Alex Yen

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Research Interests

Sensing and Deployable Systems, Embedded Systems, Embedded Devices, Mobile Computing

Education

University of California San Diego   San Diego, CA

Ph.D., Computer Science and Engineering, Advisor: Pat Pannuto   Sep. 2020 - Present

University of Massachusetts Amherst   Amherst, MA

Bachelor of Science in Computer Engineering. Honors Thesis Advisor: Jay Taneja   Sep. 2016 - May 2020
Summa Cum Laude

Publications

- Zeal Shah, <u>Alex Yen</u>, Ajey Pandey, and Jay Taneja. "GridInSight: Monitoring Electricity Using Visible Lights." In the 6th ACM International Conference on Systems for Energy-Efficient Built Environments, Cities, and Transportation (BuildSys'19), November 2019. **Best Paper Nominee**.

Posters

- Zeal Shah, <u>Alex Yen</u>, Ajey Pandey, Jay Taneja. "GridInSight: Monitoring Electricity Using Visible Lights." In the 2nd Annual ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS'19), July 2019.

Experience

STIMA Lab, Amherst, MA, Research Assistant   May 2020 – Present

- Researched on the feasibility of using Zernike moments to compare geometric shapes created from bright sources (e.g. streetlamps or houses) in low exposure, low ISO images
- Utilized the rolling shutter feature of a monochrome camera to research on fingerprinting and identification capabilities of waveforms extracted from images of light bulbs

STIMA Lab, Amherst, MA, Undergraduate Research Assistant   June 2018 – May 2020

- Replicated research to observe phase differences amongst light bulbs connected to the electric grid
- Created a database of light bulb characteristics for electric grid monitoring purposes
- Developed an Android application to access various camera features in a smartphone while geotagging images with GPS and bearing data
- Analyzed the feasibility of using feature detection algorithms to compare image features in poorly illuminated images

NIMBUS Lab, Lincoln, NE, Undergraduate Summer Research Scholar   June 2019 – August 2019

- Objective: control the altitude level of a balloon system to collect atmospheric data
- Designed and programmed the electronics for a balloon system with an Arduino Mini, a barometric sensor for altitude readings, solenoid valves to release helium gas or ballast, and an XBee RF module for remote communication between the balloon system and computer
- Created custom messages between publisher and subscriber nodes in Robot Operating System with Python

Honors & Awards

UMass Amherst ECE Award of Excellence	May 2020
UMass Amherst Commonwealth Honors College: Honors Research Grant	Dec. 2018

Leadership and Activities

UMass Amherst Science Olympiad Mentoring, Head Organizer   July 2017 – March 2019
- Assembled and managed college students to mentor high school students in STEM events
- Guided high school students and handled logistical tasks to bring students to tournaments

HackUMass V–VI, Director of Hardware   Sept. 2017 – Nov. 2018
- Directed a team of students to manage and expand the hardware inventory
- Took initiative to assist other teams within the organization; offered but declined Head Director position for HackUMass VII

Technical Skills

Software Languages: C, Python, Java, Bash, Verilog
Operating Systems: Windows, Linux
Software: Fusion 360, Android Studio, MATLAB, OrCAD PSpice, Quartus Prime, Altera Monitor, Microsoft Office