# Himanshu Pahadia

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## EDUCATION

**Indraprastha Institute of Information Technology** — Delhi, India
*Bachelor of Technology, Computer Science; GPA: 7.44/10.0* — Aug 2014 – Jun 2018

**Amrita Vidyalayam** — Delhi, India
*Senior School, Science stream - CBSE; Percentage: 90%* — May 2014

**Andhra Education Society school** — Delhi, India
*High School, CBSE; GPA: 9.4/10* — May 2012

## SKILLS

- **Concepts and Technologies**: Computer Vision, Deep Learning, Augmented Reality, Virtual Reality, Android development, Arduino development, Human Computer Interaction
- **Programming Languages**: Python, Java, JavaScript, C/C++, C#, BluePrint Visual Scripting (Unreal engine), HTML, CSS
- **Tools and Libraries**: TensorFlow, TensorFlow Lite, Keras, Android SDK, Unity3D, Arduino, OpenCV, OpenGL, ROS, Facebook Prophet, Unreal Engine 4, Google VR SDK, Oculus SDK, SteamVR SDK, ROS, Vuforia SDK, Autodesk 3ds Max, Git, Blender, Soot Analysis, Django, Flask, MongoDb, MySQL, Adobe Creative Suite (Photoshop, Illustrator, Premiere Pro), Proto.io, Matlab, Octave, LaTex

## EXPERIENCE

**Hitachi Vantara** — Pune, India
*Data Scientist* — Sep 2019 - Present

- Member of the AI team in Insights and Analytics COP. Researching and developing solutions in Deep Learning, Computer Vision and Extended Reality.
- Team Lead for a Bengalathon 2019 (nation-wide Hackathon) participating team - "Road Runners". We designed and developed a solution - Smart Roads - aimed to improve road safety using computer vision and intelligent analytics for the government. **Our team stood second among 2500 teams that participated in the event.**
- Lead architect for Virtual Experience Platform which aims to provide an end-to-end solution for immersive training creation, training assignment and analytics on various parameters during training. **Won HiLife award for outstanding performance in the project**
- Lead architect for Hitachi's XR Suite - a platform with six XR applications for the manufacturing industry. Responsible to design the solution architectures along with technology stack and estimate efforts to develop the platform.

**Zenlabs, Zensar Technologies** — Pune, India
*Associate Innovation Engineer* — Jun 2018 - Aug 2019

- Member of Smart Iye team (Computer vision, augmented reality, virtual reality) at the Zenlabs, research and innovation center of Zensar Technologies.
- **Filed two patents in the computer vision domain. One more in the filing stage.**
- Designed, developed and delivered a smart visual analytics system - ZenVAS (Zensar's Visual Analytics System). The system is enabled with real-time person tracking, person re-identification, emotion recognition, age and gender recognition. It has a realtime and an analytics dashboard with numerous insights about the people.
- Worked on a CTO-led special project in the autonomous driving domain. Gained knowledge about the Electromechanical elements of an electric golf cart, semantic segmentation, object detection, lane detection using CV algorithms and use of CNN for steering angle prediction. Received recognition from the CTO for taking on projects with high risk, huge learning curve and tight deadlines. **Won Team Eureka Award for implementing innovative solutions into the project.**

- ○ Designed, developed and delivered a real time hand gesture recognition system using deep learning neural networks (on TensorFlow). The system is being used as an interaction module in a smart retail system and a mouse control system on MacOs.
  - ○ Worked on multiple virtual reality and augmented reality solutions. Zenlabs' VR walkthrough app that I developed has been shown on multiple conferences and client visits.
  - ○ Organized the first edition of ZenXpo - an internal research showcase event where the teams presented different solutions they've built in AI, IoT, Blockchain, AR and VR.

- **Zenlabs, Zensar Technologies**        Pune, India
  *Research and Development Intern*        *May 2017 - Jun 2017*
  - ○ **Received Pre-placement offer.**
  - ○ Designed, developed and delivered a smart retail system called Smart Window. The user can explore a wide variety of products catalogue using hand gesture recognition, voice recognition and facial recognition.
  - ○ Developed a virtual reality walk through of Zenlabs. Designed the 3D models from scratch too.

- **Uber**        Delhi, India
  *Graphic design Intern*        *Jun 2016 - Aug 2016*
  - ○ Worked on Uber's Loyalty program for Bengaluru Uber drivers. Designed multiple promotional posters using Adobe Illustrator and Adobe Photoshop.

