

Averal N. Kandala

Wireless IC Design Researcher

github.com/avekan33

averal@berkeley.edu

avekan33.github.io

EDUCATION

University of California, Berkeley

August 2021 - Present

Ph.D. in Electrical Engineering & Computer Sciences

GPA: 4.0/4.0

Advisor: Professor Ali M. Niknejad

University of California, Berkeley

June 2020 - August 2021

M.S. in Electrical Engineering & Computer Sciences

GPA: 4.0/4.0

Thesis: *Harnessing Alpha Radiation to Power Miniaturized Implantable Medical Devices*

University of California, Berkeley

August 2016 - May 2020

B.S. in Electrical Engineering & Computer Sciences

GPA: 3.97/4.0; Highest Honors

Selected Coursework: Adv. RFICs (A+), ADCs (A+), RFICs (A+), Adv. Analog ICs (A), Adv. Digital ICs (A+), DSP (A+), Machine Learning (A), Optimization (A+), Power Electronics (A), Comp. Arch. (A), Probability & Random Processes (A), MEMS (A+), Feedback & Control (A)

RESEARCH

Berkeley Wireless Research Center (BWRC)

June 2020 - Present

Graduate Student Researcher

- Current research on novel frequency synthesis techniques for integrated FMCW sensing and communication, taping out in TSMC 28 nm.
- Taped out BASE-Hub, a wireless, implantable SoC providing chronic power, data storage, and communication for multiplexed “plug and play” sensing in X-FAB 180 nm.
- Studied the use of alpha radiation to power mm-scale medical implants.

UC Berkeley Swarm Lab

June 2019 - May 2020

Undergraduate Student Researcher

- Investigated the effect of “anchor loss” in ultrasonic energy harvesting by mm-scale piezoelectric crystals, with the end goal of medical implant miniaturization.

PUBLICATIONS

1. **A. N. Kandala**, S. Wang, J. E. Blecha, Y.-H. Wang, R. K. Lall, A. M. Niknejad, et al., “Millimeter-scale radioluminescent power for electronic sensors,” in *iScience*, 2025.
2. R. Lall, K. Lee, S. Chopra, **A. Kandala**, M. Evans, Y. Seo, A. Niknejad, and M. Anwar, “Low cost, high temporal resolution optical fiber-based -photon sensor for real-time pre-clinical evaluation of cancer-targeting radiopharmaceuticals,” in *Biosensors and Bioelectronics*, 2024.
3. S. Sonmezoglu, A. Darvishian, K. Shen, M. J. Bustamante, **A. Kandala**, and M. M. Maharbiz, “A Method and Analysis to Enable Efficient Piezoelectric Transducer-Based Ultrasonic Power and Data Links for Miniaturized Implantable Medical Devices,” in *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, 2021.

AWARDS

Outstanding Graduate Student Instructor Award 2025

Distinction awarded to top 10% of UC Berkeley TAs for excellence in teaching.

National Science Foundation (NSF) Graduate Research Fellowship 2020

Stipend of \$34,000 and tuition allowance of \$12,000 for three out of five fellowship years.

Elena Catelli and Kenneth Leung Memorial Scholarships 2016

Gift awards for academic excellence in Italian and future study of electrical engineering.

TEACHING

Advanced Analog Integrated Circuits (EE240B) Spring 2024

Graduate Student Instructor

Evaluation: 6.8/7.0

- Primary discussion TA, also responsible for admin., homework content, and office hours.

Microelectronic Devices & Circuits (EE105) Fall 2023, Spring 2020

Graduate Student Instructor

Evaluation: 6.68/7.0, 4.67/5.0

- Lead TA responsible for admin., homework, and discussion section instruction and content.

Great Ideas in Computer Architecture (CS61C) Fall 2019

Undergraduate Student Instructor

Evaluation: 4.28/5.0

- Taught one discussion and one laboratory section per week, staffed office hours.

INDUSTRY

Qualcomm Atheros Summer 2024

RF/Analog IC Design Intern

Santa Clara, CA

- Wireless product R&D in Connectivity RFA team.

Samtec Optical Group Summer 2018

Electrical Engineering Intern

Santa Clara, CA

- Optical link R&D; firmware, BER, and eye-diagram testing.

COURSE PROJECTS

2023-EE240C: 14-bit, 30 MS/s Pipeline ADC Model @ 1.2 V, 72 dB DR, 65 dB SNDR in 45 nm.

2021-EE241B: Wide Tuning Range All-Digital Phase-Locked Loop w/ Fine Res. in Pred. 7 nm.

2020-EE240B: Switched-Capacitor Gain Stage with 64 dB DR @ 150 MHz. **EE123:** An optimized JPEG-like image compression algorithm and AFSK communication protocol in Python.

2019-CS152: C++ branch predictor based on the Gshare scheme. **EECS128:** State feedback with a Luenberger observer to achieve a self-erecting inverted pendulum.

2018-EECS151: Three-stage pipelined RISC-V CPU (with forwarding) in Verilog with FPGA audio and visual peripherals. **EE140:** LCD Display Driver Amplifier in 45 nm.

OUTREACH

Pioneers in Engineering August 2016 - May 2020

Hardware Advisor, Sensor Team Project Manager

Berkeley, CA

- Mentored new staff and led engineering workshops for PiE's high school robotics competitions.
- Directly supervised staff and was responsible for maintaining PCB CAD designs and facilitating assembly of sensor boards as Project Manager.