

# Noveen Sachdeva

✉ nosachde@ucsd.edu | 🏠 www.noveens.com | 🌐 noveens | in noveensachdeva | Google Scholar

## Education

### UC San Diego

PH.D. IN COMPUTER SCIENCE

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

USA

2020 - PRESENT

### IIIT Hyderabad

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

GPA: 9.75/10 (M.S)

India

2015 - 2020

## Experience

### Pinterest Labs

RESEARCH INTERN

San Francisco, CA

Jun. 2021 - Sep. 2021

- Worked with [Dr. Jinyin Zhang](#) & [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.

### UC San Diego & IIIT Hyderabad

- UC San Diego TA for Recommender Systems & Web Mining (CSE258)
- IIIT Hyderabad TA for Database Systems (CSE441), Data Warehousing and Data Mining (CSE445)
- IIIT Hyderabad Web-System Administrator

Fall '21

Spring '19, Fall '18

Fall '17, Spring '18

## Publications

### SVP-CF: Selection via Proxy for Collaborative Filtering Data

[\[LINK\]](#)

NOVEEN SACHDEVA, CAROLE-JEAN WU, JULIAN MCAULEY

In the SubSetML Workshop @ 38th International Conference on Machine Learning – ICML '21

### ECLARE: Extreme Classification with Label Graph Correlations

[\[LINK\]](#)

ANSHUL MITTAL, NOVEEN SACHDEVA, SHESHANSH AGRAWAL, SUMEET AGARWAL, PURUSHOTTAM KAR, MANIK VARMA

In The Web Conference 2021 – WWW '21

### Off-policy Bandits with Deficient Support

[\[LINK\]](#)

NOVEEN SACHDEVA, YI SU, THORSTEN JOACHIMS

In the 26th ACM SIGKDD Conference on Knowledge Discovery and Data Mining – KDD '20 (Research Track)

### How Useful are Reviews for Recommendation? A Crit. Review & Potential Improvements

[\[LINK\]](#)

NOVEEN SACHDEVA, JULIAN MCAULEY

In the 43rd International ACM Conference on Research and Development in Information Retrieval – SIGIR '20

### Sequential Variational Autoencoders for Collaborative Filtering

[\[LINK\]](#)

NOVEEN SACHDEVA, GIUSEPPE MANCO, ETTORRE RITACCO, VIKRAM PUDI

In the 12th ACM International Conference on Web Search & Data Mining – WSDM '19

### Attentive Neural Architecture Incorporating Song Features For Music Recommendation

[\[LINK\]](#)

NOVEEN SACHDEVA, KARTIK GUPTA, VIKRAM PUDI

In the 12th ACM International Conference on Recommender Systems – RecSys '18

### Explicit Modelling of the Implicit Short Term User Preferences for Music Recommendation

[\[LINK\]](#)

KARTIK GUPTA, NOVEEN SACHDEVA, VIKRAM PUDI

In the 40th European Conference on Information Retrieval – ECIR '18

## Achievements

- Reviewer for ICDM' 18, AAAI' 19, KAIS '19,20, ICWSM '21,22
- Received generous travel grant from ACM to present paper at The Web Conference 2021
- Mentoring a group of *four* brilliant undergraduates at UC San Diego 2020-22
- Awarded the Jacobs School of Engineering Fellowship at UC San Diego 2020
- Received generous travel grant from SIGIR to present paper at SIGIR 2020
- Received generous travel grant from SIGIR & Flipkart to present paper at WSDM 2019
- Qualified for ACM-ICPC Asia Onsite Regionals. *Online: 95<sup>th</sup>, Onsite: 120<sup>th</sup>* 2018
- Dean's Research Award for exceptional undergraduate research work at IIIT Hyderabad 2018
- Dean's Award for Academic Excellence: Top 10% of batch 2018
- Mentor for Google Code-In at JBoss, RedHat 2017

## Projects

### LED Display Construction & Home Automation

INDEPENDENT COVID LOCKDOWN PROJECT

Apr. 2020 - Jul. 2020

- Built a  $42 \times 24$  Wi-Fi controlled LED display using commonly available LED strips. Core features include in-room music visualization using FFT, image cast, animations, etc. Final size equivalent to a 32" TV, and able to achieve 60 FPS.
- Made my own smart switches using electronic relays and micro-controllers. Core features include a small size to fit inside a common switch-board and a significantly lower price than (10x) commercial solutions. Bundled everything together with an in-house android application.

### Generative models for Stochastic Point Processes

INDEPENDENT REMOTE COLLABORATION WITH Prof. Giuseppe Manco

Jan. 2019 - Dec. 2019

- Leveraging the modelling power of weibull distributions to predict user return-time to media-streaming-services like YouTube, Netflix etc.
- Formulating and experimenting with generative models like GANs & VAEs – maximizing the likelihood of the actual return-time.

### PEGASOS: Gradient based solver for SVM

OPTIMIZATION METHODS COURSE PROJECT UNDER Prof. C V Jawahar

Mar. 2019 - May. 2019

- Implemented both linear and kernelized PEGASOS, results and run-time matching with popular libraries like sklearn.
- In addition to given problem statement, exploited the concept of Gramian Matrices to speed up the learning process for kernelized PEGASOS.

## Compiler for C-like language, Decaf

COURSE PROJECT UNDER *Prof. Suresh Purini*

*Oct. 2018 - Dec. 2018*

- Created a flex tokenizer and bison parser from a Context Free Grammar, using visitor software design pattern for modular compiler design.
- Parsed source programs into an Abstract Syntax Tree and then into LLVM intermediate representation (LLVM IR).

## Skills

---

**Languages** Python, Scala, C++, C, Bash, MATLAB

**Machine Learning** PyTorch, Tensorflow, Keras, scikit-learn

**Miscellaneous**  $\text{\LaTeX}$ , Scalding, Spark, Git, SQL, Neo4J, Flask, Node.JS, PHP