

Sidhant Nagpal

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EXPERIENCE

Tower Research Capital

Software Engineer

Gurugram, India

Jun 2019 - present

- Implemented **low-latency exchange simulators** for APAC, EMEA, US venues (KRX, NSE, HKFE, Eurex, UBS), pushing the accuracy over **95%** for reproducible research and strategy back-testing while providing **on-demand uptime**. Keywords: C++17, Python, Protobuf, CMake, Conda, Shell/Linux, Wireshark, Order Entry Protocols.
- Developed a **python library** for computing **contractual** and **notional positions** (open and filled) for a range of **asset classes** - Equities, F/O, Spreads, Cryptocurrency, FX for usage in **risk limits** (distributed through **conda**).

Google Summer of Code

Org Member & Mentor & Student Developer for SymPy

Remote

Feb 2018 - Aug 2019

- Implemented Fast Fourier Transform, Number Theoretic Transform, Walsh Hadamard Transform, Möbius Transform and corresponding convolutions using **efficient algorithms** and **paradigms**. Keywords: Python, Symbolic Math.
- Mentored** two student projects in **statistics** for **compound distributions** and **stochastic processes**.

Multimodal Digital Media Analysis Lab

Machine Learning Research Intern, IIT Delhi & National University of Singapore

Delhi, India

Apr 2019 - Jul 2019

- Worked on combining **lexicon embeddings** and **word embeddings** to detect **trolling**, **profanity** and **hate-speech** on social media platforms (like reddit, twitter) in collaboration with **Bloomberg LP**. This also involved implementing and training **LSTM**, **GRU** baselines using **FastText** and **GloVe** embeddings.
- Worked on **feature selection** (wrapper-based) for **multimodal text classification** on **MeToo** datasets.
- Contributed to **FluxML**, solving Cart Pole problem in **Reinforcement Learning** using **DQN**, **Double DQN**.

Intuit

Software Engineering Intern

Bangalore, India

May 2018 - Jul 2018

- Incorporated **encryption logic** and **messaging queue** (AWS SQS) to **decouple monolith architecture** of Intuit's QuickBooks product - IntuitMarket.com (e-commerce portal) for **AWS migration**.
- Contributed to **Intuit Data Protection Services** SDK for **cryptography** as part of Intuit's Engineering Days.
- Finished in the **top 2** of the intern **hackathon** for implementing **IoT** and **AI**-based solutions for Intuit's Mint product to **automate expense tracking** using NFC and Google Assistant respectively, for the **Android** platform.

EDUCATION

Netaji Subhas Institute of Technology, University of Delhi

B.E. (Hons.) in Computer Engineering: 82.04% (Class I Distinction)

Delhi, India

2015 - 19

Bal Bharati Public School, Pitampura

12th grade (CBSE): 96%; 10th grade (CBSE): CGPA 10.0/10.0

Delhi, India

2013 - 15

PUBLICATIONS

Nagpal, Sidhant et al. (2020). "A Guided Learning Approach for GANs". In: *International Joint Conference on Neural Networks, IJCNN 2020 Glasgow, UK, July 19-24, 2020*. <https://git.io/guided-gan>. IEEE, pp. 1-8.

TECHNICAL SKILLS

Languages: C++, Python, Go, Bash, JavaScript, Java, SQL, L^AT_EX

Libraries: PyTorch, Keras, NumPy, sklearn, pandas, matplotlib, Jupyter, Selenium, Flask

POSITIONS OF RESPONSIBILITY

Mentor, Google Code-in: Reviewed the contributions by students for Sustainable Computing Research lab. *Fall 2018*

Delegate, PyCon India: Organised a developer sprint for SymPy to engage open source contributions. *Fall 2018*

ACHIEVEMENTS

Google Code Jam: Ranked **464** among **25K+** participants in **Round 3 (semi-finals)** of GCJ Competition. *2018*

Google Kickstart: Ranked **60** among **800+** participants in **Round B** of Kickstart Competition. *2017*

ACM-ICPC: Ranked **26 (Honorable Mention)** in **Asia Regionals** of ACM-ICPC Competition at Amritapuri. *2017*

Dean's Merit List: Awarded **Merit Scholarship** for securing a **top 10** position in Computer Eng. Dept. *2016-17*

Ramanujan Award: Recognition for **excellent performance** in **Math courses** by Computer Eng. Dept. *2016*

Kishore Vaigyanik Protsahan Yojana: Recipient of the **KVPY Fellowship** by Govt. of India. *2015*