Siddeshwar ‘Sid’ Raghavan

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EDUCATION

University of Wisconsin-Madison — Madison, Wisconsin
Master of Science (Research) in Electrical Engineering — Sep 2019 - May 2021
GPA 3.68/ 4.00

PSG College Of Technology — Coimbatore, India
Bachelor of Engineering in Electronics and Communications — Jul 2014 - May 2018
GPA 8.23/ 10.00

RESEARCH AND INDUSTRIAL EXPERIENCE

Independent Research Student — Madison, Wisconsin
University of Wisconsin-Madison — Dec 2019 - Present

- *Working in Dr. Yin Li's Computer Vision lab*
- *Designed and developed a pipeline for ground truth image generation in GUI-less Blender using Python for Non-Line of Sight Imaging system*
- *Developed a system for recovering intensity images from NLOS measurements using 2D/ 3D ResNet deep learning models*
- *Captured real-time NLOS data and human poses in collaboration with Dr. Andreas Velten's team*
- *Working on Deep Learning based NLOS Human Pose Estimation using a hybrid CNN-LSTM network to predict the subsequent poses from the sequence*

Python, PyTorch

Graduate Teaching Assistant — Madison, Wisconsin
University of Wisconsin-Madison — Jan 2021 - Present

- *Graduate Teaching Assistant for ECE 352 - Digital Fundamental Systems*
- *Responsible for assisting students with queries on home works, assignments, and lecture notes, solve assignments, prepare rubric, and grade student's assignments*

Verilog

Engineering Intern — Bangalore, India
Adori Labs — Sept 2018 - May 2019

- *Adori Labs is a startup working to enhance live and on-demand audio to be natively interactive.*
- *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.*
- *Built and released Google Home Actions and Amazon Alexa Skills for the Adori platform.*
- *Designed and developed a podcast audio search functionality using Elasticsearch*

Swift, Google Cloud, Amazon AWS, Elasticsearch

Summer Intern
Thorogood Associates
- *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.*

Bangalore, India
Dec 2017 - Apr 2018
MySQL, Microsoft SQL Tools

Research Intern
IIT, Bombay
- *Worked on a VSLAM project under the guidance of Dr. Rajbabu Velmurugan*
- Developed a computer vision system to identify markers and distance of the markers from the video captured by a single camera rather than the conventional multi-camera approach
- This was achieved by segmenting it into frames and analyzing each frame to find the position of the marker using Python and OpenCV. I had chosen the approach to identify markers from the video feed to make the solution as weakly supervised as possible.

Mumbai, India
Jun 2017 - Jul 2017
Python, OpenCV

Research Intern
IIT, Madras
- *Designed and 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*

Chennai, India
Jun 2016 - Jul 2016
C/ C++, embedded C

PUBLICATIONS/ PATENTS/ PROJECTS

- **Towards Non-Line-of-Sight Photography: High resolution 2D reconstruction with a deep neural network -** Paper submitted to ICCV 2021 (3rd author)

- **Spacenet 7 -**The challenge involves segmenting and tracking tiny, dense building footprints over time from satellite images. I implemented 4 different deep learning models (VGG-16, ResNet-50, DenseNet-121 and Yolov4) with a UNET decoder for the semantic segmentation of building footprints. With these results, I finished within the top 7 percentile of participants.

- **Spacenet 6 -**. This involved developing deep models to segment building footprints from a sparse number of SAR (Synthetic-aperture radar) images, instead of the usual optical (EO) images. I implemented data augmentation and extensive pre-processing, and transfer learning from optical data (EO) images. The deep neural network architecture used 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)
  A patent published in the Indian Patent office and is in the queue to get granted. Designed and developed a virtual reality learning environment to learn to play percussion instruments. In-house-developed hand tracking system, force detection, and haptic feedback improve the overall experience. Learning modes and reverse karaoke makes are unique to this system

SKILLS

- Languages: Python, SQL, Java, Matlab, LaTeX, C++
- Developer Tools: Jupyter Notebooks, Git, Google Cloud Platform, VS Code, Amazon AWS, Blender
- Library: PyTorch, Pandas, NumPy, OpenCV, Tensorboard
- Art Studio: Atelierofsid