Noveen Sachdeva

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Education

UC San Diego *USA*
PH.D. IN COMPUTER SCIENCE *2020 - PRESENT*
Advisor: Prof. Julian McAuley

IIIT Hyderabad *India*
B.TECH & M.S IN COMPUTER SCIENCE, GPA: 9.75/10 (M.S) *2015 - 2020*

Experience

Microsoft Research *Bangalore, India*
RESEARCH INTERN *Jan. 2020 - Jun. 2020*
- Worked with Dr. Manik Varma and and his group on building better machine learning algorithms at scale (Extreme Classification).
- Formulated a novel algorithm which exploits graph-based patterns to massively improve classification accuracy.
- Currently working towards a paper submission at top conference.

UC San Diego *San Diego, CA*
RESEARCH ASSISTANT *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 *Ithaca, NY*
RESEARCH ASSISTANT *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. Wrote a comprehensive paper, currently under review at KDD '20.

PwC - PricewaterhouseCoopers *Tampa, FL*
DATA SCIENCE INTERN (REMOTE) *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 *Rende, Italy*
RESEARCH ASSISTANT *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 *Nüremberg, Germany*
ownCloud *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 Nüremberg, Germany. Project led to real-world gains in usage of ownCloud.

IIIT Hyderabad *Hyderabad, India*
- Web-System Administrator *Fall 2017, Spring 2018*
- TA for Data Warehousing and Data Mining (CSE445), Database Systems (CSE441) *Fall 2018, Spring 2019*

Publications

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, Ettore 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

- Qualified for ACM ICPC Asia Onsite Regionals 2018 *Online: 95th, Regional: 120th*
- Mentor for Google Code-In at JBoss, RedHat *(2017)*
- Dean's Award for Academic Excellence: Top 10% of batch *(2018)*
- Dean's Research Award for exceptional undergraduate research work at IIIT Hyderabad *(2018)*
- Received generous travel grant from SIGIR & Flipkart to present paper at WSDM *(2019)*
- Received generous travel grant from SIGIR to present paper at SIGIR *(2020)*
- Reviewer for ICDM' 18, AAAI' 19, KAIS '19,20

Research Projects

Generative models for Stochastic Point Processes

Independent Remote Collaboration with *Prof. Giuseppe Manco* *Jan. 2019 - PRESENT*

- 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.

Deep Sequential Models for Language Modeling

Intro. to ML Course Project under *Prof. Vineet Gandhi* *Oct. 2017 - Dec. 2017*

- Implemented a wide range of state-of-the-art models for language modelling.
- For the given dataset, a CNN+LSTM model for extracting both character and word-level features from text gave the best BLEU score.

Software Projects

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).

Mini-Dropbox

Course Project under *Prof. Moumita Patra* *Mar. 2017 - May. 2017*

- Implemented an Application Level program for a P2P-network to keep two separate directories synced, similar to Dropbox.

Linux Shell

Course Project under *Prof. P K Reddy* *Sep. 2016 - Dec. 2016*

- A Bash like shell for Linux, with extensive error-handling, support for piping and redirection, implemented in C only using sys-calls.

Skills

Languages	Python, C++, C, JavaScript, MATLAB, PHP, Bash
Machine Learning	PyTorch, Tensorflow, Keras, scikit-learn
Miscellaneous	SQL, Git, LaTeX, Neo4J, Flask, Node.JS