Ayush Patel

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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 (HQ), 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

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

- **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 Programing, Operating Systems, Linear Programming, *Cloud Computing
- **Online Courses:**
  Machine Learning (by Stanford University), Deep Learning (by Stanford University)

Technical Skills

- **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

- **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

- **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)