

Akshat Khare

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EDUCATION AND ACADEMIC DETAILS

Degree/Exam	Institution	CGPA/%age	Year
B.Tech, Computer Science & Engineering	Indian Institute of Technology, Delhi	7.412	2016/20
CBSE	AKLANK PUBLIC Sr. Sec. School Kota	91%	2016
CBSE	Carmel Convent Sr. Sec. School Amlai	10	2014

QUALIFYING EXAM

- JEE (Advanced):** Secured **All India Rank 63** for admission to IITs among a total of **1.5 million students**, i.e., **top 0.0042%** of the total.

SCHOLASTIC ACHIEVEMENTS

- Kishore Vaigyanik Protsahan Yojana (KVPY):** Achieved **All India Rank 512** in KVPY organised by **IISc, Bengaluru** and Department of Science and Technology, Government of India; was awarded a fellowship for the same.
- National Standard Examination in Physics (NSEP):** Qualified NSEP the year 2015-16, being in **top 1%** in the country.
- National Standard Examination in Chemistry (NSEA):** Qualified NSEC the year 2015-16, being in the **top 1%** in the country.
- National Talent Search Examination (NTSE):** Selected as NTSE scholar in 2012, conducted by NCERT. A yearly grant is being provided by NCERT, an autonomous body of Ministry of Human Resource Development, Government of India.
- National Science Talent Search Examination (NSTSE):** Secure **All India Rank 101** in NSTSE organised by Unified Council, Hyderabad.
- BITSAT 2016:** Qualified BITSAT organised by Birla Group of Institutions for admission in **BITS**.
- Vigyan Manthan Programme (organised by M.P. Govt., India):** Selected to represent the state being the **top 100 meritorious students** of the state in 2012 and 2014. Awarded **Vigyan Manthan Scholarship** in 2014 for being the top 25 among them.

INDEPENDENT PROJECTS

Web Applications Penetration Testing

[under Prof. Ranjan Bose, May 2017-July 2017]

Report: <http://bit.ly/2h6MKfM>

- This project was developed as a part of the **Summer Project** for **Center of Excellence in Cyber Systems and Information Assurance (CoE-CSIA), IIT Delhi**.
- Project typically included network penetration testing and application security testing as well as controls and processes around the networks and applications, and should occur from both outside the network trying to come in (external testing) and from inside the network. Analysed, learnt and documented the various techniques and skills related to Web Penetration Testing, various security issues and applied it to get the threat level of various platforms and make them secure accordingly. System Penetration testing was also done.

Arduino Android Sync App (Andruino)

[Robotics Club IIT Delhi, May 2017 - July 2017]

URL: <http://bit.ly/2za2WS3>

- This project was developed as a part of the **Debugging Project** for **Robotics Club, IIT Delhi**.
- Worked on Android Studio, and made an app to integrate Arduino with an Android device via Bluetooth module (HC 05) in Arduino and Bluetooth adapter in Android device. Can act as a remote control vested in your phone to control any Arduino Mega or Duo powered bot. Controlled speed and ramping of the line following bot efficiently.

kipDist (OpenCv, ML Algorithms, C++, Android Studio)

[Road Safety Hackathon 2018, February 2018]

Presentation: <https://akshat-khare.github.io/kipDist.pdf>

- Overall Winner of the Hackathon**, being **funded** and **supported** by Startups **LiveMedia, Solve**. To be presented to **Ministry of India**, by May 2018. Working to make it mobile app based solution.
- Made an application which **calculates the distance of a vehicle from the device by using 2-D** images taken from the camera, consequently checking if the **3-second rule** is being followed or not, thereby **reducing accidents on road**. Used Machine Learning techniques with Open Source tools like **OpenCv**, Visual Studio 2018. Lane-Detection and other obstacle detection are also being done.

Robot for ABU ROBOCON 2018 VIETNAM

[under Prof. Sunil Jha, Robotics Club IIT Delhi, August 2017 - November 2017]

- This project is being developed for contesting in **ABU ROBOCON 2018 VIETNAM**.
- This is an intensive project which involves developing two robots (one being totally autonomous) capable of collaborating and throwing a shuttle cock under some desired conditions through three loops one after the other in least possible time.

Text to Sign Language Interpreter

[under Prof. M. Balakrishnan; December 2017-Present]

- In initial planning phase. The aim is to develop a dynamic natural text to sign language converter to aid the physically challenged people.

Question Paper Portal BSW

[BSW Web Executive; December 2017]

URL: <http://bsw.iitd.ac.in/questionpaper.php>

- Developed a totally autonomous study portal with admin login privileges using php, html and javascript for the Official Student Body of IIT Delhi, Board of Student Welfares.

Connect bot

[CodeFunDo Microsoft; January 2018]

URL: [Analyzer Bot](#)

- Developed a bot using Azure bot service on Node.js and hosted it on Facebook. The bot analyses the given paragraph and gives the most relevant articles regarding it and searches for research papers, news and definitions regarding it. It also extracts text out of the image and searches articles related to it.

