

# Swapneel Mehta

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## EDUCATION

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### Ph. D. Student at the Centre for Data Science, New York University

**Expected '24**

- Mentors: Rajesh Ranganath, Kyle Cranmer; Statistical Machine Learning and Physics

### Bachelor in Computer Engineering, University of Mumbai, CGPA 9.23

**2014 - 2018**

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

## PROFESSIONAL EXPERIENCE

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Open-source contributions available at [github.com/swapneelm](https://github.com/swapneelm)

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

- Built graph neural networks for particle track reconstruction using collision data from the Large Hadron Collider.
- Optimizing and extending 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**

- Automating 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, Falconry 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](https://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](https://djunicode.github.io)) and alumni at Google Summer of Code, Amazon, Facebook, CERN, Univ. of Auckland.

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## PUBLICATIONS/TALKS

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Slides and Publications available at [swapneelm.github.io/presentations](https://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

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- **Contributor, Depth First Fellowship, Jane Street:** Participating 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:** Guiding 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](https://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](https://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 the finalist for the global edX Prize Finalist, 2019.
- **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](https://scholar.stanford.edu)).
- **Education Support Fellow, Make a Difference:** Taught English and Math to 4 underprivileged students achieving ~20% improvement. Organised national events as part of a team supported by Ms. Michelle Obama.

## AWARDS/FELLOWSHIPS

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- 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