


Chathurangi Shyalika

Ph.D. Student, AI Institute, University of South Carolina
https://chathurangishyalika.github.io/chathurangishyalika_CV/

 1600 Park Circle, Center Apt. 208
Columbia, SC, USA

✉ javakodc@email.sc.edu  [chathurangi-shyalika](https://www.linkedin.com/in/chathurangi-shyalika)  [ChathurangiShyalika](https://github.com/ChathurangiShyalika)  [Chathurangi Shyalika](https://plus.google.com/ChathurangiShyalika)  [\(839\)-399-2285](tel:(839)-399-2285)

EDUCATION

University of South Carolina (Expected Grad. Dec.2026) Columbia, South Carolina, USA
Ph.D. in Computer Science | GPA: 3.8/4.0 August 2022 – Present
Research Interests: Deep learning, Time series analysis, Multimodal AI, Generative AI, Neurosymbolic AI

University of Moratuwa Sri Lanka
M.Sc. in Artificial Intelligence | GPA: 3.59/4.0 2018 – 2021
Dissertation: An Integrated Approach for Uncertainty Scheduling in Adaptive Environments using MARL ([link](#))

General Sir John Kotelawela Defence University Sri Lanka
B.Sc. in Information Technology | GPA: 3.96/4.2 | Batch Top 2014 – 2018
Dissertation: ALLDS: An Image Processing Application for the Diagnosis of Acute Lymphoblastic Leukemia ([link](#))

WORK EXPERIENCE

★ **Incoming Research Intern (Supervisor: [Dr. Dhaval Patel](#))** May 2026 – Aug 2026
IBM Research Yorktown Heights, NY

Design, develop, and deploy high-quality industrial AI agents that align with the vision of advancing agentic AI technologies.

★ **Neuro-symbolic AI Research Intern (Supervisor: [Dr. Cory Henson](#))** May 2025 – Sept 2025
Robert Bosch LLC Pittsburgh, PA

Developed 'CausalPulse', an intelligent multi-agent-based solution for anomaly detection, root cause analysis, and causal reasoning in manufacturing as part of Bosch's next-generation AI solutions. ([Demo](#))

★ **Graduate Research Assistant (Research Advisor: [Dr. Amit Sheth](#))** August 2022 – Present
Artificial Intelligence Institute of South Carolina (AIISC) South Carolina, USA

Projects: 1. **Rare Events and Anomaly Prediction in Smart Manufacturing:** Leading the smart manufacturing project ([link](#)) at AIISC, focusing on implementing supervised learning models, data enrichment techniques, 2D-based prediction, multimodal hybrid fusion techniques, and the "SmartPilot", an industrial co-pilot system for intelligent manufacturing.

2. **Enhancing the Security and Mitigating Bias in Vision Language Models (VLMs) to Combat Hateful Image Generation and Detoxify Hateful Images:** Developing methods for preventing and mitigating toxic and biased content generation in VLMs through DE-HATE techniques ([link](#)).

3. **Causal Event Graph-Guided Language-based Spatiotemporal Question Answering:** Implementation of an ontology and reasoning approach to handle physics-based spatiotemporal reasoning for CLEVRER and CLEVRER-Humans datasets ([link](#)).

★ **Senior Engineer-Big Data and Data Science** August 2019 – July 2022
Mobitel, Sri Lanka Colombo, Sri Lanka

Project: Big Data and Data Science Project: Developed AI-driven solutions for customer churn prediction, broadband tower optimization, customer segmentation, seasonal recommendations, fraud detection, conversational AI, mAdvertising, M2M classification, smartphone recommendation, and predictive analytics for international calling.

★ **Software Engineer-Artificial Intelligence** May 2018 – August 2019
SimCentric Technologies, Sri Lanka Colombo, Sri Lanka

Project: "SmartTrainer"—An Adaptive Framework to Prevent Real-Time Injuries: Smart wearable and Android-based application for human activity recognition and alerting to prevent real-time injuries ([link](#)).

★ **Software Engineer Intern** July 2017 – December 2017
WSO2 Colombo, Sri Lanka

Project: XACML Development Tool: Developed a tool compliant with XACML 3.0 specifications and provide a UI-based approach for creating and evaluating fine-grained access control policies ([link](#)).

Selected Journal Publications

- A Comprehensive Survey on Rare Event Prediction. [ACM Computing Surveys] [\[paper\]](#)
- RI2AP: Robust and Interpretable 2D Anomaly Prediction in Assembly Pipelines [Sensors] [\[paper\]](#)
- Evaluating the Role of Data Enrichment Approaches Towards Rare Event Analysis in Manufacturing. [Sensors][\[paper\]](#).

