Yasser Khan

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Summary

I am an engineer/maker/scientist working on multi-disciplinary projects at the intersection of engineering, materials science, biology, and artificial intelligence. My research focuses on additive manufacturing and hardware AI to produce skin-like wearables, implantables, and ingestibles for precision health and psychiatry.

Research Interests

Materials and Devices: wearable/implantable/ingestible electronics, sensors, medical devices, bioelectronics, biophotonics. **Manufacturing and Systems:** flexible/stretchable/printed/hybrid electronics, additive manufacturing, in-sensor processing, machine learning on edge systems. **Application:** precision health/psychiatry.

Education

Ph.D. in Electrical Engineering and Computer Sciences — **University of California, Berkeley, CA, USA**, *Dec '18*

GPA 3.95/4.00, Concentration: Physical Electronics.

Experience

Assistant Professor of Electrical and Computer Engineering — **University of Southern California, CA, USA**, *Jan '22–Present*

Funding

- $852,777 ($5,684,619 total) funding from National Institute of Health (NIH), PI: Maryam Shanechi, Co-I: Yasser Khan for a project to develop "Novel multimodal neural, physiological, and behavioral sensing and machine learning for mental states" *2024–2028*
- $100,000 ($300,000 total) funding from Pratt & Whitney Institute for Collaborative Engineering, PI: Sifat Muin, Co-PI: Yasser Khan for a project to develop "Printed Sensors for Continuous Monitoring of Stress Corrosion Cracking in Aircraft Materials" *2024–2026*
- $50,000 funding from USC Zumberge, PI: Yasser Khan for a project to develop "Skin-like wearable sensor development for diagnostic ECG and MRI at 0.55 T." *2024–2025*
- $60,000 funding from Google for a project to develop "Racial Bias Correction in Oximetry using Google's Skin Tone Framework" *2023–2024*
- $100,000 funding from Schlumberger Foundation for a project to develop "Hardware technologies for mental health applications" *2023–2024*
- $750,000 funding from National Science Foundation (NSF) for a project proposed by Stanford University to develop "Artificial Intelligence-enabled Multimodal Stress Sensing for Precision Health" *2020–2022*
- $700,000 funding from NextFlex, America's Flexible Hybrid Electronics (FHE) Manufacturing Institute for a project proposed by UC Berkeley, UCSD, and Jabil Circuits to develop "Integration Processes for Flexible and Wearable Wound Monitoring and Therapeutic Bandage" *2017–2018*
- $375,000 funding from Intel Corporation via. Semiconductor Research Corporation Grant No. 2014-IN-2571 for a project proposed by UC Berkeley to develop "Printable and Flexible Electronics for Wearable System

Integration" *2015–2017*

- $425,000 funding from Nano-Bio Manufacturing Consortium (NBMC) and United States Air Force Research Laboratory for a project to develop "Electronics and Biometric Sensor Platforms for Human Performance Monitoring (HPM)" *2014–2015*

Publications

[1] **Yasser Khan**, Donggeon Han, Adrien Pierre, Jonathan Ting, Xingchun Wang, Claire M Lochner, Gianluca Bovo, Nir Yaacobi-Gross, Chris Newsome, Richard Wilson, and Ana C Arias. A flexible organic reflectance oximeter array. **Proceedings of the National Academy of Sciences**, 115(47):E11015–E11024, 2018. doi: 10.1073/pnas.1813053115. URL http://dx.doi.org/10.1073/pnas.1813053115. **Media coverage: Physics World, UC Berkeley News Center, KCBS Radio, Innovators Magazine, The Engineer (UK), Medgadget, ScienceDaily, and many more.**

[2] Claire M Lochner*, **Yasser Khan***, Adrien Pierre*, and Ana C Arias. All-organic optoelectronic sensor for pulse oximetry. **Nature communications**, 5:5745, 2014. doi: 10.1038/ncomms6745. URL http://dx.doi.org/10.1038/ncomms6745. ***Equal contribution. Media coverage: UC Berkeley Grad News, NSF Science 360 News, UC Berkeley News Center, Phys.Org, ScienceDaily, MSN News, Yahoo News, and many more.**

[3] Angsagan Abdigazy, Mohammed Arfan, June Shao, Mohammad Shafiqul Islam, Md Farhad Hassan, and **Yasser Khan**. 3d gas mapping in the gut with ai-enabled ingestible and wearable electronics. **Cell Reports Physical Sciences**, 2024.

[4] Angsagan Abdigazy, Mohammed Arfan, Gianluca Lazzi, Constantine Sideris, Alex Abramson, and **Yasser Khan**. End-to-end design of ingestible electronics. **Nature Electronics**, pages 1–17, 2024. doi: 10.1038/s41928-024-01122-2. URL http://dx.doi.org/10.1038/s41928-024-01122-2.

Please check Google Scholar for the up-to-date publications list.

Honors and Distinctions

Research Awards / Honors:

Zumberge Research Award *May '24*
Google Research Award *May '23*
Best Poster Award, Flex 2018 Conference, Monterey, CA, USA *Feb '18*
Best Project Award, Systems On Nanoscale Information fabriCs (SONIC) Year 5 Annual Review Meeting, Urbana, IL, USA *Oct '17*
Best Oral Presentation Award, MRS Fall Meeting, Boston, MA, USA *Dec '15*
Best Poster Award, NASCENT IAB Meeting, UT Austin, TX, USA *Jan '14*
Best Poster Award, EE – Photonics Track, Electrical Engineering Days, KAUST *Feb '12*
Finalist, DOW Sustainability Innovation Student Challenge *Sep '11*
Best Poster Award, First Graduate Research Symposium, KAUST *May '11*
Best Poster Award, Winter Enrichment Period Research Poster Session, KAUST *Jan '11*

Academic Awards / Honors:

EECS Departmental Fellowship, UC Berkeley *Sep '13*
Academic Excellence Award, (Top 5% in Graduating Class), KAUST *Dec '11*
KAUST Provost Award, (Top 15% in Matriculating Class), KAUST *Nov '10*
KAUST Graduate Fellowship *May '10*
Dean's List, All Semesters, (Top 10% in Erik Jonsson School of ECS), UT Dallas *May '10*
KAUST Discovery Scholarship *Oct '08*
Academic Excellence Scholarship, UT Dallas *Apr '08*