[Web Development Intern at Quadrotian; March 2018]

- Developed a totally autonomous content syncing portal with admin login privileges using php, MySQL, html and javascript for the Startup Quadrotian in a week. Also developed their new website. Planning to develop chatbot and mobile app for them.

COURSE PROJECTS

Mouse Positioning using VHDL

[Prof. Anshul Kumar, October 2017 – November 2017]

- Implemented a VHDL code to interface USB mouse with Basys 3 board using the USB HID port on the FPGA.
- Processed the input stream from the mouse to blink various LEDs as per the coordinates of the mouse.

Software Package for Engineer Drawing

[Prof. Subhashis Banerjee, January 2018 – Present]

Mathematical Model: [Link](#)

- Interactively I/O 3D object model, projections from a file. Gives projections from 3D models and vice-versa.

Othello/Reversi Game in Arm and Java

[Prof. Anshul Kumar, January 2018]

Github Link: <https://github.com/akshat-khare/reversijava>

- Made a game on Arm and Java with 2 player support. A automated programme is also made to watch two computers competing.

Image Compression Algorithm

[Prof. Mausam, September 2017]

- Implemented a fast and efficient image compression algorithm for a grayscale image and implemented various operations on a pair of images. Implemented adjacency list style of representation for image to reduce the storage size of image. Such representation provided compression without compromising the quality of image when expanded back.

Anagram Finder

[Prof. Mausam, July 2017 – Present]

- Implemented Hashtables for storage of dictionary for fast-retrieval of words based on the hash encoding. Used self-implemented string hashcoding for searching multi-word anagrams for the given word. Implemented a hashing algorithm to store all words in the given dictionary in order to enable fast search for all one word, two word and three word anagrams of a word.

8 Puzzle Problem

[Prof. Mausam, November 2017]

- Implemented an efficient algorithm to solve the 8 puzzle game. Utilized Dijkstra's algorithm and a self implemented hashing algorithm for this purpose.

RELEVANT COURSES

Computer Science: Introduction to Computer Science, Data structures, Digital Logic and System Design, Discrete Mathematical Structures, Programming Languages*, Computer Architecture*, Design Practices in Computer Science*

Mathematics: Linear Algebra, Calculus, Probability and Stochastic Processes

Online: Mastering Penetration Testing, Ethical Hacking, Metasploit Framework, Machine Learning*, Quant Trading*

Others: Signals and Systems, Healthcare and Technology*, Engineering Mechanics, Introduction To Chemistry, Chemistry Laboratory, Introduction To Electrical Engineering, Engineering Visualization & Communication, Product Realization By Manufacturing, Calculus, Linear Algebra & Differential Equations, Electromagnetic Waves & quantum mechanics, Physics Laboratory.

*Courses currently pursuing

TECHNICAL SKILLS

Programming Languages:

Intermediate: Java, Python 2.7, JavaScript, PHP, HTML, CSS, jQuery, Python 3.0, OCaml, ARM, SQL

Basic: C++, C, Swift, Arduino 1.8.4

Softwares, Tools and Packages:

Intermediate: MetaSploit, Android Studio, Kali Linux, Autodesk Inventor, Photoshop CS6, ARMSim, Nmap, Vivado, Xilinx, Git, Django

Basic: ROS, BeagleBone, Xcode, Ansys, Solidworks, Veil, Beef, Armitage, Web-Dojo

EXTRA-CURRICULAR ACTIVITIES

- Indian Road Safety Campaign: Supervised a Technical Internship** at IIT Delhi done by team of four (two from IIT Delhi, one from IIT Roorkee, one from IIT Kharagpur) doing a project under **Prof. Geetam Tiwari** and **Prof. Dinesh Mohan** on "**Accident Data Analysis**". The project successfully got completed in the summers of 2017. [Presentation](#) | [Report](#).
- Aquatics Club, IIT Delhi:** Gone through rigorous training period of over 3 months and thereby got selected for **Summer training camp** for Aquatics in the summers of 2017.
- Ethical Hacking Workshop:** Did the workshop followed by assignment and was certified.
- House Day Video:** Directed and acted in the House Day Video Aravali 2017.
- Inter Hostel Group Dance, Streetplay and Stageplay:** Sixth in Group Dance, fourth in Stage Play, appreciated in Street Play 2k16.
- Hackathons:** Winner of Road Safety Hackathon and successful submission of ChatBot in CodeFunDo Microsoft .

POSITIONS OF RESPONSIBILITY

- Executive, Technical Arm, Indian Road Safety Campaign** (Dec, 2016 – July, 2017)
- Web Executive, Board of Student Welfares (BSW) IIT Delhi** (May, 2017 - Nov, 2017): Site Maintenance of the official student body of IIT Delhi
- Web Development Intern, Quadrotian** (March 2018)
- Robotics Team Member IIT Delhi** (Mar, 2017 - Nov, 2017): Going to participate in ABU ROBOCON 2018 Vietnam.
- Activity Head Sportech 2017** (Feb, 2017)
- Content Team Head Sportech 2017** (Feb, 2017).
- Team Head Tryst 2016** (Feb, 2017)