

Noveen Sachdeva

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Education

UC San Diego

PH.D. IN COMPUTER SCIENCE

Advisor: [Prof. Julian McAuley](#), GPA: 4.0

USA

2020 - PRESENT

IIIT Hyderabad

B.TECH (HONOURS) & M.S IN COMPUTER SCIENCE

Advisor: [Prof. Vikram Pudi](#), GPA: 9.75/10 (M.S)

India

2015 - 2020

Experience

Netflix Research

RESEARCH INTERN

Los Gatos, CA

Jun. 2022 - Sep. 2022

- Worked with [Dr. Dawen Liang](#) and [Prof. Nathan Kallus](#) towards scaling up off-policy evaluation, especially for large action-spaces.
- Leveraged inherent structure in the action-space to develop provably better off-policy estimators, in terms of the bias-variance trade-off.
- Achieved ≈ 4 orders of MSE-improvement on semi-synthetic and real-world production data. Submission under preparation for ICML '23.

Pinterest Labs

RESEARCH INTERN

San Francisco, CA

Jun. 2021 - Sep. 2021

- Worked with [Dr. Jinyin Zhang](#) and [Dr. Jiajing Xu](#) towards improving the ads quality and ads ranking systems at Pinterest.
- Project involved designing smart negative sampling strategies inspired by the coreset mining and graph-sampling literature, especially for CTR prediction models. Ongoing research was implemented directly in production pipelines, involving mature frameworks like Scalding and Spark.

Microsoft Research

RESEARCH INTERN

Bangalore, India

Jan. 2020 - Jun. 2020

- Worked with [Dr. Manik Varma](#) and his group on building better machine learning algorithms at the million-scale (Extreme Classification).
- Formulated a scalable, GCN-inspired algorithm which exploits label-label correlation patterns to massively improve tail-label performance.
- Full paper accepted for publication at WWW '21.

UC San Diego

RESEARCH ASSISTANT

San Diego, CA

Aug. 2019 - Nov. 2019

- Worked with [Prof. Julian McAuley](#) on aspects of applied machine learning, specifically in the context of NLP and recommender systems.
- Ascertained a highly relevant problem in existing recommender systems that exploit textual reviews for rating prediction, and generalize it.
- Wrote a paper about the realized problem and possible fixes under different scenarios. Paper accepted for publication at SIGIR '20.

Cornell University

RESEARCH ASSISTANT

Ithaca, NY

Jun. 2019 - Jul. 2019

- Worked with [Prof. Thorsten Joachims](#) and his group at the intersection of causal inference, counterfactual learning, and reinforcement learning.
- Contributed to a \$1 Million project ([NSF #1513692](#)) on making off-policy learning from biased, logged contextual-bandit data more robust.
- Formalized a highly relevant problem and generalized different estimators. Paper accepted for publication at KDD '20 (Research Track).

PwC - PricewaterhouseCoopers

DATA SCIENCE INTERN (REMOTE)

Tampa, FL

Aug. 2018 - Nov. 2018

- Worked with the data science and innovation team on clause extraction from sensitive legal documents for top clients in the US.
- Formulated a de-generate pipeline and compared different statistical and deep-learning based models for the given task.
- Reduced task time from days to a few hours which enabled PwC to get new clients in the legal sector.

National Research Council of Italy

RESEARCH ASSISTANT

Rende, Italy

May. 2018 - Jul. 2018

- Worked with senior researcher, [Dr. Giuseppe Manco](#) on building novel and better systems suited for the task of next-item recommendation.
- Devised a taxonomy of VAE models for collaborative filtering, demonstrating huge gains over existing state-of-the-art on real-world datasets.
- The project's findings were later published at top data-mining conference, WSDM '19.

Google Summer of Code

OWNCLOUD

Nürnberg, Germany

May. 2017 - Aug. 2017

- Implemented a JS-library, with exhaustive unit-tests and swagger-documentation, which works both on Node.JS and browser.
- Presented talk at annual ownCloud conference at Nürnberg, Germany. Project led to real-world gains in usage of ownCloud.

Publications

- [**NeurIPS '22**] **Infinite Recommendation Networks: A Data-Centric Approach** [\[LINK\]](#)
NOVEEN SACHDEVA, MEHAK PREET DHALIWAL, CAROLE-JEAN WU, JULIAN MCAULEY
36th Conference on Neural Information Processing Systems
- [**ITSC '22**] **Fast Autoregressive Transformers meet RNNs for Personalized Adaptive Cruise Control** [\[LINK\]](#)
NOVEEN SACHDEVA, ZIRAN WANG, KYUNGTAEE HAN, ROHIT GUPTA, JULIAN MCAULEY
25th IEEE International Conference on Intelligent Transportation Systems
- [**WSDM '22**] **On Sampling Collaborative Filtering Datasets** [\[LINK\]](#)
NOVEEN SACHDEVA, CAROLE-JEAN WU, JULIAN MCAULEY
15th ACM International Conference on Web Search & Data Mining
- [**WWW '21**] **ECLARE: Extreme Classification with Label Graph Correlations** [\[LINK\]](#)
ANSHUL MITTAL, NOVEEN SACHDEVA, SHESHANSH AGRAWAL, SUMEET AGARWAL, PURUSHOTTAM KAR, MANIK VARMA
The Web Conference 2021
- [**KDD '20**] **Off-policy Bandits with Deficient Support** [\[LINK\]](#)
NOVEEN SACHDEVA, YI SU, THORSTEN JOACHIMS
26th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (Research Track)
- [**SIGIR '20**] **How Useful are Reviews for Recommendation? A Critical Review & Potential Improvements** [\[LINK\]](#)
NOVEEN SACHDEVA, JULIAN MCAULEY
43rd International ACM Conference on Research and Development in Information Retrieval
- [**WSDM '19**] **Sequential Variational Autoencoders for Collaborative Filtering** [\[LINK\]](#)
NOVEEN SACHDEVA, GIUSEPPE MANCO, ETTORRE RITACCO, VIKRAM PUDI
12th ACM International Conference on Web Search & Data Mining
- [**RecSys '18**] **Attentive Neural Architecture Incorporating Song Features For Music Recommendation** [\[LINK\]](#)
NOVEEN SACHDEVA, KARTIK GUPTA, VIKRAM PUDI
12th ACM International Conference on Recommender Systems
- [**ECIR '18**] **Explicit Modelling of the Implicit Short Term User Preferences for Music Recommendation** [\[LINK\]](#)
KARTIK GUPTA, NOVEEN SACHDEVA, VIKRAM PUDI
40th European Conference on Information Retrieval

Invited Talks

- “Data-centric Approaches to Recommendation”, Google Brain September 2022
- “Data-centric Approaches to Recommendation”, Facebook AI Research March 2022

Professional Service

- **PC** for AAAI 2023, WSDM 2023, TheWebConf 2022-23, ICWSM 2021-22
- **Reviewer** for TOIS 2023, KAIS 2019-20, AAAI 2019, ICDM 2018
- **Research mentoring** of *six* masters students, and *one* undergraduate at UC San Diego
- **Academic mentoring** of *four* brilliant undergraduates at UC San Diego
- **Mentor** for Google Code-In 2017 at JBoss, RedHat

Skills

Languages	Python, Scala, C++, C, Bash
Machine Learning	JAX, PyTorch, Tensorflow, Scalding, Spark
Miscellaneous	TeX, Git, SQL, Neo4J, Flask, Node.JS, PHP