NEELKAMAL BHUYAN Ph.D. Candidate

(+1) 470-430-9469
nbhuyan3@gatech.edu
linkedin.com/in/neelkamal-bhuyan/

AWARDS AND HONORS

- Ed Iacobucci Research Excellence Award in Applied Probability — 2025-26
- Nokia Bell Labs Outstanding Innovation Award — Summer '25
- Shabbir Ahmed Research Excellence Award in Optimization — 2024-25
- Alice & John Jarvis Best Paper Award (2nd place) — 2023-24
- Georgia Tech Algorithms & Randomness Center Fellowship — Spring '24
- Georgia Tech Thomas H. Johnson Fellowship — 2022-23

PATENTS

1. **Bhuyan, N.**, Bhatia, R., Lakshman TV, "Img2Topology: An Automated Network Image Translator", *Patent Pending, United States Patent and Trademark Office*

PUBLICATIONS AND PREPRINTS

1. **Bhuyan, N.**, Bhatia, R., Kodialam, M., Lakshman TV., "Exploiting Spot Instances for Time-Critical Cloud Workloads Using Optimal Randomized Strategies", ACCEPTED in *IEEE INFOCOM 2026*

2. **Bhuyan, N.**, Bhatia, R., Kodialam, M., Lakshman TV., "Opportunistic Scheduling for Optimal Spot Instance Savings in the Cloud", ACCEPTED in *IEEE INFOCOM 2026*

3. **Bhuyan, N.**, Bhatia, R., Kodialam, M., Lakshman TV, "PoLAR: Pareto-optimal Learning Augmented Robustness for Scheduling on Preemptimble Cloud VMs", submitted to *IEEE ICC 2026*

4. **Bhuyan, N.**, Mukherjee, D., Wierman, A., "SCaLE: Switching Cost aware Learning and Exploration", submitted to *AISTATS 2026*.

5. **Bhuyan, N.**, Mukherjee, D., Wierman, A, "Estimate to Decide: Matrix Completion driven Smoothed Online Quadratic Optimization", *2025 NeurIPS ML×OR* (link)

6. **Bhuyan, N.**, Bhatia, R., Kodialam, M., Lakshman, T.V. "Optimizing Spot Instance Savings in the Cloud for Heterogeneous Demand through Priority Scheduling", 2025 IEEE HPSR (pp. 1-6) (link)

7. **Bhuyan, N.**, Mukherjee, D., Wierman, A., "Multi-Agent Online Optimization with Spatio-Temporal Alignment", submitted to *ACM SIGMETRICS 2026* (pre-print link)

8. **Bhuyan, N.**, Mukherjee, D. and Wierman, A. "Best of Both Worlds Guarantees for Smoothed Online Quadratic Optimization", 41st ICML 2024, Vienna, Austria (link)

9. **Bhuyan, N.**, Moharir, S., Joshi, G., "Multi-Model Federated Learning with Provable Guarantees", *15th EAI VALUETOOLS 2022*.(link)

10. **Bhuyan N.** and Moharir S., "Multi-Model Federated Learning", *14th International Conference on COMmunication Systems & NETworkS (COMSNETS)*, 2022 (link)

RESEARCH INTERNSHIPS

Agentic AI Intern | Nokia Bell Labs, NJ, USA — Summer '25
- Designed a Vision Language Model (VLM) for reasoning network topology images.
- Entire pipeline with a novel dataset generator and a new JSON file comparator.

Networks Research Intern | Nokia Bell Labs, NJ, USA — Summer '24
- Designed scalable algorithms for cost-optimal scheduling on cloud spot VMs
- Used queuing and optimization theory to handle service availability issues

EDUCATION

Georgia Institute of Technology — Atlanta, GA, USA
Ph.D. in Machine Learning with minor in Mathematics — Fall '22 - Summer '26
- GPA: 4.00/4.00
- Advisor: Dr. Debankur Mukherjee
- Proposal: Movement-Aware Efficient Algorithms for Sequential Decision Making

Indian Institute of Technology Bombay   Mumbai, India

B.S. in Electrical Engineering   Fall '18 - Summer '22

- GPA: 3.83.00/4.00
- Advisor: Dr. Sharayu Moharir
- Thesis: Multi-Model Federated Learning using Efficient Edge-device Allocation

OTHER INTERNSHIPS

Aalborg University | Aalborg, Denmark   Summer '21

- Developed a python framework to generate synthetic video streaming traffic in Dynamic Adaptive Streaming over HTTP
- Used GANs to parse statistical and temporal relationships of network traffic

Michigan State University | East Lansing, MI, USA   Summer '20

- Developed a python framework for collecting simulated driving data, under various traffic and weather conditions, in CARLA and ANSYS simulators
- Used PointPillar encoders in 3D object detection.

SKILLS

ML Frameworks: PyTorch, TensorFlow, JAX, Scikit Learn.

Programming: Python, C++, MATLABB, Java.

Tools: NS-3, WireShark, ANSYS, AutoCAD

ACADEMIC SERVICES

Graduate Teaching Assistant

School of Industrial and Systems Engg., Georgia Tech   Fall '22, Spring'23, Fall '25

Graduate Research Mentor

School of Industrial and Systems Engg., Georgia Tech   Spring '25

AP-Stat Competition Organizer

School of Industrial and Systems Engg., Georgia Tech   Spring '24

Undergraduate Teaching Assistant

Dept. of Mechanical Engg., IIT Bombay   Fall '19

INVITED TALKS

Communication Efficient Decentralization for Smoothed Online Convex Optimization

2025 INFORMS Applied Probability Society Conference   Atlanta, GA, USA

Cloud Spot Instance Savings for Heterogeneous Demand through Priority Scheduling

2025 IEEE Intl. Conference on High Performance Switching and Routing   Osaka, Japan

Best of Both Worlds Guarantees for Smoothed Online Convex Optimization

2024 INFORMS Annual Meeting   Seattle, WA, USA

Multi-Model Federated Learning with Provable Guarantees

2022 EAI International Conference VALUETOOLS   Virtual

Multi-Model Federated Learning

2021 Intl. Conference on COMmunication Systems & NETworkS   Bengaluru, India