

# K Naveen Kumar

Ph.D. Research Scholar, IIT Hyderabad

## Address

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## Links

Portfolio  
Linkedin  
Github  
Research Gate  
Google Scholar

## Programming Skills

Python, C  
Pytorch  
Tensorflow  
Matlab  
TensorRT  
JS, JQuery  
Android-  
Development  
PHP

- I am pursuing Ph.D. in the Dept. of computer science and engineering at the Indian Institute of Technology, Hyderabad (IITH)
- I was an **MTech research assistant (RA)** in the visual learning and intelligence lab (**VIGIL**) at IITH in Jan 2019 and worked in "smart cities for emerging countries based on sensing, network, and big data analysis of multimodal regional transport system (**M2Smart**)" project funded by **JICA/JST, SATREPS**
- My research interests are (a) adversarial federated learning (AFL) in autonomous vehicle technology, (b) exploring vulnerability, adversarial robustness of 2D/3D deep learning models, (c) transferability, generalizability of 2D/3D adversarial attacks
- I aspire to excel in academic research, deployable AI

## Education

2020(Jan) - Now	<b>PhD Research Scholar - Computer Science &amp; Engineering</b> CGPA : 9.38/10 (16 credits)	IIT Hyderabad
2019(Jan) - 2019(Dec)	<b>M.Tech(RA) - Computer Science &amp; Engineering</b> CPI : 8.65/10	IIT Hyderabad
2014 - 2018	<b>B.Tech - Computer Science &amp; Engineering</b> CPI : 8.97/10	IIIT Vadodara
2012 - 2014	<b>Twelfth - MPC</b> 97.7%	Sri Chaitanya Junior College, Hyderabad
2011 - 2012	<b>Tenth - SSC</b> GPA : 9.8/10	New Nalanda High School, Tandur

## Publications

- K Naveen Kumar, C Vishnu, Reshmi Mitra, C. Krishna Mohan, "Black-box Adversarial Attacks in Autonomous Vehicles", in **IEEE Applied Imagery Pattern Recognition (AIPR) workshop**, pp. 1-7, 2020 [\[paper link\]](#), Rank - B
- Debaditya Roy, K Naveen Kumar, C. Krishna Mohan, "Defining Traffic States using Spatio-Temporal Traffic Graphs", **IEEE 23rd International Conference on Intelligent Transport Systems (ITSC)**, pp. 1-6, 2020 [\[paper link\]](#), Rank - A
- K Naveen Kumar, Mitra R., "Resource Allocation for Heterogeneous Cloud Computing Using Weighted Fair-Share Queues", in Proc. **IEEE International Conf. on Cloud Computing in Emerging Markets (CECM)**, pp. 31-38, 2018 [\[paper link\]](#), Rank - B

## Industry Experience

05/19 - 07/19	<b>Intern</b> Worked on real-world challenging problem statement in medical domain called human blood cell detection, classification, counting from microscopic images using deep learning	IIT Hyderabad
01/18 - 06/18	<b>Internship as Innovator</b> Worked as a data analyst on a developed digitized solution for a social challenge called improving road safety-changing the way we ride, by the process of design thinking, innovation	TCS-Digital Impact Square

## Coursework

Reinforcement-  
Learning  
Computer Vision  
Deep Learning  
Pattern Recognition  
Machine Learning  
Embedded Systems

## Research Experience

08/21 - 11/21 **Special Auditing Student**

[Hiroshima University, Japan](#)

Received research internship under International Linkage Degree Program (ILDP) for Developing Innovators Transforming Advanced Technology to Social Goals at Hiroshima University. The work will be done under Prof. Kurita Takio, Graduate School of Advanced Science and Engineering, Hiroshima University, Japan. Duration of the internship is from Aug 02, 2021 to Nov 01, 2021.

05/17 - 07/17 **Research Internship**

[IIIT Vadodara, Gujarat](#)

Worked on a resource management algorithm for datacenter consolidation to allocate memory, network and computational resources for heterogeneous virtual machines under Dr. Reshmi Mitra, previously Asst. Prof. IIIT Vadodara, now Asst. Prof. Southeast Missouri State University, USA.

