

# Sidhant Nagpal

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github.com/sidhantnagpal

## EXPERIENCE

### Tower Research Capital

Software Engineer

Gurugram, India

Jun 2019 - present

- Implemented **low-latency exchange simulators** for APAC, EMEA, US venues (NSE, HKFE, KRX, Eurex, IDEM, DarkPools) pushing the accuracy over **95%** for reproducible research and 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

12<sup>th</sup> grade (CBSE): 96%; 10<sup>th</sup> 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<sup>A</sup>T<sub>E</sub>X

**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*