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# Siddeshwar Raghavan

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## EDUCATION

### **University of Wisconsin-Madison** - *Master of Science (Research) in Electrical Engineering*

SEPT 2019 - MAY 2021

GPA - 3.65/ 4

**Courses taken:** (Fall semester)- Image Processing, Advanced Operating Systems, Modern Probability Theory and Stochastic Processes. (Spring 2020) - Independent Research under Dr. Yin Li, Computer Vision, Matrix Methods in Machine Learning. (Summer 2020)- Independent Research student at Dr. Yin Li's lab. (Courses for Fall 2020) - Independent Research student at Dr. Yin Li's lab, Intro to Artificial Intelligence, Topics in Database mgmt systems.

### **PSG College Of Technology, Coimbatore, India** - *Bachelor of Engineering in Electronics and Communication Engineering*

2014 - 2018

Graduated with a Final CGPA of 8.23/ 10

## RESEARCH AND INDUSTRIAL EXPERIENCE

### **Independent Research Student, University of Wisconsin-Madison (Under [Dr. Yin Li](#), Assistant Professor, Biostatistics & Medical Informatics and Computer Sciences)**

DEC 2019 - PRESENT

Built a pipeline and generated ground truth images for the Non-Line of Sight images, as part of a joint research work between [Dr. Yin Li](#) and [Dr. Andreas Velten](#). Built a system for recovering intensity images from NLOS measurements using deep models. Implemented a vanilla U-Net architecture that supports 2D/3D encoders with a 2D decoder. Currently working on recovering action of motion and classification of actions from NLOS data.

### **Adori Labs, Bangalore, India** - *Engineering Intern*

SEPT 2018 - MAY 2019

Adori Labs is a startup working to enhance live and on-demand audio to be natively interactive. I Developed a Voice Assistant for the in-house built Adori Player: built a modular SDK-like voice assistant layer on iOS using Swift to control specific player functionalities. I built a Google Home Action for Adori platform from scratch and published it; also built and published an Amazon Alexa Skill for similar functionality. Designed and developed a podcast audio search functionality using Elasticsearch.

### **Thorogood Associates, Bangalore, India** - *Intern*

DEC 2017 - APR 2018

I developed an automation tool for data transformation and reporting using SQL Server, SSIS, and SSRS tools (Microsoft tools for ETL scripting) for an FMCG's supply-chain software.

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## **IIT, Bombay, India- *Research Intern***

JUN 2017 - JUL 2017

Worked on Visual SLAM (Simultaneous Localization and Mapping) using video segmentation and marker identification utilizing a single camera rather than a conventional multi-camera arrangement under the guidance of Dr. RajBabu Velmurugan, Associate Professor, Electrical Engineering Department, IIT Bombay. The prototype was developed using OpenCV and Python. The prototype identified markers within an environment and the distance from the measurer to create a map of the surrounding in play.

## **IIT, Madras, India - *Research Intern***

JUN 2016 - JUL 2016

Built a State Of Health tester, which measures the health of the battery, efficiency percentage, number of charge cycles dynamically under the guidance of Dr. Ashok Jhunjhunwala, Professor, Electrical Engineering Department, IIT Madras.

## **PUBLICATIONS/ PATENTS/ PROJECTS**

**Spacenet 7** - Participating in [Spacenet 7](#) for the course project **Intro to Artificial Neural Networks (CS/ ECE 539 - Fall 2020)**. The unique challenge for this year involves tracking building footprints over time in a small area with a high density of buildings to be segmented and detected from satellite images. Experimenting across various state of art architectures and tuning the best performer amongst the chosen models.

**Spacenet 6** - Participated in [Spacenet 6](#) and exhibited results for the **Computer Vision (CS766 - Spring 2020)** course project. This involved developing deep models to track building footprints from SAR (Synthetic-aperture radar) images that were corrupted with a lot of noise due to the technique of capture using light. Our methodology involved extensive data augmentation and pre-processing and the use of transfer learning to transfer the trained features from optical data (EO) images to the SAR images. The deep neural network architecture was Vgg-11 in a UNET structure.

**Patent-published** - Human Interface System For Playing Virtual Percussion Instruments (Ref: Patent Application No: 201841021574 dated June 8, 2018 - Published at the Indian Patent office )

The patent filed is based on a Virtual Reality prototype developed. It is a learning environment built using the Arduino board, Unity 3D. Our in-house developed gesture tracking system help users learn to play percussion instruments by using VR cues along with providing touch-sensory feel in the form of vibration through a haptic feedback glove. The tutorial mode has floating notes and reverse-karaoke to aid easy learning.

## **AWARDS**

- Won the 2nd prize for VRDrum kit (implementation of the above-patented idea) at NIT Trichy Pragyan's project exhibit **Ingenium 2017**.
- Won the Siemens PLM Award for Excellence at the Annual Forum 2017 PACE for a presentation Portability Assisted Mobility Access, a prototype for baby boomers.

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## SKILLS

Python, PyTorch & TensorFlow, Tensorboard, Blender, Java, Unity 3D, C, MATLAB, AWS & Google Cloud, SQL.

## INTERESTS

Biking, [painting, playing the piano](#), and cooking.