## Personal Skills

Mentored (15 intern  
projects)  
Leadership  
Team Management

## Awards & Achievements

2019 **Stood as top 10 finalist in Nvidia AI Hackathon**

[Nvidia AI Hackathon](#)

Invited to participate in Nvidia AI hackthon finals 2019 at C-DAC Pune, Maharashtra, India

2019 **Selected in IITH-RU Project Based learning program**

[IITH-RU Japan](#)

One of the top 10 selected students under IIT Hyderabad, India and Ritsumeikan University (RU), Japan collaboration program to visit RU Japan and work with Japanese students

2019 **Stood 2<sup>nd</sup> in Hackathon**

[IIT Hyderabad](#)

Won second prize in **Kaggle Machine Learning competition** conducted as a part of **Science & Technology Week at IIT Hyderabad (2018 - 19)**.

2018 **Best Research Paper Award**

[IEEE CCEM 2018](#)

Research paper got accepted in **IEEE CCEM 2018** out of **50 submissions**. Won **best paper award** and a prize money **20k INR** out of **8 other papers**.

## Certification(s) links

Best Paper Award  
Sakura RU Japan  
Nvidia AI- Hackathon  
Internship:TCS-DISQ  
Second prize-ML  
NN & DL  
Android App Devel.  
CS with Android  
Intro. to IOT  
FAEA Workshop

## Funded Projects

08/20 - 01/21 **iV4V (Intelligent Voice for Vision) - An intelligent and reliable audio assistance for visual impairment using AI**

[Bold and Unique Ideas Leading to](#)

[Development \(BUILD\) IIT Hyderabad](#)

Design and Development of AI based real-time light-weight priority audio alert system (smart glasses) for visually impaired funded by **IIT Hyderabad** – Rs. 1 lakh for 6 months (Aug 2020 – Jan 2021)

**Role - Principal Investigator (PI), Project Lead**

[Product demo link](#)

01/19 - Till date **M2Smart**

[IIT Hyderabad - JICA & JST SATREPS](#)

Smart Cities for Emerging Countries Based on Sensing, Network, and Big Data Analysis of Multimodal Regional Transport System (M2Smart) Funded by JICA / JST SATREPS – 5 years (May 2017 - April 2022)

**Role - Team Leader (Group 1)**

## Scholarships

05/15 - 5/18 **Scholar (CC-20153914)** [Foundation for Academic Excellence and Access \(FAEA\), India](#)  
Selected as one among 50 merit students all over India in the batch of 2015 and received a scholarship for three years.

## Academic Projects

01/19 - Till date **IITH Smart Parking System** [IIT Hyderabad - M2Smart\(JICA & JST\)](#)  
Developed an AI based smart solution for IIT parking system and is under deployment stage

08/19 - 03/20 **Collision warning in autonomous vehicles using 3D spatial information** [IIT Hyderabad](#)  
Working on novel approach for collision warning in autonomous vehicles using 360° camera data

01/17 - 05/17 **Orientation and distance calculation of helmetless motorcycle riders using 3D spatial information** [IIT Hyderabad](#)  
Developed a solution to detect incoming and outgoing helmetless motorcycles along with distance from camera

01/19 - 06/19 **Traffic segmentation, Vehicle detection** [IIT Hyderabad - M2Smart\(JICA/JST\)](#)  
Currently working on a collaborative project of IITH, JICA/JST

05/19 - 07/19 **Human blood cell detection, classification, counting** [IIT Hyderabad](#)  
Worked on real world challenging dataset comprising of human blood cell to develop an AI solution for generating final bloodcell count report

## Other Skills

08/15-08/16 **ART Club Secretary** [IIIT Vadodara](#)  
Organized events held in college

08/09-08/11 **Senior Cadet in NCC** [New Nalanda High School](#)  
Done volunteer Services

08/16-Now **Realistic Portrait Sketching**  
**Sketch-IFY, NK\_Xplore**

**Languages**  
English: professional proficiency  
Telugu: native  
Hindi: conversational