

DEVANSHU SOMANI

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EDUCATIONAL QUALIFICATIONS

Year	Degree	Institute	Performance
2016 - 2020	B.Tech, Computer Science and Engineering	Indian Institute of Technology Kanpur	8.54 / 10.00
2016	Intermediate (CBSE)	Sarvodaya Sr. Sec. School, Kota	94.8%
2014	High School (CBSE)	Welspun Vidya Mandir, Kutch	10.0 / 10.0

SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 117** in **JEE Advanced 2016** among 200,000 candidates.
- Secured **All India Rank 369** in **JEE Main 2016** among 1.2 million candidates.
- Selected for the prestigious **KVPY** scholarship in 2016, in stream SX with an **All India Rank 249**.
- Ranked among the **National Top 1%** of the Physics Olympiad **NSEP '16** and was selected for **InPhO '16**.

WORK EXPERIENCE

Samsung Research and Development

Software Engineering Intern | Data Analytics Lab

Seoul, South Korea

May'19 - Jul'19

- Designed an **IoT Recommender System** for customers based upon the analysis of their **IoT usage patterns**.
- Applied **Collaborative Filtering** on a MySQL dataset using **ALS algorithm** and acquired **97.2% average accuracy**.
- Also implemented **Demographic Filtering** after carefully selecting correct features using **Pearson Correlation Matrix**.
- Increased the scope of the system to predict recommendations for **100K users** after achieving an **accuracy of 83.66%**.

ShopX

Software Engineering Intern

Bangalore, India

May'18 - Jun'18

- Built a **rating system** which **classifies the users** on a B2B e-commerce platform in **Gold, Silver etc. bands**.
- Used **QA feedbacks** and **transaction data** of the users to compute ratings and applied **K-Means Clustering** on it.
- Modelled the project so that it would **run everyday** on the updated input datasets by itself using **cronjobs**.

Accenture

Project Intern

Delhi, India

Dec'18 - Jan'19

- Designed a fixed directory system with a **rationalizing script to reduce redundancy** and repetition in **MIS reports**.
- Created a **re-work tracking application** to keep track of the company programs that are problematic and need rework.

PROJECTS

Relational Network for Zero Shot Learning

Prof. Piyush Rai

IIT Kanpur

Aug'18 - Nov'18

- Created a **2-branch Relation Network** that meta learns to compare images against semantic class embedding vectors.
- Generated feature maps using **Deep Neural Networks** and query samples generated by episode based training.
- Used **Mean Square Error Loss model** by regressing relation scores obtained by feature maps and relation module.

Pike - Golang to x86 Compiler

Prof. Amey Karkare

IIT Kanpur

Aug'18 - Nov'18

- Implemented a compiler for a fully functional subset of **Go programming language** in python **from scratch**.
- Created a **Lexical Analyzer** using **ply/yacc**, **Parser**, **Intermediate Code Generator** and **Assembly Code Generator**.
- Incorporated advanced features - function overloading, multiple level pointers, auto type inference, struct assignment.

Placement Algorithm in Graph Theory

Prof. Harish Karnick

IIT Kanpur

Oct'17 - Jan'18

- Worked on the **student-job placement system** as its equivalent problem in **graph theory** which considers **jobs' priority order of students and also the vice-versa** where the relative preferences can be set by the placement office's policy.
- Learnt various new algorithms like the **Hungarian Algorithm** and **Branch and Bound Algorithm**.

Delving into UNIX with gemOS

Prof. Debadatta Mishra

IIT Kanpur

Aug'18 - Nov'18

- ◇ Built **Paging structures** using context creation, mapped physical memory according to its virtual address layout.
- ◇ Implemented the major page fault exception handlers, **system calls** and basic interrupt and signal handlers.
- ◇ Provided concurrent access mechanisms to disk object store and implemented **Round Robin context scheduling**.

Hall Management System

Prof. Arnab Bhattacharya

IIT Kanpur

Jan'19 - May'19

- ◇ Built an **integrated system** to manage all hostel related activities: student search, room bookings, bills, announcements.
- ◇ Designed a **6 phase online hostel election procedure** and a guest room booking system with overlapping schedules.
- ◇ Used **sqlite3 databasing** with **Django** python web framework for the interface and graphviz for generating ER models.

Shoot 'em Off - Multiplayer Shooting game

Prof. Nisheeth Srivastava

IIT Kanpur

Aug'18 - Nov'18

- ◇ Designed an online multiplayer shooting game using **node.js** along with **Socket.io** and **Phaser** libraries.
- ◇ Used the Phaser technology to control the player's movements and Socket.io to communicate data between opponents.
- ◇ Also created a fully functional game login system using **SHA512 hashing** method for storing passwords.

OTHER PROJECTS

- Profile Management System:** Institute student information SQLite database management android application
- Parallel Star Clustering:** Clustered moving stars in free space parallely using multiple cores in HPC system
- Microsoft code.fun.do Hackathon 2018:** IPL match predictor web app based on Django, python and scikit-learn
- Microsoft code.fun.do Hackathon 2017:** Step tracker based fitness mobile application using phone sensors

TECHNICAL PROFICIENCY

- Programming / Scripting** C, C++, Python, Bash, Awk, R, Octave / Matlab, Make
- Web Development** HTML / CSS, Javascript, PHP, Django, Jekyll, Bootstrap, node.js, MySQL
- Utilities and Tools** Git, Vim, Linux Shell Utilities, Android Studio, LaTeX, MySQL Workbench

RELEVANT COURSEWORK

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|--------------------------------|-----------------------|----------------------------------|--------------------|
| Data Structures and Algorithms | Operating Systems | Fundamentals of Computing | Algorithms - II |
| Probability and Statistics | Software Engineering | Principles of Database Systems | Compiler Design |
| Discrete Mathematics | Computing Laboratory | Computational Cognitive Sciences | Abstract Algebra |
| Theory of Computation | Computer Architecture | Introduction to Machine Learning | Parallel Computing |

POSITIONS OF RESPONSIBILITIES

Senior Executive

Entrepreneurship Cell, IIT Kanpur

Mar'17 - Apr'18

- ◇ Involved in **creating and editing the media content** that is distributed officially from Entrepreneurship Cell.
- ◇ Served as a member of a team responsible for the media and **publicity of the cell** inside and outside the campus.
- ◇ Publicized and helped in organizing important National events like **TEDex** and **eSummit** in the campus.

Secretary

Photography Club, IIT Kanpur

Apr'17 - Apr'18

- ◇ Participated in a group in-charge of **capturing photographs** and visuals for the college's official calendar.
- ◇ **Organized many workshops and sessions** on the different virtues of photography for the campus community.

Student Guide

Counselling Service, IIT Kanpur

Jun'17 - Apr'18

- ◇ **Mentored** a group of **6 freshmen** from UG-17 batch throughout the first year of their stay at the campus.

EXTRA CURRICULAR ACTIVITIES

- ◇ Mentored a group of freshmen about **Django Web Development** under ACA, CSE Department, IIT Kanpur.
- ◇ Awarded with promotion in Taekwondo level - From **White Belt to Yellow Belt** in district level Taekwondo test.
- ◇ Stood **2nd** in **Crime Run** event, a strategy based puzzle solving event in Techkriti'17, IIT Kanpur's technical festival.