Anirudh Bindiganavale Harish

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Education

- **Rice University** — Houston, USA
  Doctor of Philosophy, Electrical and Computer Engineering — *August 2023 – Present*
  - 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*
  - 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*
  - 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*
  - Co-designed a **low-light sensor stack** for **prolonged** ($\sim$ 6 hrs) acquisition. **Link** to sensor list.
  - 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**.
  - 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.