Sahil Manchanda

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Computer Science and Engineering
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EDUCATION

Ph.D, *Computer Science*, **Indian Institute of Technology Delhi** - *DGPA 10.0 / 10.0 , CGPA 8.73 / 10* **2019-Cont**

M.Tech, *Computer Science*, **Indian Institute of Technology Guwahati**, *9.14 / 10.0* **2015-2017**

B.Tech, *Information Technology,* **Indraprastha University**, *New Delhi, 78.4%* **2010-2014**

Senior Secondary, *CBSE, New Delhi, 97 %* **2010**

Secondary, *CBSE, New Delhi*, *91.8 %* **2008**

EXPERIENCE

NAVER Labs, France **Sep 2020- Mar 2021**
Research Intern, Machine learning and Optimization

Conduent Labs (Formerly Xerox Research Center), Bangalore, India **2017-2019**
Research Engineer, Machine learning and Statistics

Adobe Systems, Delhi, India **2014-2015**
Software Engineer, Adobe Acrobat team

PUBLICATIONS AND MANUSCRIPTS

- **Learning Budget-constrained Combinatorial Algorithms over Billion-sized Graphs** **2020**
  Sahil Manchanda, Akash Mittal, Anuj Dhawan, Sourav Medya, Sayan Ranu and Ambuj Singh
  Neural Information Processing Systems (**NeurIPS**) - to appear
  https://arxiv.org/abs/1903.03332

- **SUPAID: A Rule mining based method for automatic rollout decision aid for supervisors in fleet management systems** **2019**
  Sahil Manchanda, Arun Rajkumar, Simarjot Kaur and Narayanan Unny
  https://arxiv.org/abs/2001.03386

- **Representation learning of drug and disease terms for drug repositioning** **2017**
  Sahil Manchanda and Ashish Anand
  3rd IEEE International Conference on Cybernetics (CYBCONF), Exeter, United Kingdom

PATENT

- **Trained pattern analyzer for roll out decision** **2019**
  Status: Filed in USPTO - **application ID:** 16/375,931
  Inventors: Sahil Manchanda, Arun Rajkumar, Simarjot Kaur and Narayanan Unny

PROJECTS

- **Learning Budget-constrained Combinatorial Algorithms over Billion-sized Graphs** **2019-2020**
  Guide: Dr. Sayan Ranu, IIT Delhi
  - Predict individual quality of nodes using Graph convolution network(GCN) and identify potential nodes.
  - Deep Q network to predict nodes that collectively form a good solution by using GCN scores and locality of nodes as features. Importance Sampling for fast locality computation.
  - Achieved quality similar to state of the art while being more than 2 orders of magnitude faster.

- **Graph generative modelling for labelled graphs** **2019**
  Data mining course project at IIT Delhi
  - Extended GraphRNN(NeurIPS 2018) for graph generative modelling for handling node and edge labels.
  - Domain agnostic implementation.

- **Vehicle Health Monitoring** **2017-2018**
  Conduent Labs, Bangalore, India
  - Developed item-set mining based model for recommending rollout of vehicles for a US based fleet agency.
  - The method mines defect patterns which led to failures in the past when fleet supervisors made rollout decision.

- **Mobility Analytics Platform - Descriptive platform for transportation network** **2017-2018**
  Conduent Labs, Bangalore, India
  - Developed algorithms for estimating passenger alighting in bus/metro network using check-in data in a flat fare environment.
  - Designed solution to support heterogeneous data -fare collection(paper ticket /smart card) and vehicle location data.
  - Developed various functionalities using fare collection data and GTFS(vehicle schedule) such as estimating direction of vehicles, identification of missing vehicle stop times, alignment of real trips to scheduled trips.

- **Representation learning of drug and disease terms for drug repositioning** **2017**
  Guide: Dr. Ashish Anand, Indian Institute of Technology Guwahati

  - Learned word vector representation of drug and disease terms from unstructured bio-medical text(PubMed).
  - Enhanced vector representations using similarity information from structured data such as side-effect based drug similarity and gene based disease similarity etc.
  - Used matrix completion approach to predict drug-disease associations.

KEY COURSES

- **Data Structures and Algorithms**
- **Intelligent Systems**
- **Database Management Systems**
- **Data Mining**
- **Artificial Intelligence**
- **Mobile robotics**
- **Mathematics for Computer Science**
- **Numerical methods**
- **Operating Systems**
- **Linear Algebra**
- **Probability**
- **Cryptography**

SKILLS

- **Platforms:** Windows, Linux
- **Programming languages:** Python, C, JAVA, and C++
- **Libraries:** Numpy, Tensorflow, PyTorch, and DGL

ACHIEVEMENTS

- **Graduate Aptitude Test in Engineering :** All India rank 273 among 115425 candidates. **2015**
- **CBSE Merit certificate :** Received Merit Certificates for Computer Science and Mathematics for being in **top 0.1 %** of the successful candidates all over India. **2010**
- **Merit certificate-National Cyber Olympiad:** Secured All India Rank 224. **2009**

MISCELLANEOUS

- Teaching assistant at IIT Delhi - Data Structures and Algorithms. **2019 - cont**
- Subreviewer for :
  EDBT, AAAI, WSDM, CODS-COMAD. **2021**
  ICDM, KDD, ICDE, TKDE, CODS-COMAD. **2020**
- Student representative (M.Tech) - Department Post Graduate Programme Committee, Dept. of CSE, IIT, Guwahati. **2016-2017**
- Teaching assistant at IIT Guwahati - Mathematics for Computer Science and Introduction to programming. **2015-2017**
- Android application developer intern at School of Information Technology, Indraprastha University, Delhi. **2013**

REFERENCES

- **Dr. Sayan Ranu, Associate Professor, IIT Delhi**
  sayanranu@iitd.ac.in
- **Dr. Narayanan Unny, Director, Big Data Labs, American Express, Bengaluru**
  narayanan.unny@gmail.com
- **Dr. Ashish Anand, Associate professor, IIT Guwahati**
  anand.ashish@iitg.ernet.in
- **Dr. Sourav Medya, Post-doctoral fellow, Northwestern University**
  sourav.medya@kellogg.northwestern.edu