

Alex Yen

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Research Interests

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

Education

University of California San Diego

Ph.D., Computer Science and Engineering, Advisor: Pat Pannuto

San Diego, CA

Sep. 2020 - Present

University of Massachusetts Amherst

Bachelor of Science in Computer Engineering. Honors Thesis Advisor: Jay Taneja

Summa Cum Laude

Amherst, MA

Sep. 2016 - May 2020

Publications

- Zeal Shah, [Alex Yen](#), 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, [Alex Yen](#), 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