

# Sidhant Nagpal

sidhantng@gmail.com | (+91) 9868003602

## EDUCATION

### UNIVERSITY OF DELHI

Netaji Subhas Institute of Technology  
BE (Hons.) in Computer Engineering  
2015-19 | Delhi, India

Percentage: 82.04% (Class I Distinction)

### BAL BHARATI PUBLIC SCHOOL

Grad. 2015 | Delhi, India

Class XII: 96%, Class X: CGPA 10.0/10.0

## SKILLS

Algorithms • Data Structures • Math  
Deep Learning • Open Source Software

## LANGUAGES

Python • C/C++ • Java • Bash • SQL  
Go • LaTeX • JavaScript • HTML • CSS

## LIBRARIES & TOOLS

PyTorch • NumPy • Pandas • spaCy  
scikit-learn • Jupyter • Selenium • Git

## PROJECTS

### • Generative Models (Bachelor Thesis)

Guiding the training of GANs (Generative Adversarial Networks) using autoencoders and analysis of convergence, diversity plots

### • Computer Vision

Image generation using GANs (evaluation using Inception score, FID); Image denoising using residual learning; Image classification & Neural style transfer using transfer learning

### • Natural Language Processing

Text classification on public datasets by modeling different combinations of GloVe, FastText word embeddings with LSTM, CNN, CNN-GRU neural networks; Language modeling using GRU and beam search

### • GitHub Mini-Projects (Python)

Web App (Flask) for real-time ranking based on Elo rating and Web Scraper (Selenium) for tracking progress on Programming Judges

## MENTORSHIP ROLES

- Org Member & Google Summer of Code Mentor, SymPy Sep '18-present
- Google Code-in Mentor, Sustainable Computing Research Lab Dec '18
- SymPy Delegate, PyCon India Oct '18
- We Care & Give Back, Intuit Jun '18

## LINKS

GitHub:// sidhantnagpal

LinkedIn:// sidhantnagpal

Web:// sidhantnagpal.com

## EXPERIENCE

### TOWER RESEARCH CAPITAL | Software Engineer

Jun 2019 – Present | Gurgaon, India    *Keywords: Python, Scripting, Financial Markets*

- Developed a python library for computing financial account positions on the fly with complexities spreading across different markets and financial instruments - Equities, Futures, Options, FX, Crypto, Spreads
- Set up gitlab pipelines for CI/CD and distributed the library as a conda package for internal consumption by trading teams
- Implemented order handlers for simulation and validation of high frequency trading (HFT) activities to increase global market coverage
- Worked on ticket categorisation using NLP for aggregating issues spreading across different markets and involving different financial instruments

### MIDAS LAB, IIIT DELHI & NUS | Research Intern

Apr 2019 – Jul 2019 | Delhi, India    *Advisor: Prof. Rajiv Ratn Shah (IIIT Delhi)*

- Worked on combining lexicon embeddings and word embeddings to detect trolling, profanity and hate-speech in collaboration with Bloomberg LP (USA)
- Worked on feature selection (wrapper-based) for multimodal text classification
- MIDAS Lab is a collaboration of IIIT Delhi and National University of Singapore

### GOOGLE SUMMER OF CODE | Open Source Developer

Feb 2018 - Sep 2018    *Mentor: Prof. Kalevi Suominen (University of Helsinki)*

- Implemented discrete transforms, convolutions and recurrences modules using efficient algorithms and paradigms (dynamic programming, divide & conquer) for SymPy, a computer algebra system in Python used for symbolic mathematics
- Added Fast Fourier Transform, Number Theoretic Transform, Walsh Hadamard Transform, Möbius/Zeta transforms and corresponding convolutions
- Contributed to matrices, calculus, statistics and number theory modules

### INTUIT | Software Engineering Intern

May 2018 – Jul 2018 | Bangalore, India    *Keywords: C#, Python, REST APIs, Security*

- Incorporated encryption logic and message queue (AWS SQS) to decouple the monolithic design of IntuitMarket.com (e-commerce portal) for AWS migration
- Contributed to Intuit Data Protection Services (IDPS) SDK for cryptography
- Finished in top 2 of intern hackathon for implementing IoT & AI-based solutions for Intuit Mint to automate expense tracking using NFC and Google Assistant

### INDIAN INSTITUTE OF TECHNOLOGY | Research Intern

Jun 2017 – Jul 2017 | Kanpur, India    *Advisor: Prof. Raghunath Tewari (IIT Kanpur)*

Worked on the Dynamic DFS problem in Graph Theory and presented an efficient algorithm based on Heavy-Light Decomposition from the paper arXiv:1502.02481v3

## ACHIEVEMENTS

2018	Rank 464/24K+	Google Code Jam Round 3 (semi-final)
2017	Rank 105/1K+	Google Kickstart Round G
2017	Rank 60/800+	Google Kickstart Round B
2017	Rank 26/250+	ACM-ICPC Asia Regionals, Amritapuri
2017	Rank 41/100+	ACM-ICPC Asia Regionals, Gwalior
2016-17	Merit Scholarship	Dean's Merit List, Computer Eng. Dept.
2016	Ramanujan Award	Mathematics courses, Computer Eng. Dept.
2015	99.81%tile among 1.3M+	Joint Entrance Examination (JEE) Main
2015	Fellowship Award	Kishore Vaigyanik Protsahan Yojana (KVPY)
2014	Top 1.33% among 300K+	National Talent Search Examination (NTSE)
2008-15	Scholar Platinum Medal	Academic excellence for 8 years, High School
2010	Silver Medallist, IOM	International Olympiad of Mathematics
2010	Silver Medallist, IMMO	International Master Mathematics Olympiad