Swapneel Mehta

Phone: +33766069819 • **E-mail:** swapneel.mehta@cern.ch • **Address:** 9 Rue des Chenes, 01630, France

EDUCATION

D. J. Sanghvi College of Engineering(DJSCE), University of Mumbai, India **2014 - 2018**

- Bachelor of Engineering, Computer Engineering; GPA: 9.23

PROFESSIONAL EXPERIENCE

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

- Investigating deep learning models; variational, generative, and adversarial approaches for efficient particle track reconstruction using Monte Carlo data in collaboration with LBNL, Caltech, Fermilab.
- Optimizing and extending the 'DeepJet' deep learning framework for analysing collisions, developed by the Experimental Physics Department as part of the Compact Muon Solenoid Experiment at CERN.
- Released a Python Package, Docker image; presented the DeepJet Framework at a CMS conference, CERN Workshop, and machine learning summer schools.

Openlab Intern, European Org. for Nuclear Research, Geneva **June '17 - August '17**

- Explored unsupervised learning for anomaly detection within database connections using a semi-structured data collection using HDFS, Spark, and Jupyter.
- Utilised an ensemble of naive distance, density, and classification based models improving the accuracy over independent approaches.
- Published a short paper as first-author, received a special mention in the machine learning track at Springer ICIICS 2018, India.

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

- Investigating approaches for automating the evaluation for 3D Modeling assignments based on existing experiments and a proposed framework by researchers at the University of Torino, Italy.
- Served as a Course Instructor for the MOOC 'Skill Development in Animation' catering to over 5,000 participants on the IITBombayX platform: helped to understand the human approach for assessment.
- Worked independently and remotely; adapted the proposed framework for the assessment of simplified 3D Modeling Assignments based on a fixed set of parameters specified by the course instructor.
- Published a first-author short paper at IEEE ICALT 2018; working towards releasing the code as a Python library built using the Blender 2.79b Python API.

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

- Investigated methods for combining low-latency network scans, hostname clustering, intelligent decoys, and automated deployment using a combination of software tools and custom-built modules.
- Developed a modular workflow that greatly reduced the human element required for deployment; integrated in the 2017 release of the NASSCOM-DSCI award-winning IllusionBlack software.
- Built a proof-of-concept deployment of honeypots with ICS/SCADA services responding on open ports in a FreeBSD 'jail' using open-source 'Conpot'; mentored 2 interns from IIT-Bombay.

Engineering 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.
- Implemented test-driven paradigms for agile development and integrated the modules within 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; additionally built a tour guide overlay for an introduction to the application and integrated it into production.
- 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).

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PUBLICATIONS/PRESENTATIONS

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

- **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, Indian Institute of Information Technology, 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.

COMMUNITY INVOLVEMENT

- **Contributing Author, Open Source For You Magazine:** Featured articles on Artificial Intelligence and Machine Learning Docker, Puppet, MS Windows, and tutorials on Jekyll, NodeJS, Git, among others reaching over 60,000 readers till date.

- **Founding Member, DJ Unicode:** Launched a successful freelance development venture, 'Cutting Chai Developers', that pivoted into an educational effort - undertaking open-source web and app (Android) development projects jointly mentoring a team of ~70 sophomores and juniors (github.com/djunicode).

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

- **Vice-Chairperson, Literary Society:** Organised debates, quizzes, Just-a-Minute; launched the College Newsletter, leading a team of 25 student-reporters to contribute dozens of articles (djvu.in).

- **Education Support Fellow, Make a Difference:** Taught English and Mathematics to 4 underprivileged students in the 6th and 7th grade achieving a ~20% average increase in their scores. Organised national social awareness events as part of a team supported by Ms. Michelle Obama.

AWARDS/FELLOWSHIPS

- 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 ($300)
- Google and Tata Trusts Scholarship, 2016
- HackDAIICT, 2017 - 1st Runners-up ($500); offer for incubation by Indian Space Research Organisation
- Barclays Rise Hackathon, Envestnet Yodlee Award, 2016 (GBP 500)
- CodeShastra Hackathon Winners, 2017 ($200)
- Computer Society of India TechNext Hackathon, IIT Bombay, Winners, 2017
- Chief Minister's Scholarship, Top 1% candidates in Higher Secondary Certificate (12th Grade), 2014
- All-India Rank 25, Unified Cyber Olympiad, 2010