Sidhant Nagpal

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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 • Mathematics • Finance
Deep Learning • Open Source Software

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

LIBRARIES & TOOLS
PyTorch • NumPy • pandas • Jupyter
git • Selenium • Docker • Kubernetes

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, C++, Shell, Financial Markets*

- Implemented exchange simulators to process requests from trading platform and generate responses, making use of matching engine. Exchange simulators provide on-demand uptime as opposed to the limited open hours of an exchange or a UAT, which comes with its own set of limitations.
- 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.
- 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 Entance Examinantion (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