

# AYUSH PATEL

Senior Undergraduate, Computer Science  
Indian Institute of Technology, Delhi

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## ACADEMIC DETAILS

Year	Degree	Institute	CGPA/Percentage
2016-2020 (Expected)	B.Tech in Computer Science and Engineering	Indian Institute of Technology Delhi	9.020/10.0 (after VI Sem)
2016	Class XII, CBSE	O. P. Jindal School, Raigarh (C.G.)	97.8%
2014	Class X, CBSE	O. P. Jindal School, Raigarh (C.G.)	10/10

## SCHOLASTIC ACHIEVEMENTS

- **Top 1%** in the country in **All India Senior School Certificate Examination (AISSCE)** Class XII Examination
- Secured **All India Rank 192** in JEE Mains and **All India Rank 575** in JEE Advanced among 2 million students
- Selected as **KVPY** Scholar under ‘Kishore Vaigyanik Protsahan Yojana’ organised by Indian Institute of Science
- Awarded **IIT Delhi Merit Scholarship** for being in the **top 7%** among 850 students in the 1st and 2nd semester
- **State Topper** in All India Senior School Certificate Examination (AISSCE) for Class XII, 2016 (Conducted by CBSE)

## INTERNSHIPS

### Cloud Network Platform Development

Samsung Electronics, South Korea

*Summer Internship*

*May 2019 - July 2019*

- Developed a Generic Toolkit for Profiling, Debugging, Automation and Monitoring Health of any Kubernetes Cluster
- Improved the available Samsung Cloud Platform (SCP) Toolkits for incorporating various CNIs (eg. OpenStack Kuryr)
- Developed Real-Time Log Parser, Analyzer and Summarizer for Root Cause Analysis of Errors and Cluster Breakdown

### DashCam Car Accident Prediction

ITRI, Hsinchu, Taiwan

*Summer Internship*

*May 2018 - July 2018*

- Built Python module to crawl DashCam Videos from web and separate clips from these videos that contain car accidents
- Worked with OpenCV, scikit-learn, Darknet YOLO, selenium and various open-source image processing algorithms
- Used Python Tensorflow to train a model for predicting car accidents to be used in self-driving cars to avoid accidents

## MAJOR PROJECTS

### Automotive Security System (ongoing)

Prof. Smruti Ranjan Sarangi (CSE, IIT Delhi)

- Studied the architecture of Controller Area Network (CAN) bus and Plug-in Hybrid Electric Vehicle (PHEV) Technology
- Devising an improved architecture which tackles the existing security vulnerability without hampering the performance

### Nokia ML Hackathon Platform

Prof. Niladri Chatterjee (Maths, IIT Delhi)

Worked with Hadoop, Docker, JupyterHub etc. to develop a platform for hosting large scale Data Science Hackathons

### Capture The Flag WebApp

Prof. Ranjan Bose (CoE-CSIA, IIT Delhi)

Developed a CTF webapp on Django Framework with sqlite for hosting information security competitions on large scale

### Tank Assault (DevClub IITD Project)

Developed a web based multiplayer game with Node.JS as Backend server and used sockets for real time connections

### Protective Cover for Mobile Phones

Prof. Sudipto Mukharjee (ME, IIT Delhi)

Designed and Implemented embedded system of a phone cover whose corners expand on falling(used SMA and AtTiny)

## COURSE PROJECTS

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### **Multicycle ARM Processor**

Prof. Anshul Kumar, March, 2018 - April, 2018

Developed a Multicycle processor for the ARM ISA in VHDL on FPGA, implementing AHB Lite Bus for connections

### **Prolog Interpreter**

Prof. Sanjiva Prasad, March, 2018 - April, 2018

Implemented an interpreter for Prolog in OCaml using OCaml-lex for token generation and OCaml-yacc for parsing

### **Software Package for Engineering Drawing (ED)**

Prof. Subhashis Banerjee, January, 2018 - February, 2018

Used OpenCV and Qt C++ to build a software package for performing ED operations on a given 3D model / 2D figures

### **Elevator Control System**

Prof. Anshul Kumar, August 2017 - September 2017

Designed and Implemented an Elevator Control System to serve simultaneous requests on multiple lifts

### **Game-Bots using ML and AI**

Prof. Mausam (October 2018), Prof. Parag Singla (March 2019)

Built Robots for numerous games (eg. Yinsh, Arkanoid) using Q-learning, CNN and various Deep Learning Models

## COURSES UNDERTAKEN

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### • **Institute Courses:**

*\* Currently Pursuing*

Data Structures, Discrete Mathematical Structures, Probability & Stochastic Processes, Programming Languages, Computer Architecture, Digital Logic & System Design, Calculus, Signals & Systems, Linear Algebra & Differential Equations, Computer Networks, Analysis & Design of Algorithms, Digital Image Analysis, Artificial Intelligence, Machine Learning, Parallel & Distributed Programming, Operating Systems, Linear Programming, \*Cloud Computing

### • **Online Courses:**

Machine Learning (by Stanford University), Deep Learning (by Stanford University)

## TECHNICAL SKILLS

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### • **Programming Languages:**

C, C++, Java, C#, Python, HTML, CSS, JavaScript, PHP, SQL, Bash, VHDL, LaTeX, Ocaml, Prolog, Scala, XML

### • **Softwares and Frameworks:**

Docker, Kubernetes, OpenCV, Openstack, OpenMP, MPI, CUDA, Ansible, Django, EmberJS, SailsJS, NodeJS, ExpressJS, Android Studio, React-Native, Eclipse, NetBeans, Git, Xilinx ISE Design Suite, Vivado, MATLAB, Visual Studio, Apache Hadoop, Spark, PyTorch, Tensorflow, KVM, QEMU, Neutron, GAMS

## EXTRA CURRICULAR ACTIVITIES

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- **Executive Team Member and Developer** in **DevClub** (Developers' Club IITD) (January 2017 - Present)
- **Web Executive / Technical Representative** in **BSA IITD, AAIP IITD, SAC IITD** (April, 2017 - April, 2018)
- Took various Development Sessions as **Microsoft Student Partner India, 2017** ( Delhi-NCR Region )
- **Overall Coordinator / Manager / Developer** of Nokia Data Science Hackathon IIT Delhi (April 2018)
- Part of **Hostel Organizing Committee** (Mess Committee, Fest Organization)

## POSITION OF RESPONSIBILITIES

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- **Technical Coordinator** in **Board for Recreational and Creative Activities, IITD** (April, 2018 - March, 2019)
- **Technical Secretary cum Coordinator** in **Board for Hostel Management, IITD** (April, 2017 - March, 2019)
- **Computer and Library Secretary** in **Satpura Hostel, IIT Delhi** (April, 2018 - March, 2019)
- **Technical Coordinator** in **Tryst (Technical Festival of IIT Delhi)** (May, 2018 - April, 2019)
- **Mess Secretary** in **Satpura Hostel, IIT Delhi** (April, 2019 - Present)