

# Sumanth Reddy Cherupally

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## EDUCATION

- **University of California San Diego (UCSD)** California, US  
*Masters - Electrical and Computer Engineering (Robotics); GPA: -* *Sept 2021 - May 2023 (Expected)*
- **Indian Institute of Technology Hyderabad (IITH)** Hyderabad, India  
*Bachelor of Technology - Electrical Engineering; GPA: 8.76* *July 2017 - May 2021*

## SKILLS SUMMARY

- **Languages:** Python, C++.
- **Frameworks:** Tensorflow, PyTorch, MATLAB.
- **Certifications:** Deep learning specialization from deeplearning.ai,  
Cybersecurity for Business specialization from University of Colorado (Coursera).
- **Tools:** Docker, GIT, MySQL.
- **Platforms:** Linux, Web, Windows, Arduino, Raspberry Pi.

## RESEARCH EXPERIENCE

- **Occlusion detection in images using Deep learning and classical techniques**  
*Research Assistant - Prof. Sumohana S. Channappayya, Associate Professor, EE, IITH* *Aug 2020 - May 2021*
  - Developed an end to end algorithm to detect and flag the occlusions in traffic camera images.
  - Reviewed literature in the areas of Semantic segmentation, Depth estimation and Object Detection models and datasets. Also reviewed previous classical techniques related to this problem.
  - Proposed future directions to improve the algorithm further.
- **Introducing blockchain for Inter domain route verification (BGP)**  
*Pranet Lab, IITH* *Nov 2020 - April 2021*
  - Collaborated with a final year PhD student to extend our previous work on DAG based distributed ledger to address the issue of route verification in the BGP protocol.
  - Submitted the paper to the IEEE journal. Awaiting reviews.
- **Scalable and light DAG based blockchain for maintaining IoT Data Integrity** Pranet Lab, IITH  
*Research Assistant - Prof. Kotaro Kataoka, Associate Professor, CSE, IITH* *May 2019 - April 2020*
  - Designed and implemented a novel blockchain protocol keeping in mind scalability, throughput and the resource constraints for the IoT devices.
  - Studied various blockchain protocols and their feasibility for IoT scenario.
  - Implemented our LSDI system from scratch, from the level of writing protocols for communication using TCP sockets to high level user API.
  - First authored for the paper published at **ICOIN 2021** conference.

## KEY PROJECTS

- **Remote battery monitoring system:**
  - Part of an initial stage startup team, ideated and implemented a battery monitoring system for solar battery powered street lights. Worked on the architecture of micro-controllers and protocols for communication in a mesh network.
  - Target was to provide a cost effective system for remotely monitoring the battery status of all the street lights.
  - Link to product brochure - <https://bit.ly/3oamHnN>
- **Classification of sounds phones using HMMs:**
  - Implemented HMMs from scratch in python for classifying basic phones from one another.
- **Defect classification using images of metal plates surface:**
  - Worked on building a generalised classifier trained on features extracted using autoencoders and other dimensionality reduction techniques.
- **Introduction to Drones:**
  - Assembled and programmed a drone equipped with GPS sensors. Calibrated the flight modes, propellers and motors using the Mission planner software.
- **Voice controlled toy car:**
  - Trained a CNN using my own voice to control the movement of the toy car.

## PUBLICATIONS

- S. R. Cherupally, S. Boga, P. Podili and K. Kataoka, "Lightweight and Scalable DAG based distributed ledger for verifying IoT data integrity," 2021 International Conference on Information Networking (ICOIN), 2021

## INTERNSHIPS

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- **BNY Mellon Technology** Remote  
• ***SDE Summer Intern*** *May 2020 - July 2021*
  - Worked as a summer intern in a team to migrate an existing internal dashboard from Adobe flash to Angular.

## RELEVANT COURSE WORK - COURSE NAME [GRADE]

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**UCSD:** (Ongoing) Stastical Learning I, Probabilistic Reasoning and Learning.

**IITH:** Data Structures [A], Deep Learning [B], Probabilistic Graphical models [A], Computer Networks I [B], Introduction to Image Processing [B], Representation Learning [A-], Convex Optimization [A-], Data Analytics [A-], Advanced DSP [A], Control Systems[A-], Data Science Analysis[A-], Internet of Things [B].

## EXTRACURRICULAR AND PORs

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- Served as the Class representative for my batch during my Freshman year at College (IITH).
- Volunteer at the National Social Service (NSS) during my College.
- Served as the General Knowledge club Captain during my tenth grade at school.