Selected Conference Publications

- IndustryAssetEQA: A Neurosymbolic Operational Intelligence System for Embodied Question Answering in Industrial Asset Maintenance [ACL 2026]
- Where Should Knowledge Enter? A Layered Framework for Knowledge Infusion in Multimodal Iterative Generative Models [In review CVPR 2026]
- CausalPulse: An Industrial-Grade Neurosymbolic Multi-Agent Copilot for Causal Diagnostics in Smart Manufacturing [AAAI-MAKE 2026]
- CausalTrace: A Neurosymbolic Causal Analysis Agent for Smart Manufacturing [AAAI-IAAI 2026]
- DETONATE: A Benchmark for Text-to-Image Alignment and Kernelized Direct Preference Optimization [AAAI 2026]
- CausalPulse: Agentic Copilot for Root Cause Analysis in Smart Manufacturing [AAAI-Demo 2026]
- AssetOpsBench-Live: Privacy-Aware Online Evaluation of Multi-Agent Performance in Industrial Operations [AAAI-Demo 2026]
- In-Situ Eval: A Modular Framework for Custom and Real-Time RAG Benchmarking [AAAI-Demo 2026]
- NSF-MAP: Neurosymbolic Multimodal Hybrid Fusion for Robust and Interpretable Anomaly Prediction in Assembly Pipelines. [IJCAI 2025][\[paper\]](#)
- SmartPilot: Agent-Based CoPilot for Intelligent Manufacturing. [IEEE CAI 2025][\[paper\]](#)
- SmartPilot: Agent-Based CoPilot for Intelligent Manufacturing. [AAMAS 2025] [\[paper\]](#)
- Time Series Foundational Models: Their Role in Anomaly Detection and Prediction. [AAAI 2025][\[paper\]](#)
- Towards Rare Event and Anomaly Prediction in Manufacturing: Bridging Methodological Gaps in Industrial Applications. [NeurIPS 2024] [\[paper\]](#)
- Pic2Prep: A Multimodal Conversational Agent for Cooking Assistance, [AAAI Demo 2025] [\[paper\]](#)
- AssemAI: Interpretable Image-Based Anomaly Detection for Manufacturing Pipelines.[ICMLA 2024] [\[paper\]](#)
- Causal Event Graph-Guided Language-based Spatiotemporal Question Answering. [AAAI-Make 2024] [\[paper\]](#)

TUTORIALS AND ENGAGEMENTS

- AAI 2026, **From Inception to Productization: Hands-on Lab for the Lifecycle of Multimodal Agentic AI in Industry 4.0**, https://ibm.github.io/AssetOpsBench/aaai_website/ [Collaboration with IBM]
- AAI 2025, **Developing explainable multimodal AI models with hands-on lab on the life-cycle of rare event prediction in manufacturing**, <https://aiisc.ai/aaai25/AAAI-Lab-Rare-Event-Prediction/>
- AAMAS 2025, **Multiagent CoPilot in Industrial AI Applications**, [https://aiisc.ai/tutorials/AAMAS Tutorial Multiagent CoPilot in Industrial AI Applications/](https://aiisc.ai/tutorials/AAMAS_Tutorial_Multiagent_CoPilot_in_Industrial_AI_Applications/)
- **CODS 2025 Agentic AI Challenge**, Co-organizer with IBM, <https://ikdd.acm.org/cods-2025/data-challenge.php>
- **AssetOpsBench-Live**: <https://www.codabench.org/competitions/10206/> [Collaboration with IBM]

TECHNICAL SKILLS

Languages -Python, Java SE, Java EE, React, C, C#, Node JS, PHP. ASP.NET

Big Data Frameworks- Hadoop, Spark, Hive, MapReduce

ETL Tools- Informatica, PowerCenter

Ontology Development Frameworks- Protege, Neo4J

Database - MYSQL, MSSQL

ML Frameworks - Tensorflow, Keras, PyTorch

ACHIEVEMENTS AND AWARDS

- Best Paper Award at IEEE-CAI 2025: Paper: “SmartPilot: Agent-Based CoPilot for Intelligent Manufacturing” ([link](#))
- Best Poster Award at DiscoverUSC 2024 Conference: Research poster on “RI2AP: Robust and Interpretable 2D Anomaly Prediction in Assembly Pipelines.” ([link](#))
- Gold Medal for the Best Overall Performance in B.Sc. (Hons) Information Technology, KDU, Sri Lanka [2018] and Vice Chancellor’s List - KDU, Sri Lanka [2014- 2017]
- Hackathons: KDU_FOC[2016] 2nd place, HackX (2016), BeThemChallenge (2017), SimCtHackNight(2019)