

Shashank Gupta

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RELEVANT EXPERIENCE

Meta AI, New York, USA

Aug 2024-Dec 2024

Research Scientist Intern, Modern Recommender Systems Team

- Conceived and prototyped a **reinforcement-learning framework** to fine-tune vision-language diffusion models post-training on arbitrary, user-defined objectives.
- Applied the method to attribute-binding task in text-to-image generation, outperforming PPO baselines on T2I Compositionality benchmark.
- Co-authored “A Simple and Effective Reinforcement Learning Method for Text-to-Image Diffusion” (under review).

Meta AI, London, UK

Aug 2023 – Dec 2023

Research Scientist Intern, Modern Recommender Systems Team

- Formulated the off-policy learning problem for a **two-stage ranking pipeline** given the candidate generator and the re-ranker model.
- Proposed a joint optimization method that learns both stages simultaneously from logged interactions.
- Co-authored “Towards Two-Stage Counterfactual Learning-to-Rank” (under review).

Flipkart, Bangalore, India

Jul 2018 – Jan 2021

Data Scientist, Search Ranking Team

- Built and deployed a personalized learning-to-rank model for product search, resulting in a significant lift in CTR within the Fashion vertical.
- Developed a session-length prediction model to distinguish explore vs purchase intent; findings published at SIGIR 2020 (short paper).

Conduent Labs (formerly Xerox Research), Bangalore, India

Jan 2018 – May 2018

Research Intern

- Worked on fake-news detection by combining article content with social-media graph signals via Coupled Matrix-Tensor Factorization.
- Published the approach in ASONAM 2018.

Tata Research, Design & Development Center (TRDDC), Pune, India

May 2017 – Jul 2017

Research Intern

- Developed semi-supervised and multi-task extensions to an LSTM-based NER model for extracting adverse-drug-reaction mentions from social-media posts with limited labelled data.
- Resulted in publications at *ECIR 2018* (full, short), CIKM 2017 (workshop), and the NeurIPS 2017 workshop.

EDUCATION

University of Amsterdam (UvA)

PhD, ML and IR, April 2021 - July 2025 (expected graduation)

Advisors: Dr. Maarten de Rijke, & Dr. Harrie Oosterhuis

Thesis: **Safe, Efficient, and Robust Reinforcement Learning for Ranking and Diffusion Models.**

International Institute of Information Technology (IIIT), Hyderabad

Master of Science By Research, Computer Science and Engineering, June 2015 - Dec'17

Advisors: Dr. Vasudeva Varma, Dr. Manish Gupta

Thesis: **Pharmacovigilance from Social Media Under Limited Labelled Data Setting.**

Birla Institute of Technology, Mesra, India

Bachelor Of Technology, Computer Science and Engineering, June 2010 - June 2014.

TUTORIAL PRESENTATIONS

Unbiased Learning to Rank: On Recent Advances and Practical Applications

Shashank Gupta, Philipp Hager, Jin Huang, Ali Vardasbi, and Harrie Oosterhuis.
WSDM 2024.

Recent Advances in the Foundations and Applications of Unbiased Learning to Rank

Shashank Gupta, Philipp Hager, Jin Huang, Ali Vardasbi, and Harrie Oosterhuis.
SIGIR 2023.

Recent Advancements in Unbiased Learning to Rank

Shashank Gupta, Philipp Hager, and Harrie Oosterhuis.
FIRE 2023.

PUBLICATIONS

A Simple and Effective Reinforcement Learning Method for Text-to-image Diffusion Model

Shashank Gupta, Chaitanya Ahuja, Tsung-Yu Lin, Sreya Dutta Roy, Harrie Oosterhuis, Maarten de Rijke, and Satya Narayan Shukla.
Under submission.

Towards Two-Stage Counterfactual Learning to Rank

Shashank Gupta, Yiming Liao, and Maarten de Rijke.
Under submission.

Practical and Robust Safety Guarantees for Advanced Counterfactual Learning to Rank

Shashank Gupta, Harrie Oosterhuis, and Maarten de Rijke
CIKM 2024 (**Full paper**).

Optimal Baseline Corrections for Off-Policy Contextual Bandits

Shashank Gupta*, Olivier Jeunen*, Harrie Oosterhuis, and Maarten de Rijke (***Equal Contribution**)
RecSys 2024 (**Full paper**).

Proximal Ranking Policy Optimization for Practical Safety in Counterfactual Learning to Rank

Shashank Gupta, Harrie Oosterhuis, and Maarten de Rijke
CONSEQUENCES @RecSys 2024 (**Oral presentation**).

