# Swapneel Mehta

**Phone:** +16468819397 • **E-mail:** swapneel.mehta@nyu.edu • **Address:** Off. 746, 7th Floor, 60 5th Av., New York

## EDUCATION

**Ph. D. Student at the Centre for Data Science, New York University** **Exp. '24**

- Advisors: Rajesh Ranganath, Kyle Cranmer; Probabilistic Modeling and Inference with application to High-energy Physics

**Bachelor in Computer Engineering, University of Mumbai,** CGPA 9.23 **2014 - 2018**

- Applied Math, Graph Theory, Machine Learning, Artificial Intelligence, Algorithms

## PROFESSIONAL EXPERIENCE

Open-source contributions available at github.com/swapneelm

**Technical Student, European Org. for Nuclear Research (CERN)**, Geneva **Mar '18 - Jun '19**

- Built graph neural networks for particle track reconstruction using collision data from the Large Hadron Collider.
- Optimized and extended the 'DeepJet' deep learning framework for jet physics, built using Tensorflow, Python, and custom C++ extensions for multithreaded operations on systems using the CMS Software Environment.

**Openlab Intern, European Org. for Nuclear Research (CERN),** Geneva **June '17 - Aug '17**

- Developed an ensemble of unsupervised learning models for anomaly detection in database connections.
- Published a first-author short paper, receiving a special mention in the machine learning track at 2nd Springer International Conference on Integrated Intelligent Computing, Communication, and Security, 2018.

***(Remote) Research Intern, Dr. S. Sahasrabudhe,** IIT-B, Mumbai **Aug '16 - May '17**

- Automated the evaluation for 3D Modeling assignments in Blender; Course Instructor for the MOOC 'Skill Development in Animation' catering to over 5,000 participants on the IITBombayX platform.
- Published a first-author short paper at IEEE International Conference on Advanced Learning Technologies, 2018.

**SWE Intern, Smokescreen Technologies,** Mumbai **Nov '16 - Mar '17**

- Combined low-latency network scans, hostname clustering, intelligent decoys, and automated deployment using custom-built modules integrated into the NASSCOM-DSCI award-winning IllusionBlack software, 3rd Gen., 2017.
- Built a proof-of-concept honeypot with ICS/SCADA services responding on open ports in a FreeBSD 'jail' using open-source project 'Conpot'; mentored 2 interns from IIT-Bombay.

**SWE Intern, Falkonry Software Solutions,** Mumbai **July '16 - Sept '16**

- Developed client API functions to enable real-time data streaming and subscription-based alerts in the three client connectors released as open-source codebases in Java, Python and Javascript.
- Added tests for the primary product to support concurrency using multithreading and asynchronous calls.

**Summer Intern, Microsoft Research,** IIT Bombay, Mumbai **May '16 - July '16**

- Created a Google Analytics Dashboard to track and monitor user interactions on the "Lokacart" Android e-commerce application using the Enhanced E-commerce SDK.
- Presented the project to Microsoft Research, as well as a reviewing committee comprising senior IIT faculty, and successfully defended its merits (video available: bit.ly/iitblokacart).

**Co-founder, Cutting Chai Developers,** Mumbai **Sept '15 - May '16**

- Founded a freelance web-development team working for 9 international clients including the Govt. of India, offering free workshops to schools and colleges eventually founding the student chapter DJ Unicode; currently 70 members (~30 women) focused on open-source development (djunicode.github.io) and alumni at Google Summer of Code, Amazon, Facebook, CERN, Univ. of Auckland.

# Swapneel Mehta

## PUBLICATIONS / TALKS

Slides and Publications available at swapneelm.github.io/presentations and Google Scholar

- **DeepJet: A Machine Learning Framework for High-energy Physics**
  Poster Presentation at Nvidia GPU Tech Conference 2019, USA;
  ***Google Cloud Poster Award*** at the Deep Learning Indaba 2018, South Africa;
  Poster Presentation at the Machine Learning Summer School 2018, Spain;
  Tutorial at the CMS Machine Learning Workshop, July 2018.

- **DeepJet: A Portable Machine Learning Framework for High-energy Physics**
  Oral Presentation at the 2nd CERN IML Machine Learning Workshop, 2018;
  Invited Talk, CVIT Lab, International Institute of Information Technology (IIIT), Hyderabad, India.

- **Autograding Pipeline for 3D Modeling Assignments in MOOCs**
  Short Paper at the 18th IEEE International Conference on Advanced Learning Technologies, 2018.

- **A Big Data Architecture for the Detection of Anomalies within Database Connection Logs**
  Short Paper, ***Special Mention*** at the 2nd Springer International Conference on Integrated Intelligent Computing, Communication & Security, 2018.

- **Reviewer**, Journal of Parallel and Distributed Computing (JPDC), October 2018.

## COMMUNITY INVOLVEMENT

- **Contributor, Depth First Fellowship, Jane Street:** Participated in a 6-8 week discussion group with international researchers to create materials to explain Stein's Method in an accessible manner.

- **Mentor, The Grand Challenge, CERN/RCA:** Guided 4-5 teams of students from the Royal College of Art in London on leveraging AI/ML for designing sustainable solutions in science for The Grand Challenge.

- **Contributing Author, Open Source For You Magazine:** Featured articles on Artificial Intelligence and Machine Learning, the blockchain, Linux, Docker, Puppet, Windows, and tutorials on Jekyll, NodeJS, Git, among others reaching over 200,000 readers till date (goo.gl/57NN6Y).

- **Founding Member, DJ Unicode:** Launched a student chapter undertaking open-source web and app (Android) development projects jointly mentoring a team of ~70 sophomores and juniors with selections for Google Summer of Code, international internships, and hackathon winners across the country (github.com/djunicode).

- **Course Instructor, Fundamentals of 3D Viz., IITBombayX:** Catered to an audience of over 5,000 learners. The course was recently selected as one of the Global edX Prize Finalists, 2019 (top 10 edX courses).

- **Machine Learning Lead, Stanford Scholar Initiative:** Led an international collaboration of students and researchers in building scientific talks to make state-of-the-art research more accessible (scholar.stanford.edu).

- **Education Support Fellow, Make a Difference:** Taught English and Math to 4 underprivileged students; achieved ~20% improvement. Organised national events as part of a team supported by Ms. Michelle Obama.

## AWARDS / FELLOWSHIPS

- Delegate at the Schonfeld Quant Conference, NYC 2019 (**15% acceptance**).
- **2nd Prize**, CodaLab Contest, Machine Learning in High-energy Physics Summer School, Oxford, 2018
- Economic Times Campus Stars Class of 2018 - Selected as one of **India's Top 33 Engineers**
- Stanford Graduate School of Business, Reliance Scholarship Finalist 2017 (**youngest finalist**; $150,000)
- Indian Academies of Science Fellowship, 2017
- HackDAIICT - 1st Runners-up; offer for incubation by Indian Space Research Organisation, 2017
- Computer Society of India TechNext Hackathon, IIT Bombay, Winners, 2017
- Barclays Rise Hackathon, Envestnet Yodlee Award, 2016
- Chief Minister's Scholarship, **Top 1% candidates** in Higher Secondary Certificate (12th Grade), 2014