

K Naveen Kumar

Ph.D. Research Scholar, IIT Hyderabad

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

Publications

- K Naveen Kumar, Digvijay S Pawar, C Krishna Mohan, "Open-air Off-street Vehicle Parking Management System using Deep Neural Networks: A Case Study", Accepted in **COMSNETS 2022: Intelligent Transportation Systems Workshop, 2022**
- 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 (CEEM)**, pp. 31-38, 2018 [[paper link](#)], Rank - B

Industry Experience

05/19 - 07/19	Intern Worked on read-world challenging problem statement in medical domain called human blood cell detection, classification, counting from microscopic images using deep learning	IIT Hyderabad
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Coursework

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

Personal Skills

Mentored (16 intern
projects)
Leadership
Team Management

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

01/18 - 06/18 **Internship as Innovator**

[TCS-Digital Impact Square](#)

Developed digitized solution for a social challenge called improving road safety-changing the way we ride

Research Experience

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

[Hiroshima University, Japan](#)

Received research internship under International Linkage Degree Program (ILDLP) at Hiroshima University. The work is 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 for heterogeneous virtual machines under Dr. Reshmi Mitra, previously Asst. Prof. IIIT Vadodara, now Asst. Prof. Southeast Missouri State University, USA.

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

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**.

Funded Projects

09/21 - 12/21

Medicine from the sky

[Bold and Unique Ideas Leading to Development \(BUILD\) IIT Hyderabad](#)

Design and Development of AI based real-time light-weight system medical drone delivery – Rs. 1 lakh for 4 months (Sep 2021 – Dec 2021)

Role - Principal Investigator (PI), Project Lead

08/20 - 01/21

iV4V (Intelligent Voice for Vision) - An intelligent and reliable audio assistance for visual impairment using AI

[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

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