A Simpler Alternative to Variational Regularized Counterfactual Risk Minimization

Hua Chang Bakker, Shashank Gupta, and Harrie Oosterhuis
CONSEQUENCES @RecSys 2024 (**Poster presentation**).

Safe Deployment for Counterfactual Learning to Rank with Exposure-Based Risk Minimization

Shashank Gupta, Harrie Oosterhuis, and Maarten de Rijke
SIGIR 2023 (**Full paper**), CONSEQUENCES at RecSys 2023.

A Deep Generative Recommendation Method for Unbiased Learning From Implicit Feedback

Shashank Gupta, Harrie Oosterhuis, and Maarten de Rijke
ICTIR 2023, CONSEQUENCES+REVEAL at RecSys 2022.

A First Look at Selection Bias in Preference Elicitation for Recommendation

Shashank Gupta, Harrie Oosterhuis, and Maarten de Rijke
CONSEQUENCES at RecSys 2023.

Neural Bag-of-Words Point Process Model for User Return Time Prediction in E-commerce

Shashank Gupta, Manish Bansal
CRUM Workshop at UMAP 2023.

The University of Amsterdam at the TREC 2021 Fair Ranking Track

Ali Vardasbi, Gabriel Bénédict, Shashank Gupta, Maria Heuss, Pooya Khandel, Ming Li, Fatemeh Sarvi
TREC Fair Ranking Trec 21.

Predicting Session Length for Product Search on E-commerce Platform

Shashank Gupta, Subhadeep Maji
SIGIR 2020, Short.

On Application of Bayesian Parametric and Non-parametric Models for User Cohorting in Product Search

Shashank Gupta
ECNLP@ACL'20, Position paper.

RARE: A Recurrent Attentive Recommendation Engine for News Aggregators

Vaibhav Kumar, Dhruv Khattar, Shashank Gupta, Manish Gupta, and Vasudeva Varma
CIKM 2018, Workshop on News Recommendation and Analytics (INRA 2018).

CIMTDetect: A Community Infused Matrix-Tensor Coupled Factorization Based Method for Fake News Detection

Shashank Gupta, Raghuveer Thirukovalluru, Manjira Sinha, and Sandya Mannarswamy.
ASONAM 2018, Short.

Multi-Task Learning for Extraction of Adverse Drug Reaction Mentions from Tweets

Shashank Gupta, Manish Gupta, Vasudeva Varma, Sachin Pawar, Nitin Ramrakhiyani, Girish Keshav Palshikar
ECIR 2018 (Full) and NIPS 2017 ML4H Workshop.

A Co-training Based Method for Extraction of Adverse Drug Reaction Mentions from Tweets

Shashank Gupta, Manish Gupta, Vasudeva Varma, Sachin Pawar, Nitin Ramrakhiyani, Girish Keshav Palshikar
ECIR 2018 (Short) and NIPS 2017 ML4H Workshop.

TCS Research at TAC 2017: Joint Extraction of Entities and Relations from Drug Labels using an Ensemble of Neural Networks

Sachin Pawar, Nitin Ramrakhiyani, Girish Keshav Palshikar, Shashank Gupta, Vasudeva Varma
TAC 2017 ADR Track.

Semi-Supervised Recurrent Neural Network for Adverse Drug Reaction Mention Extraction

Shashank Gupta, Sachin Pawar, Nitin Ramrakhiyani, Girish Keshav Palshikar, and Vasudeva Varma
BMC Bioinformatics Special Issue, and CIKM 2017, Workshop.

Enhancing Categorization of Computer Science Research Papers using Knowledge Bases,

Shashank Gupta, Priya Radhakrishnan, Manish Gupta, Vasudeva Varma
SIGIR 2017, Works. on Knowledge Graphs & Semantics for Text Retrieval & Analysis.

Deep Neural Architectures for News Recommendation,

Vaibhav Kumar, Dhruv Khattar, Shashank Gupta, Manish Gupta, Vasudeva Varma
Conference and Labs of the Evaluation Forum (CLEF) 2017 (50 citations).

Simultaneous Inference of User Representations and Trust,

Shashank Gupta, Pulkit Parikh, Manish Gupta, Vasudeva Varma
ASONAM 17, Short.

Deep Learning for Hate Speech Detection in Tweets

Pinkesh Badjatiya*, Shashank Gupta*, Manish Gupta, Vasudeva Varma (*Equal Contribution)(Best Poster Award)
WWW 2017, Poster track.

Scientific Article Recommendation by using Distributed Representations of Text and Graph

Shashank Gupta, Vasudeva Varma
WWW 2017, Workshop track.

User Profiling based Deep Neural Network for Temporal News Recommendation

Vaibhav Kumar, Dhruv Khattar, Shashank Gupta, Manish Gupta, and Vasudeva Varma
ICDM 2017, Workshop Track.

