Curriculum Vitae–Khulbe

Personal Information

- **Name**: Devashish Khulbe **Website**: devashishkhulbe.xyz
- **Email**: devashishk96@gmail.com **Google Scholar**: profile

- **Research Interests**: Graph Representation Learning, Applied Network Science, Urban Informatics, ML for Urban Systems

Education

New York University New York, NY
Master of Science in Applied Urban Science and Informatics *Aug 2018 - Sep 2019*

Delhi Technological University New Delhi, India
Bachelor of Engineering in Electrical Engineering *Aug 2014 - Aug 2018*

Experience

Thales Group Paris, France
Research Internship - Thales Research and Technology (TRT) *Jan 2025 - May 2025*

- **Semantic informed and Interpretable Deep Learning for Ontology-based datasets**: At Thales R&D facility, I worked on conceptualization and development of Graph Neural Network models for ontology-based data modeling, while also developing methods to uncover interpretability in model's predictions.

Masaryk University Brno, Czech Republic
Researcher - Digital City Lab at the Faculty of Science *Sept 2022 - present*

- **Research Focus (advisor: Dr. Stanislav Sobolevsky)**:
  - Research on applied machine learning models on urban networks at the Department of Mathematics and Statistics
  - Primary focus is on using Graph Neural Networks (GNN) for applications in modeling complex networks. Past involved applications of probabilistic simulation models in urban science.

Center for Urban Science + Progress (CUSP), NYU New York, NY
Research Assistant - Urban Complexity Lab and Machine Learning for Good Lab *Jan 2019 - Dec 2019 & Mar 2020 - Aug 2022*

- **Research Focus**: Worked on developing machine learning methods for urban applications with Dr. Stanislav Sobolevsky and Dr. Daniel B. Neill as advisors at CUSP.
  - Worked on data driven research problems involving road safety analyses, urban mobility, and causal inference which incorporated variety of urban data sets and machine learning algorithms.
  - Closely worked on projects with Courant Institute of Mathematical Sciences, Center for Urban Science+Progress and NYU Wagner on building custom data sets using various APIs.

McDevitt Lab, NYU Langone New York, NY
Research Associate *Jan 2020 - Aug 2020*

- **ML based trauma fatality detection**: Worked under Dr. John McDevitt in identifying critical trauma based bio-markers through data driven pattern recognition and developed machine learning models for fatality prediction on National Trauma Bank Data.

Teaching

Center for Urban Science + Progress (CUSP), NYU New York, NY

Adjunct Instructor *2020 – 2022*

- Principles of Urban Informatics
- Applied Data Science

Research Publications (Preprints and Published)

- **Khulbe, D.** & Laudy, C. (2025). Semantic Informed and Interpretable Graph Neural Networks for Ontology based data *(working paper with Thales)*.
- **Khulbe, D.** & Sobolevsky, S., 2025. Urban delineation through the lens of commute networks: Leveraging graph embeddings to distinguish socioeconomic groups in cities. *arXiv preprint arXiv:2507.11057*.
- **Khulbe, D.**, Belyi, A. and Sobolevsky, S., 2025. Commute Networks as a Signature of Urban Socioeconomic Performance: Evaluating Mobility Structures with Deep Learning Models. *Smart Cities 2025, 8(4), 125*
- He, M., Bogomolov, Y., **Khulbe, D.**, & Sobolevsky, S. (2023). Distance deterrence comparison in urban commute among different socioeconomic groups: A normalized linear piece-wise gravity model. *Journal of Transport Geography, 113, 103732*.
- **Khulbe, D.**, Kang, C., Ukkusuri, S., & Sobolevsky, S. (2023). A probabilistic simulation framework to assess the impacts of ridesharing and congestion charging in New York city. *Data Science for Transportation, 5(2), 8*.
- **Khulbe, D.**, Belyi, A., Mikeš, O., & Sobolevsky, S. (2023). Mobility networks as a predictor of socioeconomic status in urban systems. *International Conference on Computational Science and Its Applications (pp. 453-461)*.
- Bogomolov, Y., He, M., **Khulbe, D.**, & Sobolevsky, S. (2021). Impact of income on urban commute across major cities in US. *Procedia Computer Science, 193, 325-332*.
- Sourav, S., **Khulbe, D.**, & Verma, V. (2019). Modeling Severe Traffic Accidents with Spatial and Temporal Features. *Neural Information Processing: 26th International Conference, ICONIP 2019, Sydney, NSW, Australia, December 12–15, 2019, Proceedings, Part II 26 (pp. 528-535)*.

Working Projects

- **Investigating transferability of deep learning based network embeddings**: This project seeks to build robust and transferable representations (embeddings) of networks, and further evaluating the network embeddings for real-world use cases.