Keerthi **Radhakrishnan**

316 Whyburn, Charlottesville, VA 22904

(+1) 845-978-3307 | krad246@gmail.com | krad246 | keerthi-radhakrishnan

Experience

Sociotechnical Research Assistant
Aug. 2019 - PRESENT

University of Virginia — *Charlottesville, VA*

- Serving as a research assistant for the School of Data Science to investigate the sociotechnical implications of a community-engaged sensor network deployment process.
- Studying the role of the Sensenet sensor kit as a *technological actor* in strengthening & transforming community relations with Charlottesville - specifically how an open, transparent sensor kit design with reliable & responsive data visualization can encourage community science.
- Responsible for documenting & designing the sensor kit, participating in community workshops, educating stakeholders, and documenting the community engagement process in detail.
- *Developing senior thesis from this topic.*

Energy Harvesting Research Intern
June 2019 - Aug. 2019

USC Information Sciences Institute — *Arlington, VA*

- Responsible for the design of a continuous glucose monitoring energy harvesting system sourcing nuclear energy from a 50 nW betavoltaic cell.
- Uses BLE to transmit glucose readings - heavily duty-cycled to compensate for worst-case *100,000x* output power requirement.
- Designed, simulated, and prototyped *entire* power management unit using breadboards, KiCad, Multisim, and EveryCircuit.
- Designed *4-layer RF PCB* using KiCad's Pcbnew.
- Worked on Bluetooth stack & radio drivers for packet transmission; verified with BLE sniffer & Wireshark.
- *Publication in development*.

Teaching Assistant
Aug. 2018 - PRESENT

University of Virginia — *Charlottesville, VA*

- Serving as a teaching assistant for Digital Logic Design, Embedded Systems, and Fundamentals of Electrical Engineering.
- Running lab sessions with 50+ students covering class topics such as interrupts, transistor amps, and Karnaugh maps.
- Head assignment grader and responsible for holding office hours for 10 hr / wk.

Projects

Sensenet
Aug. 2019 - PRESENT

University of Virginia — *Charlottesville, VA*

- Developing a nanopower LoRa sensor node kit as part of a SIF grant effort to design technologically *fluid* public spaces with rich, responsive data-driven responses & visualization.
- Kits are expected to intermittently sense environmental data (CO2, particulate matter, temperature, humidity), consuming *microwatts* of average power (heavily duty-cycled) while sending sensor data out with a range of at least 1 mile.
- Kits harvest solar energy for continuous charging & power management for *any* rechargeable battery, with a configurable interface for battery selection.
- Kits are expected to support a variety of sensors through a highly configurable & externally programmable interface (JTAG, USB).
- Fully responsible for design, prototyping of schematics & KiCad PCB design.

MS-TOS
Apr. 2019 - PRESENT

University of Virginia — *Charlottesville, VA*

- Designed preemptive scheduler for the *entire* MSP430 CPU family.
- Supports both MSP430 and MSP430X ISAs & 16 / 20-bit addressing.
- Features blocking, sleeping, synchronization primitives, callback threads, periodic tasks, priority inheritance, cooperative scheduling.
- Under 5% processor overhead at 2 ms time slice at 1 MHz.
- Implements prioritized round-robin scheduling & lottery scheduling.

Education

B.S. in Computer Engineering
Expected - 2020

University of Virginia — *Charlottesville, VA*

- 3.722 GPA with Dean's List membership. Member of Eta Kappa Nu.

Skills

Languages C · C++ · VHDL · Java · LaTeX · Python · JavaScript · HTML · MATLAB

EDA Cadence Virtuoso · NI Ultiboard · NI Multisim · Logisim · SPICE · KiCad

Software Tools Git · Bash · Heroku · TravisCI