# Ashwin Pathak

*Curriculum Vitae*

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## Education

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| 2015-Present | **B.Tech(Honours) in Computer Science and Engineering**, *International Institute of Information Technology*, Hyderabad, *CGPA : **9.25***. |
| 2013-2015 | **Senior Secondary, CBSE**, *Vijayvergiya Bal Vidyalaya*, Kota, *Percentage: **94.6%***. **Topper of the school.** |
| 2013 | **Secondary, CBSE**, *St. Joseph's Convent S.S. School*, Sagar, M.P. *CGPA: **10*** |

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## Experience

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| Aug 2017 - Present | **Teaching Assistant**, DIGITAL LOGIC AND PROCESSORS, IIIT. Working under **Prof. Madhava Krishna** to conduct lab and tutorial sessions for the first year undergraduate students. |
| May 2017 - Present | **Honours Research**, CENTER FOR VISUAL INFORMATION TECHNOLOGY, IIIT. Working under **Prof. P.J. Narayanan (Director of the institute)** in the field of **Augmented Reality** on the topic: hand-held user perspective rendering and optimization. |
| Aug 2016 - Nov 2016 | **Web Developer**, NE78 INDIA, T-Hub. Worked in a team of 4 on a web application portal: GETrux based on PHP Laravel framework to add various gateways and enhance user interface. |

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## Projects

**Major**.

- **SciPy.diff**, PYTHON SOFTWARE FOUNDATION.
  A contributor to the open source organization of library scipy of python. Currently working on the implementation of a **new module: scipy.diff** to support accurate computation of derivatives using finite difference method.

- **Ultimate Tic-Tac-Toe**, ARTIFICIAL INTELLIGENCE.
  An AI bot capable of playing 4*4*4*4 Tic-Tac-Toe. It involves **heuristics, minimax, alpha-beta pruning, and iterative deepening algorithms**. Stood 6th in a tournament of similar bots

- **Linux Shell**, OPERATING SYSTEMS.
  Implemented a basic command line (bash like) Linux shell using **system-calls in C**. Capable of command inputting, parsing and execution of basic commands, along-with handling foreground and background processes concurrently using threads.

- **Web Server**, COMPUTER NETWORKS.
  Implementing a threaded web server using **socket programming and TCP/UDP protocols** to share files and messages between server and client.

- **Bloxorz**, COMPUTER GRAPHICS.
  Made a 3-D game using OpenGL library in C++.

  **Minor**.

- **Made a 2-D Brick-Breaker game in C++**, *OpenGL*.
- **Developed a Survey application**, *Ruby on Rails*.
- **Made a Tetris game**, *PyGame*.
- **Made an animation movie using Unity (C#) and Blender**, *Computer Graphics*.
- **Developed a campus store (similar to OLX) portal**, *Web2py*.
- **A simulation of a humanoid arm with analysis of design and systems engineering**, *Gazebo*.

## Skill Set

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| OS | LINUX, WINDOWS, ANDROID(BASIC) |
| Programming and Scripting | C, C++, PYTHON, BASH, MATLAB, ASSEMBLY LANGUAGE, JAVA(BASIC), RUBY(BASIC) |
| Web | HTML, CSS, JAVASCRIPT, JQUERY(+AJAX)(BASIC), LARAVEL(BASIC), DJANGO, WEB2PY |
| Miscellaneous | SQLITE, NEO4J(BASIC), GIT, VIM, OPENGL, UNITY GAME ENGINE, VUFORIA, NOSETESTS |

## Relevant Courses

- (Current Courses) Statistical Methods in AI, Digital Image Processing, Distributed Systems, Graph Theory
- Computer Programming, Data Structures, Algorithms, Operating Systems, Artificial Intelligence, Computer Graphics, Computer Networks
- Introduction to Databases, Structured Systems Analysis and Design, IT Workshop( 1 & 2), Digital Logic and Processors, Computer System Organization

## Achievements and Extra-Curricular

- In **Dean's Merit List for Academic Excellence** (top 5% of the batch).
- Became a **National Talent Search Examination(NTSE) scholar** in the year 2013 conducted by NCERT.
- Maximum rating of 1400 in Codeforces. Handle : **ashp20**
- All India Rank 1913 among 1.3 million in Joint Entrance Exam(Mains)
- All India Rank 6050 among 0.1 million in Joint Entrance Exam(Advanced)
- Became a merit holder in maths and science Olympiads conducted by Eduheal Foundation - 2013
- Stood **4th in the National Finance Olympiad** conducted by Eduheal Foundation and co-sponsored by **Bombay Stock Exchange** - 2013
- Became a Student Mentor for the first year undergraduate students - 2017
- Active participant in Dance and Art events.