

CS Student Research Symposium
ERIC Center for Research and Innovation (201-203)
Friday, March 27, 9:30am – 3:30 pm

Program Overview

Time	Session	Title / Activity	Speaker(s)
09:45 – 10:00	Opening	Welcome Remarks, Keynote setup	Organizers
10:00 – 11:00	Keynote	Keynote Talk <i>Practical LLM Patterns for Domain-Specific NLP: From Prompting to Agentic Workflows</i>	Dr. Nobal Niraula Technical Fellow, Boeing AI
11:00 – 11:15	Break	Coffee Break	
11:15 – 12:15	Poster Session	Posters & Discussion	Multiple Participants
12:15 – 13:00	Lunch	Lunch Break	
13:00 – 14:00	Oral Session 1	Research Presentations	Multiple Participants
14:00 – 14:15	Break		
14:15 – 14:55	Oral Session 2	Research Presentations	Multiple Participants
14:55 – 15:30	Prize Announcements		

Detailed Program

Keynote Speaker

Nobal Niraula, PhD (UM'2015)

Technical Fellow, Boeing AI

Practical LLM Patterns for Domain-Specific NLP: From Prompting to Agentic Workflows

10:00 am – 11:00 am

Abstract

While foundation Large Language Models (LLMs) are versatile, general-purpose tools, their transition to specialized domains is often hindered by limited domain expertise. This talk outlines a practical roadmap for adapting foundation LLMs to domain-specific NLP tasks. It begins with prompting techniques, few-shot example design, and label-constrained generation. It then covers Retrieval-Augmented Generation (RAG) as a grounding approach, focusing on document chunking, indexing, query formulation, reranking, and citation patterns. Finally, it discusses when fine-tuning is justified and how to do it efficiently. The talk concludes with a brief perspective on agentic workflows as an orchestration layer for tool use and verification built on top of these core techniques.



Dr. Nobal Niraula is a Technical Fellow in Boeing Artificial Intelligence and a recognized expert in Natural Language Processing (NLP), Machine Learning (ML), and conversational systems. His impact is evidenced by a strong record of research publications, patents, and best paper awards. With 20 years of AI research and development experience, Nobal has developed and deployed advanced AI/ML solutions to solve aerospace challenges at Boeing. He holds patents from his work across Boeing Research & Technology, Microsoft Research, AT&T Labs Research, and French national labs INRIA and CNRS. Nobal earned a Ph.D. in AI from the University of Memphis, master's degrees in computer networks from the Asian Institute of Technology (Thailand) and Telecom SudParis (France), and a B.E. in Computer Engineering from Tribhuvan University (Nepal); outside of work, he co-founded Algoscool, a coding school for kids.

Oral Talks

Hema Siva Gayathri (13:00 – 13:15)

Advisor: Dr. Max Garzon

Organismic Encoding of Geographic Information in DNA

Jiacheng Ding (13:15 – 13:30)

Advisor: Dr. Xiaofei Zhang

FlashGraph: A Zero-Index, Hardware-Conscious Temporal Graph Engine via Virtual Memory Mapping

Md Nahidul Islam (13:30 – 13:45)

Advisor: Dr. Myounggyu Won

BucketKD: A Safety-Aware Bucket-Based Knowledge Distillation Framework for End-to-End Motion Planning

Asad Uzzaman (13:45 – 14:00)

Advisor: Dr. Deepak Venugopal

Understanding and Modeling Math Strategy Use in Intelligent Tutoring Systems

Bidhya Shrestha (14:15 – 14:35)

Advisor: Dr. Christos Papadopoulos

Baseline Performance and Noise Robustness of GRU, LSTM, and Transformer Encoder Models in Automotive Time-Series Data

Priyanka Chilakalapudi (14:35 – 14:55)

Advisor: Dr. Christos Papadopoulos

When Timestamps Matter: ML-Driven DDoS Detection with Corrected IDS Labels

POSTERS

Mithun Saha

Advisor: Dr. Santosh Kumar

TONE-Net: A Skin-Tone Agnostic Multi-Wavelength PPG Foundation Model for Amplitude Sensitive Downstream Tasks and Field Conditions

Israt Naiyer

Advisor: Dr. Brandon Booth

Uncovering Motivational Trajectories in Digital Learning Environments

Shaeekh Al Jahan

Advisor: Dr. Brandon Booth

Towards Automating After Action Review for Tactical Teams: A Multimodal Approach Utilizing Audio, Logs and Game Recordings

Sajal Das Shovon

Advisor: Dr. Santosh Kumar

Toward Real-World Detection of Pain Flares in Sickle Cell Disease Patients Using Wearable Physiological Signals

Sudarshan Balaji, Madan Tammaneni

Advisor: Dr. Dipankar Dasgupta

Clinical Error Amplification: Adversarial Propagation in Chest X-ray CNN-LLM Pipelines

Cong Guo

Advisor: Dr. Amy Cook

Probing Novice Programmers' Everyday Interests to Inform Context-Personalized Programming Examples

Nicholas Redmond

Advisor: Dr. Dipankar Dasgupta

A Benchmark Study of RF Anomaly Detection Models on NVIDIA Jetson Orin Nano

Undergraduate Posters

Miguel Martin, Juan Sebastian

A Hybrid Spam Detection System for Short Text Messages

Gabriel Wright

Nico: Memorizing Behavior