K Naveen Kumar

PhD 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 PhD 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) Explainable AI, Federated learning 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

1. 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]

2. K Naveen Kumar, C Vishnu, Reshmi Mitra ,C. Krishna Mohan, "Black-box Adversarial Attacks in Autonomous Vehicles", **Accepted** in **IEEE Applied Imagery Pattern Recognition (AIPR) workshop**, **2020** [paper link]

3. K Naveen Kumar, Mitra R., "Resource Allocation for Heterogeneous Cloud Computing Using Weighted Fair-Share Queues", in Proc. **IEEE International Conference on Cloud Computing in Emerging Markets (CCEM)**, pp. 31-38, **2018** [paper link]

Industry Experience

05/19 - 07/19 **Intern**   IIT Hyderabad

Worked on read-world challenging problem statement in medical domain called human blood cell detection, classification, counting from microscopic images using deep learning

01/18 - 06/18 **Internship as Innovator**   TCS-Digital Impact Square

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

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 colloboration program to visit RU Japan and work with Japanese students

2019   **Stood 2nd 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**.

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

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

Developed Dataset(s)
EyeOnTraffic(EoT)

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 - 09/19 **Priority based audio alert system for visually impaired using pixel segmented data** Nvidia AI Hackathon 2019
Developed an AI based software solution for the visually impairment in the finals of Nvidia AI Hackathon 2019

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 motorcyles along with distance from camera

01/19 - 06/19 **Traffic segmentation, Vehicle detection** IIT Hyderabad - M2Smart(JICA/JST)
Currently working on a colloborative 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