

EDUCATION

Georgia Institute of Technology

Ph.D. in Computer Science

Atlanta, GA

Aug 2021 – Present

- **Advisor:** Prof. Srijan Kumar, Assistant Professor, CSE

Indian Institute of Technology, Delhi

Bachelor of Technology in Computer Science and Engineering. GPA: 9.0/10.0

New Delhi, India

Jul 2017 – May 2021

- **Advisor:** Prof. Sayan Ranu, Associate Professor, CSE
- **UG Thesis topic:** Adversarial attacks on Graph Neural Networks

RESEARCH INTERESTS

Graph Neural Networks, Representation Learning, Robustness, Dynamic Graphs, Optimization

PUBLICATIONS & PREPRINTS

- Imperceptible Adversarial Attacks on Discrete-Time Dynamic Graph Models. **Kartik Sharma**, Rakshit Trivedi, Rohit Sridhar, Srijan Kumar. *Temporal Graph Learning (TGL) Workshop, NeurIPS, 2022*
- Signed Link Representation in Continuous-Time Dynamic Signed Networks. Mohit Raghavendra*, **Kartik Sharma***, Yeon Chang Lee, Anand Kumar M, Srijan Kumar. *Under review*
- Task and Model Agnostic Adversarial Attack on Graph Neural Networks. **Kartik Sharma**, Samidha Verma, Sourav Medya, Sayan Ranu, and Arnab Bhattacharya. *AAAI Conference on Artificial Intelligence, 2023*
- Balance maximization in Signed Networks via Edge Deletions. **Kartik Sharma**, Iqra Altaf Gillani, Sourav Medya, Sayan Ranu, Amitabha Bagchi. *Web Search and Data Mining Conference (WSDM), 2021*
- Clause Final Verb Prediction in Hindi: Evidence for Noisy Channel Model of Communication. **Kartik Sharma**, Niyati Bafna, Samar Husain. *Cognitive Modeling & Computational Linguistics (CMCL), 2021*
- What determines the order of verbal dependents in Hindi ? Effects of efficiency in production & comprehension. **Kartik Sharma**, Richard Futrell, Samar Husain. *Cognitive Modeling & Computational Linguistics (CMCL), 2020*
- Can Greenbergian universals be induced from language networks ? **Kartik Sharma**, Kaivalya Swami, Aditya Shete, Samar Husain. *Treebanks and Linguistic Theories (TLT), 2019*

WORK EXPERIENCE

Tensor Dynamics Pvt. Ltd.

Co-Founder

New Delhi, India

Sep 2018 – Jul 2021

- Developed initial code-base for a green-tech startup to provide reliable solar energy forecasts
- Forecasting models deployed by Load Dispatch Centre to monitor over 20 solar stations across India

PROJECTS

Invariance in Discrete-Time Dynamic Graph Representation

Ongoing

- Establish rules for how the learned embeddings must change with changes in the graph sequence.
- Propose order-preserving representation such that embeddings are ordered if corresponding inputs are ordered.

Diffusion models for Constrained Graph Generation

Ongoing

- Show that choosing a certain diffusion timestep satisfies certain constraints in the original and recovered input.
- Explore other ways of satisfying constraints to solve network design, including a novel Projected Diffusion.

HONORS & AWARDS

- **Suresh Chandra Memorial Trust Award:** Best undergraduate thesis in CSE, IIT Delhi
- **Summer Undergraduate Research Award:** For credible research in summers 2019, IIT Delhi
- **Semester Merit Award:** Awarded in 2017 by IIT-Delhi
- **All India Rank 197:** Joint Entrance Examination-Advanced among 100k qualified candidates
- **All India Rank 250:** Joint Entrance Examination-Mains among million candidates

ACTIVITIES & VOLUNTEERING

- **PC Member/Reviewer:** TGL@Neurips 2022, ECML PKDD 2022, ACM SIGKDD 2022 (external)
- **Teaching Assistant, I-STEM:** for visually-impaired students in an online Data Structures course

SKILLS

Languages: Python, C++, OCaml, R, Java, MATLAB, VHDL, ARM, JavaScript

Libraries: TorchGeometric, TorchGeometricTemporal, Tensorflow, Pytorch, Sklearn, Scipy, Numpy, Pandas