Word Semantics based 3D Convolutional Neural Networks for News Recommendation

Vaibhav Kumar, Dhruv Khattar, Shashank Gupta and Vasudeva Varma
ICDM 2017, Workshop track.

SKILLS & TOOLS

Programming: Python, SQL, Java

Frameworks: Pytorch, Numpy, Pandas, Matplotlib, Keras, Scikit-learn, PySpark, Tensorflow, Lucene, ElasticSearch

Research Focus: Counterfactual learning-to-rank, contextual bandits, information retrieval, machine learning, recommender systems

PROFESSIONAL ACTIVITIES

Reviewer: SIGIR(21-24), ECIR(19-23), KDD'24, NeurIPS(20-23), ICML(20-24), ICLR(21-24), ACL(21), AAAI'21, EMNLP(20-21), CIKM'21, ACL'21, IJCNLP'20, ML4H@NIPS.

Teaching Assistant: RecSys, UvA (2023/24), Advanced Information Retrieval, UvA (2022), Information Retrieval and Extraction, IIIT-H (2018), Machine Learning, IIIT-Hyderabad (2017), Machine Learning, BITS-Pilani (2015).

AWARD AND ACHIEVEMENTS

Received the **Best Poster Paper Award** at International World Wide Web Conference (**WWW**) **2017**.

Work on hate speech detection got covered in The Hindu, Indian Express and few other leading news outlets <https://tinyurl.com/3p82typm>.

SIGIR student travel grant to attend SIGIR and ICTIR 2023.

SIGCHI student travel grant to attend UMAP 2023 (declined).

Travel Grant to attend NIPS 2017 (declined).

TCS Research travel grant for attending CIKM 2017.

Selected to attend IISC's Winter School on Machine Learning 2015.

RELEVANT COURSEWORK

Machine Learning

Information Retrieval and Extraction

Topics in Information Retrieval

Topics in Natural Language Processing

Digital Image Processing

STUDENT SUPERVISION

Hua Chang Bakker (BSc AI 2024): Variational Counterfactual Risk Minimization for Contextual Bandits.

Richter Van Emmerik (BSc AI 2023): Exploring large language models for recommender system.

Beer Meester (BSc AI 2023): Offline reinforcement learning for learning to rank.

Srijan Kaur (Masters UvA 2022): Knowledge distillation for efficient user modeling.

TALKS

Safe Deployment for Counterfactual Learning to Rank, Presented at Expedia, London (remotely).

Optimal Baseline Corrections for Off-policy Contextual Bandits, Oral Presentation at RecSys 2024.

Proximal Ranking Policy Optimization for Safe Counterfactual Learning to Rank, at CONSEQUENCES, RecSys 2024.

Unbiased Learning to Rank: On Recent Advances and Practical Applications, Tutorial presentation at WSDM 2024.

Off-policy Evaluation and Learning for Contextual Bandits, Lecture presentation at the RecSys course, UvA.

Safe Deployment for Counterfactual Learning to Rank, Presented at ShareChat ML Seminar (remotely).

Recent Advancements in Counterfactual Learning to Rank, Tutorial presentation at SIGIR 2023.

Recent Advancements in Counterfactual Learning to Rank, Invited tutorial presentation at FIRE 2023.

Safe Deployment for Counterfactual Learning to Rank, Presented at MetaAI, New York (remotely).

Safe Deployment for Counterfactual Learning to Rank, Oral presentation at SIGIR 2023.

A Deep Generative Recommendation Method for Unbiased Learning From Implicit Feedback, Presented at CONSEQUENCES+REVEAL workshop RecSys'22.

Session Length Prediction for Product Search on E-commerce Platform, Presented at SIGIR, 2020

Scientific Article Recommendation using Deep Embeddings, Presented at World Wide Web Conference, Perth, 2017

Trust Prediction in Social Network using Deep Neural Networks, Presented at ASONAM conference, Sydney, 2017

Semi-supervised RNN for Adverse Drug Reaction Mention Extraction from Twitter, Presented at CIKM Conference, Singapore, 2017

Pharmacovigilance from Social Media using Multi-task and Semi-Supervised Learning, Presented at ECIR Conference, Grenoble, 2018

Machine Learning Methods for Mining Adverse Drug Reactions from Social Media, Presented at DUKE-NUS Medical School, Singapore, 2017

Deep Learning Methods for Recommendation Systems, Presented at Thiagarajar College of Engineering, Madurai

Information Retrieval from Social Media, Presented at Alumni Research Talk (ART), BITS Pilani, Pilani.