Anirudh Bindiganavale Harish

Email: anirudhbh@rice.edu GitHub Handle: AnirudhBHarish

EDUCATION

Rice University

Houston, USA

Doctor of Philosophy, Electrical and Computer Engineering

 $August\ 2023-Present$

 \circ Cumulative GPA: 3.95/4.

• Teaching Assistant - Computational Photography (Fall 2024)

University of California, Los Angeles

Los Angeles, USA

Master of Science, Electrical and Computer Engineering

September 2021 - June 2023

Website: https://anirudhbharish.github.io/

• Cumulative GPA: 4/4.

• Teaching Experience: Introduction to Programming (Winter 2022 - Winter 2023), Python with Applications (Winter 2023 - Spring 2023).

National Institute of Technology Karnataka, Surathkal

Surathkal, India

Bachelor of Technology, Electronics and Communication Engineering

July 2016 - June 2020

o Cumulative GPA: 9.62/10.

PUBLICATIONS

- Chari, P.*, **Harish**, **A.B.***, Armouti, A., Vilesov, A., Sarda, S., Jalilian, L. and Kadambi, A., 2024, September. Implicit neural models to extract heart rate from video. In European conference on computer vision (pp. 157-175). Cham: Springer Nature Switzerland.
- Del Regno, K., Vilesov, A., Armouti, A., **Harish, A.B.**, Can, S.E., Kita, A. and Kadambi, A., 2024. Thermal imaging and radar for remote sleep monitoring of breathing and apnea. arXiv preprint arXiv:2407.11936.
- Vilesov, A.*, Chari, P.*, Armouti, A.*, **Harish, A.B.**, Kulkarni, K., Deoghare, A., Jalilian, L. and Kadambi, A., 2022. Blending camera and 77 GHz radar sensing for equitable, robust plethysmography. ACM Trans. Graph., 41(4), pp.36-1.
- Harish, A.B. and Sadat, F., 2020, April. Trimodal attention module for multimodal sentiment analysis (student abstract). In Proceedings of the AAAI Conference on Artificial Intelligence (Vol. 34, No. 10, pp. 13803-13804).

EXPERIENCE

Rice Computational Imaging Lab

Houston, USA

Graduate Research Student. Supervisor: Prof. Ashok Veeraraghavan

September 2023 - Present

- Creating an in-car multimodal sensing stack for driver state sensing.
- Working on algorithms for robust vital sign estimation from remote sensors.
- Working on blood flow imaging via laser speckle imaging.

UCLA VMG Lab

Los Angeles, USA

Graduate Research Student. Supervisor: Prof. Achuta Kadambi & Dr. Laleh Jalilian September 2021 - June 2023

- Worked on **equitable vital sensing** for remote plethysmography with a **camera** + **radar** setup[**Siggraph 2022**]. Code can be found **here**.
- Open-sourced a C++ repository for multi-threaded data-acquisition from a multimodal perceptual sensor stack. List of supported sensors can be found here .
- Developing fast neural representations models for the human physiology. [ECCV 2024].

UCLA Health

Los Angeles, USA

Graduate Research Student. Supervisor: Dr. Ashley Kita

September 2021 - June 2023

- \circ Co-designed a low-light sensor stack for prolonged (\sim 6 hrs) acquisition. Link to sensor list.
- o Designed the synchronization circuit to align ground truth Polysomnogram data with the sensor data.
- Experimenting with vision models for low-light remote vital sensing applied to apnea detection[ArXiv].

Qualcomm San Diego, USA

Engineering Intern. Team: Camera Quality Evaluation

June 2022 - September 2022

- Worked on gaze redirection for video conferencing applications.
- Worked on streamlining the pipeline for data acquisition, calibration and processing.
- Worked on developing quality centric protocols to evaluate the quality of redirection algorithms.

Microsoft Research Bangalore, India

Research Intern. Supervisors: Dr. Harsha Vardhan Simhadri & Dr. Prateek Jain

September 2020 - July 2021

- Developed speech recognition algorithms for **keyword spotting** and **basic command recognition** on resource constrained devices.
- \circ Our final model was under 1MB and can be **re-trained** on new keywords with only TTS samples.
- Implemented cache-optimized **neural network layers** and **matrix operations in C** for execution on low resource devices.

MENTORSHIP EXPERIENCE

- Rice University: Driver state sensing
 - 1. Diya Gupta (Spring 2024 Present)
- PATHS-UP: Monitoring respiratory signals from contact and non-contact Sensors
 - 1. Maritza Apolinar (Texas A&M)
 - 2. Tahlia Lamour (Washington University in St. Louis)
 - 3. Megan MacLeay (Texas A&M)
 - 4. Henry Vo (California State University)
- UCLA: Remote sleep monitoring of apnea
 - 1. **Jianchong Ma** (now Stanford University, MS Student)
 - 2. Rui Ma (now Columbia University, MS Student)

SCHOLARSHIPS AND AWARDS

- Awarded a research scholarship at UCLA for my contribution to the research at the VMG Lab.
- Awarded the MITACS Globalink Research Scholarship 2019 to pursue research in Canada.
- Awarded an academic scholarship at NITK for consistently ranking in the top 5 of the ECE Department.

EXTRA-CURRICULAR ACTIVITIES

- Student Organizer, Speech, Audio and Music Processing Workshop, January 28th February 1st 2020.
 - Conducted hands-on sessions for the participants as part of the NITK Diamond Jubilee Celebrations.
- Joint Secretary, IEEE NITK Student Branch, April 2019 May 2020.
 - Co-managed the entire student branch and coordinated all the student projects in the branch.
- Organizer, Workshop on Image Processing using OpenCV, MITE, August 18th 2018.
 - Conducted a session on using OpenCV for students at MITE as part of an IEEE Sub-section Event.