# Sidhant Nagpal

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## SKILLS

Deep Learning • Algorithms • Math
Reinforcement Learning • Open Source

### LANGUAGES

Python • C • C++ • Julia • Java
SQL • Bash • LaTeX • HTML • CSS

### LIBRARIES & TOOLS

PyTorch • Keras • FluxML • NumPy
Jupyter/Colab • Selenium • Flask
Git • Matlab/Octave • Postman

## EDUCATION

### UNIVERSITY OF DELHI

BE in Computer Engineering
2015-19 | Delhi, India
Netaji Subhas Institute of Technology
Cum. Percentage: 82.16% (top 5%)

### BAL BHARATI PUBLIC SCHOOL

Grad. 2015 | Delhi, India
AISSCE (Class XII): 96%
AISSE (Class X): Cum. GPA 10.0/10.0

## PROJECTS

- **Deep Learning for CV**
Image Generation using GANs (DCGAN, LSGAN), Autoencoders, Image Denoising using Residual Learning, Neural Style Transfer, Transfer Learning using CNNs
- **Deep Learning for NLP**
Text Classification using FastText (bag of tricks) model, Sentiment Analysis using GloVe and LSTM model, Language Model using GRU
- **Deep Learning for RL**
DQN (Deep Q-Network) and Double DQN for Q-learning to solve OpenAI gym problems
- **Game Playing AIs**
Intelligent solvers for N-Puzzle, N-Queens, Tic-Tac-Toe, Sudoku using Heuristic Search, Minimax, Hill Climbing, Simulated Annealing
- **Formal Language & Automata**
Implemented Finite, Push-Down Automata, Turing Machine for Formal Languages
- **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

## LINKS

GitHub:// **SidhantNagpal**
LinkedIn:// **SidhantNagpal**
Web:// **sidhantnagpal.com**

## EXPERIENCE

### GOOGLE SUMMER OF CODE | Developer for SymPy

Feb 2018 - Aug 2018 | Remote    *Mentor: Prof. Kalevi Suominen (University of Helsinki)*
- Implemented **discrete transforms, convolutions, recurrences** modules using efficient algorithms and paradigms (dynamic programming, divide and conquer) for **SymPy**, a **NumFOCUS** sponsored Python library for symbolic mathematics
- Contributed to SymPy modules for matrices, differential equations, solvers, combinatorial functions, SymPy bot (based on GitHub API) and Sphinx docs

### INTUIT | Software Engineering Intern

May 2018 – Jul 2018 | Bangalore, India    *Manager: Karthik Krishna (QBDT)*
- Incorporated encryption logic and distributed message queue to decouple the monolith - **IntuitMarket.com** (QuickBooks e-commerce) for AWS migration
- Contributed to Intuit Data Protection Services (IDPS) SDK for cryptography
- Presented the project to VP and Chief Architect of Product Development
- Hackathon runner-up for implementing IoT & AI-based solutions for **Intuit Mint** to automate expense tracking using NFC trigger and Google Assistant

### INDIAN INSTITUTE OF TECHNOLOGY | Research Intern

Jun 2017 – Jul 2017 | Kanpur, India    *Supervisor: 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**

## POSITIONS OF RESPONSIBILITY

- **Org Member, SymPy (GitHub)** Active contributor and pull request reviewer
- **Mentor, Google Code-in** Mentored students for Sustainable Computing Research
- **Delegate, PyCon India** Organised and conducted a developer sprint for SymPy
- **Volunteer, Intuit** Created tactile stories for blind children (We Care & Give Back)
- **Volunteer, WARUDA NGO** Created awareness about computer literacy

## PROGRAMMING EVENTS

| Year | Rank | Event |
|---|---|---|
| 2018 | Rank 464/24K+ | Google Code Jam Round 3 (semi-final) |
| 2017 | Rank 1668/25K+ | Google Code Jam Round 2 (quarter-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 |
| 2016-18 | Top 300/300K+ | Sphere Online Judge (SPOJ) |
| 2015-18 | Solved 1K+ problems | Programming Judges (Codeforces, Codechef, etc) |

## ACHIEVEMENTS

| Year | Achievement | Description |
|---|---|---|
| 2016-17 | Merit Scholarship | Dean's Merit List, Computer Eng. Dept. |
| 2016 | Ramanujan Award | Math courses, Computer Eng. Dept. |
| 2015 | 99.81%tile among 1.3M+ | Joint Entance Examinantion (JEE) Main |
| 2015 | Fellowship Award | Kishore Vaigyanik Protsahan Yojana (KVPY) |
| 2008-15 | Scholar Platinum Medal | Academic excellence for 8 years, High School |
| 2014-15 | Merit Scholarship | Science courses, High School |
| 2014 | Top 1.33% among 3L+ | National Talent Search Examination (NTSE) |
| 2013 | Best Player & Team Captain | Inter-School Hockey Tournament |
| 2011 | Bronze Medallist | Inter-Zonal Hockey Tournament |
| 2010 | Silver Medallist, IOM | International Olympiad of Mathematics |
| 2010 | Silver Medallist, IMMO | International Master Mathematics Olympiad |