Swapneel Mehta

E-mail: swapneel.mehta@nyu.edu | Linkedin | Github | Twitter | Google Scholar

EDUCATION

Ph. D. in Data Science, Center for Data Science, New York University, GPA 3.76   **2019 - Present**
- Probabilistic Programming and Inference, Causality, and Social Network Analysis

Bachelor in Computer Engineering, University of Mumbai, GPA 9.23   **2014 - 2018**
- Applied Math, Graph Theory, Machine Learning, Artificial Intelligence, Algorithms

EXPERIENCE

Founder, SimPPL, Simulation Intelligence to model Collective Behavior   **Jan '22 - Present**

- Developing parrot.report, part of simppl.org for policymakers and journalists to audit online disinformation.
- Working with The Sunday Times, Ippen Digital, the Vermont Digger and Oxford's AI4ABM Group.
- Awarded grants from Algovera AI, the NYC Media Lab, the NYU Tech Venture Workshop, and JournalismAI.

Ph.D. Machine Learning Engineer Intern, Twitter Inc.   **June - Aug'22**

- Worked with Civic Integrity and 2 sister teams to improve the precision of their existing misinformation classifier (XGBoost-based) by 30% to be deployed into production to score millions of tweets a week.

Visiting Researcher, Oxford University and the Integrity Institute   **Aug '21 - Present**

- Leading collaboration between NYU CSMAP, the Integrity Institute, and the Torr Vision Lab.
- Simulating the impact of influence operations on ranking and recommender systems on social networks.
- First-author paper invited for an Oral presentation at the AI4ABM Workshop at ICML 2022.

Research Asst., Center for Social Media and Politics (CSMAP), New York   **Feb '21 - Present**

- Analyzing the causal impact of Twitter's interventions on Donald Trump's tweets spreading misinformation.
- Created SimPPL: Simulating Social Networks with Probabilistic Programs presented at Facebook, Twitter.
- Paper on modeling policy interventions for epidemiology models accepted at PROBPROG 2021, MIT.

Data Science Research Intern (Summer + Fall), Adobe Inc., San Jose   **May - Dec '20**

- Trending Hashtag Recommendation for Videos; web-scraping, weakly-supervised learning, graph neural networks.
- First-author paper accepted IEEE Intl. Symposium on Multimedia '21, (link), ***U.S. Patent App: P10634-US***.

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.
- Built and deployed the 'DeepJet' deep learning framework into production across ***42 global sites.***
- Used Tensorflow, Python, and custom C++ extensions for multithreaded operations (preprint).

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 paper, receiving a special mention in the ML track at Springer ICIICS, 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 'Skill Development in Animation' catering to over 5,000 participants on the IITBombayX platform; edX Prize Finalist, 2019.
- Published a first-author short paper at IEEE International Conference on Advanced Learning Technologies, 2018.

SWE Intern, Smokescreen Tech. (acq. by Zscaler Inc.), 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.

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

- Developed and deployed real-time data streaming and subscription-based alerts in the three client connectors released as open-source codebases in Java, Python and Javascript.

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" app.
- Presented the project to Microsoft Research and a committee of IIT-B faculty (video: bit.ly/iitblokacart).

SELECTED PUBLICATIONS

- *Oral Presentation.* **Estimating the Impact of Coordinated Inauthentic Behavior on Content Recommendation in Social Networks,** S. Mehta et al., *AI for Agent-based Modeling (AI4ABM) Workshop*, ICML 2022 (slides) and *Misinfocon,* DEFCON 2022.

- *Oral Presentation.* **Estimating the Causal Effect of Twitter's Interventions on Trump's Tweets,** S. Mehta, J. Bisbee, J. Nagler, J. Tucker, *Stanford Internet Observatory Trust and Safety Conference,* 2022 (slides).

- **Open-domain Trending Hashtag Recommendation for Videos,** S. Mehta, et al., *IEEE International Symposium on Multimedia (ISM)*, 2021.

- **Compartmental Models for COVID-19 and Control via Policy Interventions,** S. Mehta and N. Kasmanoff, *International Conference on Probabilistic Programming (PROBPROG)*, MIT, 2021.

- *ML Track: Special Mention*. **A Big Data Architecture for Log Data Storage and Analysis**, S. Mehta, P. Kothuri, D. Garcia. *Integrated Intelligent Computing, Communication and Security*. Springer, Singapore, 2019.

