning workflows. Integrates artificial intelligence, machine learning, optimization, and systems design to deliver actionable controllers that improve reliability, performance, and energy efficiency in classical computing infrastructure and increase the robustness of quantum algorithms under hardware noise.

Education

Aug'24–Present	**Ph.D., Computer Science**, *Florida International University, FL, USA*.
	GPA: 4.0/4.0
Aug'10–June'12	**M.Tech., Computer Science & Engineering**, *RTMNU Nagpur University, MH, India*.
	GPA: 3.67/4.0
July'06–May'10	**B.E., Computer Technology**, *RTMNU Nagpur University, MH, India*.
	GPA: 3.54/4.0

Publications

Accepted / In Press

- **Mayur Akewar**, Sandeep Madireddy, Dongsheng Luo, Janki Bhimani, "SMARTTalk: Teaching SMART Logs to Talk to LLMs", USENIX Symposium on Operating Systems Design and Implementation (OSDI), 2026. *Accepted.*
- ***Mayur Akewar**, Sandeep Madireddy, Dongsheng Luo, Janki Bhimani, "KORAL: Knowledge Graph Guided LLM Reasoning for SSD Operational Analysis", IEEE International Parallel & Distributed Processing Symposium (IPDPS), 2026. Accepted. DOI: 10.48550/arXiv.2602.10246.*
- *Christopher Kverne, **Mayur Akewar**, Yuqian Huo, Tirthak Patel, Janki Bhimani, "WSBD: Freezing-Based Optimizer for Quantum Neural Networks", Annual Conference on Artificial Intelligence and Statistics (AISTATS), 2026. Accepted. DOI: 10.48550/arXiv.2602.11383*
- ***Mayur Akewar**, Gang Quan, Sandeep Madireddy, Janki Bhimani, "Can LLMs Model the Environmental Impact on SSD?", ACM Workshop on Hot Topics in Storage and File Systems (HotStorage), 2025. DOI: 10.1145/3736548.3737835.*
- *Christopher Kverne, **Mayur Akewar**, Yuqian Huo, Tirthak Patel, Janki Bhimani, "Quantum Neural Networks Need Checkpointing", ACM Workshop on Hot Topics in Storage and File Systems (HotStorage), 2025. DOI: 10.1145/3736548.3737834.*
- *Yuqian Huo, Jinbiao Wei, Christopher Kverne, **Mayur Akewar**, Janki Bhimani, Tirthak Patel, "Revisiting Noise-adaptive Transpilation in Quantum Computing: How Much Impact Does it Have?", IEEE/ACM International Conference on Computer-Aided Design, 2025. arXiv:2507.01195.*
- **Mayur Akewar**, *Manoj Chandak, "An Integration of Natural Language and Hyperspectral Imaging: A Review", IEEE Geoscience and Remote Sensing Magazine, 2024. DOI: 10.1109/MGRS.2024.3489613*

Under Review

- **Mayur Akewar**, Christopher Kverne, Yuqian Huo, Tirthak Patel, Janki Bhimani, "CheckRC-Q : Reliable and Lightweight Restart Contracts to Checkpoint Hybrid Quantum-Classical Workflows", USENIX Conference on File and Storage Technologies (FAST), 2027.

- Yuqian Huo, Jason Han, **Mayur Akewar**, Christopher Kverne, Janki Bhimani, Tirthak Patel, "QuMIA: Identifying and Characterizing Membership Inference Attack Vulnerabilities in Quantum Machine Learning", SuperComputing (SC), 2026.

Other Publications / Preprints

- **Mayur Akewar**, Manoj Chandak, "Hyperspectral Imaging Algorithms and Applications: A Review", TechRxiv preprint, 2023. *DOI: 10.36227/techrxiv.24743562.v2*.
- **Mayur Akewar**, "Classification of EEG Signals Utilizing DWT for Feature Extraction and Evolutionary Algorithms for Feature Selection", TechRxiv preprint, 2023. *DOI: 10.36227/techrxiv.24633585.v1*.
- Roshan Kotkondawar, Pushpjit Khaire, **Mayur Akewar**, Y. Patil, "A study of effective load balancing approaches in cloud computing", International Journal of Computer Applications, 2014, *Link*.
- **Mayur Akewar**, Nileshsingh Thakur, "Grid based wireless mobile sensor network deployment with obstacle adaptability", International Journal of Wireless and Mobile Networks, 2012, *Link*.
- **Mayur Akewar**, Nileshsingh Thakur, "A study of wireless mobile sensor network deployment", International Journal of Computer Networks and Wireless Communications, 2012, *Link*.

