Sahil Bhandary Karnoor

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Education

University of Illinois at Urbana-Champaign — Champaign, Illinois
MS/PhD, Electrical and Computer Engineering — *August. 2021 – Present*

National Institute of Technology Karnataka — Surathkal, India
Bachelor of Technology, Electronics and Communication Engineering — *July. 2015 – May 2019*

Courses

Random Processes
Statistical Inference
Machine Learning for Signal Processing
Information Theory
Computer Vision

Publications

RoSS: Utilizing Robotic Rotation for Audio Source Separation — ICRA
Hyungjoo Seo, ***Sahil Bhandary Karnoor****, Romit Roy Choudhury* — *2023*

Indoor Navigation Using Acoustic Augmented Reality Glasses — CSL Conference
Sahil Bhandary Karnoor*, Eric Dong, Avinash Subramanium, Zhijian Zhang, Romit Roy Choudhury* — *2022*

Research Experience

Applied Scientist — May 2023 – August 2023
Amazon — *Boston*

- **Same Room or Not Audio Classification**
  - Mono-channel classifier to blindly determine whether an acoustic source is in the same room as the microphone or not.

Research Assistant — August 2021 – Present
Signals and Inference Research Group, University of Illinois at Urbana-Champaign — *Champaign, Illinois*

- **Mobile Application for Indoor Localization**
  - Pedestrian Dead Reckoning based Indoor localization
  - Smartglasses with integrated IMU for Head tracking
- **Subsurface Acoustics**
  - Subsurface acoustic-based Soil Monitoring system
- **Indoor Navigation using Audio cues**
  - HRTF-based Spatial Audio cues for Indoor navigation

Project Assistant — July 2019 – July 2021
Dept. of Electronic Systems Engineering, Indian Institute of Science — *Bangalore, Karnataka*

- **Robotic Systems**
  - End-to-end development of Delta and Mecanum-Wheeled Robotic systems

Project Intern — December 2018 – May 2019
Dept. of Electronic Systems Engineering, Indian Institute of Science — *Bangalore, Karnataka*

- **Differential Drive Robot Navigation**
  - Indoor localization using Visual, IMU, and Encoder-based Sensor Fusion algorithms.

Course Projects

Dimentionality Reduction on P4 October 2022 – December 2022

- Linear Dimensionality Reduction in floating point on the P4 Data Plane

Sound Generation October 2021 – December 2021

- Generative model for sounds using a Variational Autoencoder

Voice Recognition System January 2018 – May 2018

- Hardware Implementation of a Gaussian Mixture Model-based Voice recognition system

Technical Skills

Programming Languages: Python, MATLAB, C, C++, Java, Javascript, Solidity, C#
Machine Learning: Tensorflow, Keras, PyTorch
Embedded Platforms: Tiva TM4C123GH6PM, Raspberry Pi, TI TMS320C6713 DSK, ARM7 LPC2148
Special Tools: ROS, OpenCV, OpenGL, CUDA
Networking: P4, Openflow
3D Design Tools: Fusion360, FreeCAD.

Teaching Experience

Communication Networks(ECE 438) August 2023 – December 2023
University of Illinois at Urbana-Champaign *Champaign, Illinois*

Advanced Matrix Theory June 2019
PES University *Bangalore, India*

Digital Signal Processing Laboratory May 2018
Vidyavarthaka College of Engineering *Mysore, India*