

Suchismit Mahapatra

RESEARCH SCIENTIST · (MACHINE LEARNING | DEEP LEARNING)

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About Me

I am a Research Scientist with Amobee, applying different Machine/Deep Learning and NLP techniques to solve related problems. I completed my PhD with the [Machine Learning & Data Science Research](#) group at [University of Buffalo](#). I have 8+ years of research and 5 years of developer experience during which I have been exposed and worked on a variety of problems.

Research Interests

My research focuses on designing and implementing novel algorithms which enable large-scale learning and includes :

- Machine/Deep Learning
- Natural Language Processing (NLP)
- Deep Graph/Geometric Learning
- Nonlinear/Distributed Optimization

Academic Background

University of Buffalo, The State University of New York

PH.D. IN COMPUTER SCIENCE

Buffalo, NY

April 2012 - June 2018

- Topic: Scalable Nonlinear Spectral Dimensionality Reduction methods for streaming data. 📄📄📄
- Advisors: [Varun Chandola](#), [Nils Napp](#) & [Jaroslav Zola](#) | GPA: 4.0 out of 4.0 ([Transcript](#))

University of Buffalo, The State University of New York

M.S. IN COMPUTER SCIENCE

Buffalo, NY

September 2010 - June 2012

- Topic: A Cold Start Recommendation System Using Item Correlation and User Similarity. 📄
- Advisor: [Rohini Srihari](#) | GPA: 4.0 out of 4.0 | Department rank: 1 out of 555 ([Transcript](#))

National Institute of Technology, Rourkela

B.TECH. IN COMPUTER SCIENCE

Rourkela, India

August 2001 - May 2005

- Specialization: Discrete Mathematics and Algorithms
- Cumulative Score: 77% (First class with Honors)([Transcript](#)) | Joint Entrance Exam Rank 22 out of 400,000

Honors

2021	Became a reviewer for EMNLP 2021 , ACL 2021 and NeurIPS 2021	Sunnyvale, CA
2020	Became a reviewer for ICML 2021 and ICLR 2021 .	Sunnyvale, CA
2020	Was invited to and attended the prestigious Theory of Reinforcement Learning program.	Berkeley, CA
2019	Became a reviewer for ICML 2020 .	Palo Alto, CA
2019	Was invited to and attended the prestigious Foundations of Deep Learning program.	Berkeley, CA
2017	Won a NSF Junior Researcher Award to attend CBMS Conference on Sparse Recovery .	Las Cruces, NM
2016	Became a NVIDIA GPU Educator .	Santa Clara, CA
2015	Won a NSF Student Travel Award to attend IEEE Big Data 2015 .	Santa Clara, CA
2013	Won a rare Research Assistant-ship covering my second year as a Masters student.	Buffalo, NY

Skills & Proficiencies

Python | PyTorch | TensorFlow | Keras | C/C++ | Apache MapReduce | Scala | CUDA | Hive

Research Experience

Amobee Research

SCIENTIST I

Redwood City, CA

March 2020 - Present


- Developed a novel bidding strategy based on Win Price (WP) estimation
 - Developed and productionized a novel bidding strategy using nonlinear ML based approaches for estimating WP.
- Built a Factorization Machine (FM/FFM) based ML pipeline for usage in production
 - Led efforts to build a FM/FFM based ML pipeline using a novel sparse matrix formulation that can handle high modality features.
- Incorporating user embeddings into existing ML/DL models to improve performance
 - Trained BERT/GAN based generative models to construct user embeddings for usage by our existing models.

Criteo Research

RESEARCH SCIENTIST

Palo Alto R&D Center, CA

July 2018 - December 2019

- Improve Click-through and Sales prediction
 - Enhanced existing production Click-through and Sales prediction pipeline using nonlinear ML techniques. Improved stability of our new models significantly from +50% to +5%. A/B test using new models resulted in +3-6% uplift in long-term REX on all platforms.
- Theoretical aspects of Deep Learning (working with [Noureddine El Karoui](#))
 - Working towards understanding kernel and manifold specific aspects of theoretical deep learning.
- Resolving the posterior-collapse issue in Seq2Seq learning
 - Developed a quantization based approach towards resolving the posterior-collapse issue. 