Skills

- **Programming:** Python, C/C++, SQL
- **AI/ML:** PyTorch, TensorFlow; deep learning (CNN/RNN); generative AI (LLMs, diffusion, prompt engineering); data analysis and visualization
- **Systems:** Storage systems; performance modeling; distributed systems; Linux; Docker; Kubernetes; cloud (AWS, Azure); monitoring and profiling
- **Quantum:** Qiskit, PennyLane; QML (VQC/QNN); VQE, QAOA; noise-aware training; circuit simulation; IBM Quantum, Rigetti

Experience

Aug'24–Present **Florida International University**, Research Assistant, Miami, FL, USA. *Website*.

- Advisor: Dr. Janki Bhimani. Conduct research on intelligent and adaptive systems for classical and quantum computing with a focus on reliability, performance, and energy efficiency.
- Develop and evaluate AI and machine learning methods for predicting failures and performance degradation in storage and computing systems using runtime behavior signals.
- Study noise aware quantum machine learning workflows and robust algorithm behavior under realistic hardware noise and contribute to peer reviewed publications through experiment design and technical writing.

Apr'21–Aug'23 **V2 Solutions (Spherex)**, Principal Development Engineer, Mumbai, India. *Website*.

- Built multimodal deep learning pipelines for text, image, audio, and video analytics, with an emphasis on scalable training and deployment.
- Developed content validation and moderation models using object detection, classification, and clustering; used generative models for data generation and age rating workflows.

- Designed a multimodal system using video, audio, and text signals to flag moderation, and NSFW content using YOLO based vision models with temporal architectures (3D CNN, LSTM).

Apr'19-Apr'21 **V2 Solutions (Spherex)**, Senior Software Engineer, Mumbai, India. *Website*.

- Developed process automation using OCR, image processing, perceptual hashing, and ORB based matching; built data collection, scraping, and feature extraction pipelines.
- Trained and fine tuned text, audio, image, and video classifiers and deployed services on cloud infrastructure.
- Developed a movie recommendation prototype using combined video and text features.

May'15–Jan'19 **Pune University (Sinhgad Institutes)**, Assistant Professor, Pune, India. *Website*.

- Developed course materials, delivered lectures, graded assignments and exams, and mentored student projects.
- Conducted research activities including publishing in journals and presenting at conferences.
- **Subjects:** Machine Learning, Compiler Design, Operating Systems, Web Technologies, Cloud Computing, Data Structures, Discrete Mathematics.

Jan'13–May'15 **Virtual Creativities**, Software Engineer, Nagpur, India.

- Developed web applications for e commerce and other domains using HTML, CSS, JavaScript, PHP, AJAX, and Java Servlet technologies.

Awards & Recognition

2023 Best **Innovative Employee** Award, V2 Solutions (Spherex)

2017 Best **Instructor and Result** Award, Sinhgad Institutes

Teaching

2018 **Cloud Computing**, Sinhgad Institutes, Pune University

2017 **Web Technologies**, Sinhgad Institutes, Pune University

2017 **Machine Learning**, Sinhgad Institutes, Pune University

2016 **Principles of Compiler Design**, Sinhgad Institutes, Pune University

2016 **Operating Systems**, Sinhgad Institutes, Pune University

2015 **Data Structures & Algorithms**, Sinhgad Institutes, Pune University

2010–2011 **Data Structures using C Programming Lab**, RKNEC, Nagpur University

Professional Activities & Service

2023–Present Reviewer, Springer Nature Computer Science

2023–Present Reviewer, Springer Nature Multimedia Tools and Applications