Yue Zhu

1-434-987-7146 | hvs6uc@virginia.edu
CaveCanem1240.github.io

EDUCATION

University of Virginia, *Charlottesville, VA* *Aug 2022 – Dec 2023 (Expected)*
M.E. in Electrical Engineering Track
Core Courses: *Smart and Healthy Buildings; Cloud Computing; Low Power Wireless Transceivers for IoT*
ShanghaiTech University, *Shanghai, China* *Aug 2017 - Jun 2021*
B.E. in Electronic Information Engineering
Core Courses: *Embedded Systems, Web and Text Mining, FPGA-based Hardware System Design, Machine Learning*

EXPERIENCE

Mechatronics and Energy Transformation Laboratory, *ShanghaiTech* *Shanghai, China*
Research Assistant, Supervisor: Prof. Junrui Liang *July 2020 - March 2022*

Motion-powered Gameboy (*Document and Demo*)

- Implemented the first robust, purely motion-powered battery-free personal electronic mobile gaming device
- Investigated task-based energy management method, adjusted the amount of energy generated per click to adequately meet the demand for interaction by mechanical potential energy pre-charging
- Employed energy-aware checkpointing using FRAM so that a snapshot could survive spanning power outages
- Designed and implemented PCB and 3D-printed shell to form a user-friendly compact prototype

Battery-Free QR Tag

- Investigated a battery-free full-duplex BLE E-ink display node based on task-based checkpointing that could robustly perform pairing, throughput, and image updating
- Optimized energy consumption per frame from 9mJ to 4.3mJ by optimizing SPI and employing FRAM as NVM
- Developed JavaScript mobile program to automatically fetch advertising signal of battery-free node

Battery-Free E-ink Tag (Capstone Project)

- Designed a battery-free display IoT node by bistable energy harvester and bistable display
- Optimized energy consumption per frame from 72mJ to 9mJ by modifying update strategy with flash-based checkpointing, minimizing idle power consumption, and maximizing the idle period
- Realized battery-free display and BLE on ViPSN nRF52832 platform

PROJECT EXPERIENCE

Independent Project: Multi-device Collaborative Object Recognition (*Code*) *Nov 2018 - Dec 2018*

- Realized the edge computing based on Linux (user and server), Raspberry Pi (computing nodes), Intel Neural Compute Sticks (computing resources), and using SMB (Server Message Block) as the file transfer protocol

How to Write Answers with Stronger Traffic-driving Capability on Quora (*Poster*) *Jul 2018 - Aug 2018*

- Proposed the conclusion that the following five variables were significant in increasing answer's upvote count: length of sentence, lexical diversity, sentiment polarity, readability, and total words counts and subjectivity
- Built model to estimate the future upvotes for new posts, and the final cross-validated accuracy was 89%
- Individually developed web crawler to fetch two topics: Republican Party and Democratic Party

AWARDS & HONORS

Best Paper, the 3rd International Conference on Vibration and Energy Harvesting Applications
Dynamic Analysis of a Transient Plucking Energy Harvester towards Battery-free Motion-sensing System [PDF]
Author: Xin Li, Guobiao Hu, Hong Tang, **Yue Zhu,** Junrui Liang*

SKILLS

Programming: Embedded C, Linux, FPGA, Web, JS, Web text mining (Python), Assembly
Tools: Altium Designer, Solidworks, Matlab, Multisim, Proteus, Vivado, Cadence, Adobe