Adnan Armouti

https://adnan-armouti.github.io/ New York City, NY aa2546[at]cornell.edu

Education

Cornell Tech, Cornell University — New York, NY
Doctor of Philosophy, Computer Science — Aug 2023 - Present
GPA: overall 4.0/4.0

University of California, Los Angeles — Los Angeles, CA
Master of Science, Electrical and Computer Engineering — Sep 2021 - Jun 2023
GPA: overall 4.0/4.0

University of California, Los Angeles — Los Angeles, CA
Bachelor of Science, Electrical Engineering — Sep 2017 - Jun 2021
Bachelor of Arts, Economics — Sep 2017 - Jun 2021

Publications

Chari*, P., Harish*, A.B., **Armouti, A.**, Vilesov, A., Sarda, S., Jalilian, L. and Kadambi, A., 2025. Implicit Neural Models to Extract Heart Rate from Video. *European Conference on Computer Vision 2024 (ECVA)*, pp.157-175. Available Online.

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 *In submission to IEEE Transactions on Biomedical Engineering*. Available Online.

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.(SIGGRAPH), 41*(4), pp.1-14. Available Online.

Patents

Kadambi, A., Kita, A., Vilesov, A., Del Regno, K., Can, S.E., Jalilian, L., Harish, A.B., and **Armouti, A.**, The Regents of the University of California, 2024. *Methods and Apparatus to Detect and Classify Forms of Sleep Apnea*. US Provisional Application.

Kadambi, A., Jalilian, L., Chari, P., Talegaonkar, C., Karinca, D, Cannesson, M., Kabra, K., Salehi-Abari, O., Kita, A., and **Armouti, A.**, The Regents of the University of California, 2023. *Systems and Methods for Measuring Vital Signs Using Multimodal Health Sensing Platforms*. U.S. Patent 0,233,091. Available Online.

Research Experience

Wireless Imaging Lab — New York, NY
Graduate Student Researcher. Advisor: Prof. Nandakumar — Aug 2023 - Present

- Working on neural implicit representation methods for non-destructive near-field 3D imaging of concealed objects using FMCW mmWave imaging sensors. Project page available soon.
- Developing remote vital sign estimation toolbox for FMCW mmWave radar, supports public datasets and state-of-the-art neural and signal processing methods. Project page available soon.
- Collaborating with Vancouver Metropolitan Hospital to deploy privacy-preserving mmWave sensors and methods for remote motion detection and vital sign estimation of patients.

UCLA Visual Machines Group — Los Angeles, CA
Graduate Student Researcher. Advisors: Prof. Kadambi and Dr. Jalilian — Sep 2020 - Jun 2023

- Co-developed an implicit neural representation framework for remote plethysmography, extracting heart rate from face videos. Published at ECCV 2024, project page available online.
- Implemented an implicit decomposition method to enhance plethysmograph signal strength, and adapted multiresolution hash encoding for efficient dataset-scale video processing.
- Collected an optically challenging dataset to evaluate model generalization, achieved state-of-the-art heart rate estimation compared to prior algorithmic and learning-based methods.

UCLA Health, Anesthesiology — Los Angeles, CA
Graduate Student Researcher. Advisors: Prof. Kadambi and Dr. Jalilian — Sep 2020 - Jun 2023

- Co-developed an equitable remote plethysmography method via RGB camera and mmWave radar fusion, published at SIGGRAPH 2022. Project page available online.

- Open-sourced C++ repository for multi-threaded data-acquisition from a multimodal perceptual sensor stack. Project page available online, and supported imaging sensors available here.
- Led a successful $1M DARPA grant proposal to fund research projects in contactless equitable health sensing and mobile health (mHealth).

UCLA Health, Sleep Disorders Center Los Angeles, CA
Graduate Student Researcher. Advisors: Prof. Kadambi and Dr. Kita Sep 2020 - Jun 2023

- Designed a low-light sensor stack for prolonged ($\sim$ 6 hrs) data acquisition required in overnight study. Project Page available online.
- Experimented with vision-based anomaly detection models for low-light remote vital sensing applied to apnea event detection and classification.
- Explored blood oxygenation (SpO2) estimation via ratio-of-ratios (ROR) method and dual band NIR cameras (790nm and 940nm) with active illumination.

Teaching Experience

Cornell Tech, Cornell University New York, NY

Teaching Assistant, INFO 5368 "Applications in Machine Learning"	Jan 2025 - May 2025
Teaching Assistant, CS 5785 "Applied Machine Learning"	Jan 2024 - May 2024
Teaching Assistant, CS 5785 "Applied Machine Learning"	Aug 2023 - Dec 2023

Awards

2023 UCLA ECE Outstanding Master of Science Student Award	Jun 2023
2023 UCLA ECE Distinguished Master's Thesis Research Award	May 2023
2022 UCLA ECE VMG GSR Scholarship	Jan 2022
2021 NSF REU Fellowship	Jun 2021
2020 Intel URP Scholarship	Sep 2020
2020 SRC URP Scholarship	Jun 2020

Community Involvement

UCLA ECE VMG Mentoring Program, *Mentor*	Sep 2022 - Jun 2023
UCLA ACM AI Undergraduate Research Program, *Research Mentor*	Sep 2022 - Jun 2023
IEEE, *Student Member*	May 2022 - Present
ACM, *Student Member*	May 2022 - Present

Presentations

Computational Imaging: Single Image Dehazing and Contactless Health Sensing. UCLA ACM AI Undergraduate Research Forum, October 20 2022.

Blending Camera and 77 GHz Radar Sensing for Equitable, Robust Plethysmography. [Co-presented]. ACM Special Interest Group on Graphics, Computational Photography Roundtable Session, August 08 2022 (SIGGRAPH '22).

Blending Camera and 77 GHz Radar Sensing for Equitable, Robust Plethysmography. [Poster]. IEEE International Conference on Computational Photography, August 01 2022 (ICCP '22).

Skills

Programming Languages: Python, C, C++, Matlab

Machine Learning, Deep Learning: PyTorch, TensorFlow, CUDA

Other: Git, LaTeX

References

Prof. Rajalakshmi Nandakumar
Assistant Professor of Information Science at Cornell University

Prof. Achuta Kadambi
Assistant Professor of Electrical and Computer Engineering & Computer Science at UCLA

Dr. Laleh Jalilian
Clinical Assistant Professor of Anesthesiology & Perioperative Medicine at UCLA David Geffen School of Medicine

Dr. Ashley Kita
Assistant Professor-in-Residence of Head & Neck Surgery at UCLA Health