

DEVANSHU SOMANI

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Final Year Undergraduate
Computer Science and Engineering
Indian Institute of Technology, Kanpur

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EDUCATIONAL QUALIFICATIONS

Year	Degree	Institute	Performance
2016 - 2020	B.Tech, Computer Science and Engineering	Indian Institute of Technology Kanpur	8.5 / 10.0
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 **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 the MySQL dataset using **ALS algorithm** and acquired a **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 a **accuracy of 83.66%**.

ShopX

Software Engineering Intern

Bangalore, India

May'18 - Jun'18

- Built a **rating system** which **classifies the users** on the B2B e-commerce platform in **Gold, Silver etc. bands**.
- Used the **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 repitition in **MIS reports**.
- Created a **re-work tracking application** to keep track of the company programs 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**, 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**, 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 parallelly 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

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.
- ◇ Member of the 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.

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.

Secretary

Photography Club, IIT Kanpur

Apr'17 - Apr'18

- ◇ Member of 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.

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.