- **IIIT Delhi**        Delhi, India
  *Research Intern, Virtual Campus Project*        *May 2015 - Jul 2015*
  - ○ Worked with Dr. Ojaswa Sharma (IIIT Delhi) on Virtual Campus Project, a 3D interactive and immersive virtual/mixed reality environment of IIIT Delhi campus designed to support geospatial services including smart navigation and telepresence. I was responsible for developing the 3D model of the campus - rendering contours, terrain and virtual walkthrough in CryEngine. I developed the project's website too.

## Patents

- **A system and method for performing tasks based on multi-modal hand gesture recognition**: The patent proposes a novel system to capture the high-frequency vibrations produced as a result of muscle traction and visual feed to recognize and classify the hand gestures. It uses an ensemble neural network and performs tasks on the basis of recognized micro or macro-gestures. (Patent app no. - 201821049794)
- **An unmanned aerial vehicle and a method thereof**: The patent proposes an architecture of a surveillance drone that is equipped will multiple environment mapping sensors. The drone follows the person and keeps track of any suspicious activity happening around the user he's surveilling. A pretrained neural network can identify possible threats through a series of data. (Patent app no. - 201921023696)
- **Smart Mixed Reality headset with egocentric vision capture and a method thereof**: Patent proposes the architecture of a mixed reality headset with an egocentric camera that captures user's daily activity which is later utilised to realise personal well-being, health tracking, fitness tracking and personal safety. MR enabled Headset helps the user visualise contextual information more seamlessly and effectively. (Filing in progress)

## Honors and Awards

- Won the **second prize at national level Hackathon - Bengalathon 2019** - for Smart Road project which aimed to improve road safety and reduce fatalities due to road accidents. The project was approached by Govt. of Bengal to be implemented in the smart city - New town situated in West Bengal.
- Won the **HiLife award** by Hitachi Vantara for outstanding performance and contribution towards taking ownership.
- Self-driving golf cart project team won **"Team Eureka"** award at Zensar's Corp Dev Awards for Q3 of FY 2018-19.
- Won Gold medal at school level Science Olympiad.

## Workshops

- **Mentor, Winter School on User Experience Design, IIIT Delhi**: Mentored teams during the winter school. Taught high fidelity prototyping, online task analysis and prototype testing.

## Selected Projects

- **Interactive Swept Surface Modeling in Virtual Reality**: An interactive VR application that allows the user to sweep surfaces in virtual environment using both the motion-tracked controllers. It is an implementation of a paper by Tim McGraw, Esteban Garcia and Drew Summer (Purdue University).
- **Project Lazy Pizza**: Designed a platform that crowdsources the food delivery system within IIIT Delhi campus by implementing a barter system and virtual currency. Designed and developed the android application after following UX practices.
- **Depixelize Pixel art**: Implemented an algorithm that interpret each pixel of the pixel art and convert them into regions that can be drawn using piecewise-smooth curves. It is an implementation of a paper by Johannes Kopf and Dani Lischinski.
- **Safety first application**: An android application that aims to provide safety while driving. It predicts whether the person is driving using a trained model on collected accelerometer data, and takes action on whether to mute incoming notifications.
- **Smart Automotive Bot**: Smart car, powered by Raspberry Pi and multiple sensors like Ultrasonic, infrared and Pi camera, that can understand the traffic signal, detect platform edge and obstacles.

## Volunteering

- **Health Fitness Trust**     Delhi, India
  *Teacher*     *Dec 2017 - Jan 2018*
  - I volunteered as a teacher in a Minority group skill enhancement project at the NGO (partnered by Ministry of Minority Affairs)
  - Taught 20-30 students English, soft skills, computer science and career enhancement skills.

## Organizations and Activities

- ZenXpo'19 (Zenlabs' Research showcase) - Organizing committee
- Ink. (Design club) - Club Coordinator
- Media Panel (Official content to IIIT Delhi) - Head, Design team
- Odyssey'18 (Cultural fest) - Creatives Head, Organizing committee
- UX design winter school'17 - Teaching Assistant
- Esya'16 (Technical fest) - Creatives Head, Organizing committee
- Design 360 (IIIT Delhi's first designathon), Odyssey'17 - Event head
- TEDxIIITD'16 - Design Head
- Cadence'16 - Event organizer, Organizing team
- Esya'15 - Organizing team
- Odyssey'15 - Organizing team