- **Anomaly Detection for Network Connection Logs**, S. Mehta, P. Kothuri, D. Garcia.
- **DeepJet: A Machine Learning Environment for High-energy Physics**, S. Mehta et al., 2018, *preprint*.

SELECTED TALKS

- **Co-organizer**, Workshop on AI for Agent-based Models, ***ICLR 2023 (upcoming)***
- **Co-organizer**, Workshop on Broadening Research Collaborations in Machine Learning, ***NeurIPS 2022***
- **Lead Organizer**, Computation + Journalism Workshop on AI for Everyone, 2022
- **Board of Studies Member**, Data Science and AI, D.J. Sanghvi College of Engg., 2022

- *Invited Talk,* Detecting Coordinated Inauthentic Behavior Promoting Misleading Narratives Online
  - ‣ Graphika, Dec. '22 (slides)

- *Invited Talk,* **SimPPL: Using simulations to combat online disinformation.**
  - ‣ Truth and Trust Online, Oct. '22 (slides)
  - ‣ MIT Media Lab, Sept. '22 (video)
  - ‣ Misinfocon at DEFCON, August '22 (slides)
  - ‣ Oxford University, June '22

- *Invited Talks*, **Interventions to Limit Misinformation in Social Networks**
  - ‣ Twitter Cortex, Dec. 2021 (internal link)
  - ‣ Facebook AI Research, Nov. 2021 (internal link)

- **Tutorial on Probabilistic Programming,** Flatiron Institute's Computational Biology Group, July 2021.

- **DeepJet: A Machine Learning Environment for High-energy Physics**, S. Mehta et al., 2018.
  Invited Poster Presentation at Nvidia GPU Tech Conference 2019, USA;
  Google Cloud Poster Award at the Deep Learning Indaba 2018, South Africa;
  Invited Tutorial at the CMS Machine Learning Workshop, July 2018.
  Oral Presentation at the 2nd CERN IML Machine Learning Workshop, 2018;
  Invited Talk, CVIT Lab, International Institute of Information Technology (IIT), Hyderabad, India.

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COMMUNITY INVOLVEMENT

- **Lead Organizer, NYU AI School, 2020-22:** Teaching AI/ML to 400+ participants primarily from underserved communities and non-CS majors, across 25 countries. Fundraising over $25,000 (website, Twitter, LinkedIn).

- **Founder, Unicode Research, 2019 - Present:** Mentoring 15+ graduate students to conduct independent, collaborative research on causal inference, social science. Created and taught a **Google Research India**-backed 10-week machine learning summer course for 100+ underserved Indian undergraduate students (mentees).

- **Panelist, NYU Center for Data Science, 2020 - Present**
  Panelist, 'So you want to go to Grad School'; Student Panel: Ph.D. Orientation; Student Careers Panel
  Podcast, Graduate School, 2020; CERN, Data Science, and Ph.D., 2021

- **Co-founder, DJ Unicode, 2017 - Present:** SWE training to 210+ undergraduates who are winning international hackathons, working at Google Summer of Code, CERN, MAANG, at Ivy League schools (website, GitHub).

- **Research Mentor, Lumiere Education (Harvard/Oxford), 2020 - present:** Mentoring high-school students pursuing research on news sentiment analysis, conversational AI, politics, and causal inference (webpage).

- **Mentor, The Grand Challenge, CERN/RCA, 2018:** Guided 3 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, 2017 - 20: Reaching 200,000+ readers (website).
- **Course Instructor**, Fundamentals of 3D Viz., IITBombayX, 2016: Global edX Prize Finalists, 2019.
- **ML Lead**, Stanford Scholar Initiative, 2016 (scholar.stanford.edu).

AWARDS

- Algovera AI Research, Community Grant Rounds #5, #7, #8   (USD 3000)
- Amazon Web Services Research Grant, Cloud Credits   (USD 5,000)
- Google Cloud Research Award, Credits   (USD 1,000)
- NYU Tech Ventures Workshop, 2022   (USD 1,000)
- Finalist, AI + Local News Challenge, NYC Media Lab, 2022   (USD 7,500)
- UKRI Research Grant Funding, Oxford University (at the Torr Vision Group), 2021-22 (GBP 23,200)
- Google AI Research - Funding for Unicode's ML Summer Course, 2021 (INR 85,000)
- IRIS-HEP Fellowship, 2020-21
- Center for Data Science Fellowship, 2019-24
- **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**
- Finalist, Stanford Graduate School of Business, Reliance Scholarship 2017 (declined; USD 150,000)
- Indian Academies of Science Fellowship, 2017 (declined)