The Research Foundation for SUNY

RESEARCH ASSISTANT

Buffalo, NY

January 2018 - May 2018

- Kernel Manifold Learning (worked with [Varun Chandola](#))
 - Developed novel Manifold Learning techniques motivated from Gaussian Processes. 

Criteo Research

RESEARCH SCIENTIST INTERN

Palo Alto R&D Center, CA

May 2017 - December 2017




- Cross-domain Query-Product (QP) modeling (worked with [Suju Rajan](#))
 - Developed a robust QP model across retailer domains via Domain Adaptation and Optimal Transport based approaches. 

The Research Foundation for SUNY

RESEARCH ASSISTANT

Buffalo, NY

January 2017 - May 2017



- Representation learning via DL/NLSDR methods (worked with [Varun Chandola](#) / [Nils Napp](#) / [Jaroslaw Zola](#))
 - Interpreting complex nonlinear processes using DL/NLSDR methods.   

BD Biosciences

MACHINE LEARNING ALGORITHM DESIGN INTERN

San Jose, CA

June 2016 - August 2016



- Fast Clustering of Flow Cytometry (FC) data
 - Upscaled BD's clustering framework for high dimensional FC data upto ~16x.  

University of Buffalo, The State University of New York

RESEARCH ASSISTANT

Buffalo, NY

June 2013 - December 2015



- Nonlinear Spectral Dimensionality Reduction (worked with [Varun Chandola](#) / [Jaroslaw Zola](#) / [Nils Napp](#))
 - Developed scalable Nonlinear Spectral Dimensionality Reduction methods in a streaming setting. 
- Social Network Modeling (worked with [Varun Chandola](#))
 - Developed the xKPGM model for social network modeling. 

The Research Foundation for SUNY







RESEARCH ASSISTANT

Buffalo, NY







June 2011 - August 2012

- Localization via Entropy Reduction (worked with [Robert Platt](#))
 - Developed a novel active localization technique via sequential reduction of entropy using OpenRAVE/ROS.  

Publications

1. Interpretable Graph Similarity Computation via Differentiable Optimal Alignment of Node Embeddings. [Khoa Doan](#), [Saurav Manchanda](#), [Suchismit Mahapatra](#) and [Chandan Reddy](#). (To appear in SIGIR 2021) 
2. Discretized Bottleneck in VAE: Posterior-Collapse-Free Sequence-to-Sequence Learning. [Yang Zhao](#), [Ping Yu](#), [Suchismit Mahapatra](#), [Qinliang Su](#) and [Changyou Chen](#). 2020 (Preprint available on arXiv) 
3. Learning Manifolds from Non-stationary Streaming Data. [Suchismit Mahapatra](#) and [Varun Chandola](#). 2019 (Preprint available on arXiv) 
4. S-Isomap++: Multi Manifold Learning from Streaming Data. [Suchismit Mahapatra](#) and [Varun Chandola](#). Proceedings of 5th IEEE International Conference on Big Data, 2017 
5. Error Metrics for Learning Reliable Manifolds from Streaming Data. [Suchismit Mahapatra](#), [Frank Schoeneman](#), [Varun Chandola](#), [Jaroslaw Zola](#), [Nils Napp](#). Proceedings of SIAM Data Mining Conference, 2017 
6. Modeling Graphs Using a Mixture of Kronecker Models. [Suchismit Mahapatra](#) and [Varun Chandola](#). Proceedings of the 3rd IEEE International Conference on Big Data, 2015. 

Additional Certifications/Projects

- NLP certification from [NVIDIA Deep Learning Institute](#)  | Full Stack Deep Learning certification 
- Optimization/Mathematics/ML courses offered by Coursera    
- Developed ElGooG – A search engine using ~100000 TREC documents as corpus (won the NTipS 2010 competition) 