

Alex Yen

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(Updated 11/26/2021)

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

Amherst, MA

Sep. 2016 - May 2020

Summa Cum Laude

Publications

- Dhananjay Jagtap*, [Alex Yen*](#), Huanlei Wu, Aaron Schulman, and Pat Pannuto. 2021. Federated Infrastructure: Usage, Patterns, and Insights from “The People’s Network”. In ACM Internet Measurement Conference (IMC ’21), November 2021.
- [Alex Yen](#), Bryse Flowers, Wenshan Luo, Nitish Nagesh, Peter Tueller, Ryan Kastner, and Pat Pannuto. 2021. A UCSD view on replication and reproducibility for CPS & IoT. In Proceedings of the Workshop on Benchmarking Cyber-Physical Systems and Internet of Things (CPS-IoTBench ’21), May 2021.
- 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.

Talks

Federated Infrastructure: Usage, Patterns, and Insights from “The People’s Network”.

ACM IMC’21

Nov. 2021

A UCSD view on replication and reproducibility for CPS & IoT.

CPS-IoTBench’21

May 2021

Towards Mapping the Electric Grid with Visible Lights.

Center for Networked Systems Research Review, UCSD

Oct. 2020

Experience

Graduate Student Researcher, La Jolla, CA

October 2020 – Present

- Helium Network Study
 - Conducted network analysis and reliability study of the Helium network via its blockchain

- Lights, Camera, Grid!
 - Lead research on the classification and identification of light bulbs via the quantized light intensity and feature engineering/machine learning
 - Built and calibrated a stereo camera with smartphones and implemented triangulation to geolocate the GPS coordinates of lights in images

STIMA Lab, Amherst, MA, Research Assistant

May 2020 – August 2020

- 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

Diversity, Equity, and Inclusion PhD Application Review

January 2021 – February 2021

- Reviewed incoming PhD applications regarding DEI efforts to promote an inclusive community

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