Vinayak Gupta

CONTACT INFORMATION	#369, Bill Gates Center for Computer Science, University of Washington, Seattle, 98195, WA	🌐 gvinayak.github.io ✉ guptavinayak51@gmail.com

INTERESTS **Language Models for Sequential Data:** Multi-Modal Time-Series and Recommender Systems.

WORK EXPERIENCE

University of Washington — Apr. 2023 – Present
Postdoctoral Researcher
Leveraging large-language models to analyze diverse medical data, including time-series and text.

IBM Research — Aug. 2022 – Mar. 2023
AI Research Scientist
Within the Data & AI team, I designed language models for automated business intelligence tasks.

Amazon — Jan. 2022 – Jun. 2022
Applied Scientist-II Intern
Created time-sensitive coupon distribution methods for customers with the Amazon Pay ML team.

Indian Institute of Technology — Jul. 2017 – Jan. 2022
Research Scholar
Designed temporal recommender systems, addressing challenges posed by missing or scarce data.

Siemens Healthcare — May 2016 – Jan. 2017
Research Intern
Developed computer vision models to improve the radiography imaging quality in Multimobil 5C.

EDUCATION

Indian Institute of Technology (IIT) Delhi — 2017 – 2022
Ph.D. in Machine Learning.

Indian Institute of Information Technology (IIIT) Jabalpur — 2013 – 2017
B.Tech. in Computer Science.

HONORS AND AWARDS

IIT Delhi's Nominee for ACM SIGKDD and ACM India Doctoral Dissertation Awards.	2023
NASSCOM AI Game-Changers of India: Runner-Up in ML Fundamentals Category.	2022
Expert Talk at IndiaAI: Organized by NASSCOM and Ministry of IT – Govt. of India.	2022
Microsoft and Google (Declined) Travel Grant to attend ACM SIGKDD.	2022
Outstanding Doctoral Paper Award: The First Intl. Conference on AI-ML Systems.	2021
ACM SIGIR Student Grant for CIKM.	2021
All India 9th Rank in ABU Asia-Pacific Robocon.	2015
Project selected for 'Make In India' – Govt. of India's Flagship Manufacturing Initiative.	2015

ONGOING PROJECTS

M. Merill, **V. Gupta**, T. Hartvigsen, and T. Althoff. *On Evaluating Multi-Domain Time Series Understanding in Language Models.* 2024.

R. Sharma, **V. Gupta**, and D. Grossman. *Defending LLMs Against Injection Attacks.* 2024.

SELECTED PUBLICATIONS

V. Gupta and S. Bedathur. *Tapestry of Time and Actions: Modeling Human Activity Sequences using Temporal Point Process Flows.* (**ACM TIST**). 2023.

V. Gupta, S. Bedathur, and A. De. *Learning Temporal Point Processes for Efficient Retrieval of Continuous Time Event Sequences.* AAAI Conference on Artificial Intelligence (**AAAI**). 2022.

V. Gupta and S. Bedathur. *ProActive: Self-Attentive Temporal Point Process Flows for Activity Sequences.* ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**). 2022.

V. Gupta, S. Bedathur, S. Bhattacharya, and A. De. *Modeling Continuous Time Sequences with Intermittent Observations using Marked Temporal Point Processes.* ACM Transactions on Intelligent Systems and Technology (**ACM TIST**). 2022.

V. Gupta and S. Bedathur. *Doing More with Less: Overcoming Data Scarcity for POI Recommendation via Cross-Region Transfer.* ACM Transactions on Intelligent Systems and Technology (**ACM TIST**). 2022.

V. Gupta, S. Bedathur, S. Bhattacharya, and A. De. *Learning Temporal Point Processes with Intermittent Observations.* Conference on Artificial Intelligence and Statistics (**AISTATS**). 2021.

V. Gupta and S. Bedathur. *Region Invariant Normalizing Flows for Mobility Transfer.* ACM Conference on Information and Knowledge Management (**CIKM**). 2021.

A. Likhyani*, **V. Gupta***, P. K. Srijith, P. Deepak, and S. Bedathur. *Modeling Implicit Communities from Geo-tagged Event Traces using Spatio-Temporal Point Processes.* Conference on Web Information Systems Engineering (**WISE**). 2020.

GRANTS	**Microsoft Accelerate Foundation Models Research Program** *Enabling Large Language Models to Reason about Time Series.* Principal Investigator(s): Tom Hartvigsen and Tim Althoff.
MEDIA COVERAGE	**AI Experts at IndiaAI**: Initiative by Ministry of IT, Govt. of India. *Oct 25, 2022.* *Talk: "Read and Watch Lectures to Build a Foundation".*

SELECTED TALKS

"Modeling Time Series for Recommendation and Other Applications"
- Georgia Institute of Technology, Atlanta. — Oct. 2022
- University of Michigan, Ann Arbor. — Oct. 2022
- University of California, San Diego. — Sep. 2022
- University of Notre Dame, Indiana. — Sep. 2022
- IBM India Research Lab, Bangalore. — Jun. 2022
- Technical University of Munich, Germany. — Jun. 2022

"Large Scale Retrieval of Continuous-Temporal Sequences"
- NASSCOM AI Game-Changers of India Ceremony. — Jun. 2022
- Amazon Research Days. — Dec. 2021

"Learning Neural Models for Temporal Sequences with Missing Events"
- ACM India Research and Careers for Students Symposium. [🏆 Oral] — Feb. 2022
- Doctoral Symposium: Conference on AI-ML Systems. [🏆 Outstanding Paper Award] — Nov. 2021
- MIT-IBM Watson Research Lab, Boston. — Sep. 2021

"Maxima: Electronic Mask for Patients with Exercise-Induced Asthma"
- Siemens Innovation Research Lab Exhibition at Erlangen, Germany. — Jul. 2016
- Make-In-India Quality Improvement Programme (QIP). — Dec. 2015

REVIEWER	AAAI 2022-24, IJCAI 2022-2024, SIGIR 2022, WSDM 2022, WebConf 2022, CODS-COMAD 2023-24, ACM TOIS, IEEE TPAMI, Connection Science, and Workshops – ICML 2022 and CIKM 2022.

SKILLS
- **Proficient**: Python, Pytorch, Tensorflow, HuggingFace, Azure, and IBM Cloud.
- **Intermediate**: Keras, C++, MATLAB, PySpark, and AWS.

TEACHING EXPERIENCE
- **Graduate Instructor**: Information Retrieval, Machine Learning, Data Mining, Data Structures, Computer Networks, and Intro. to Programming.
- **Grader**: Reinforcement Learning, Deep Learning, Computer Architecture, Network Security, Software Engineering, and Applied Game Theory.

OTHER ACTIVITIES
- System administrator of four high-performance GPU servers at IIT Delhi (2018-2022).
- Member of the Ph.D./M.S. Graduate Admissions Committee for Fall 2020 and Spring 2021.

REFERENCES

Tim Althoff	**Srikanta Bedathur**	**Abir De**
Postdoc Supervisor	Ph.D. Supervisor	Collaborator
Univ. of Washington	IIT Delhi	IIT Bombay
althoff@cs.washington.edu	srikanta@cse.iitd.ac.in	abir@cse.iitb.ac.in