

Rishikanth Chandrasekaran

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Best Paper Runner Up
BuildSys | TU Delft

Best Poster
BuildSys | Stanford

Best Demo Runner Up
SenSys '16 | Stanford

Best Use of AWS
HackRu '17

**Google IoT Research
Pilot Award**

Best Developer Tool
HackRu '16

1st Place
Hackathon | MIT IoT'14

Best Poster
MIT IoT 14

INDUSTRY

Huawei Research
Mobile Sensing Intern
July 2018 - Sept 2018
Machine Learning - Sensors

- ✔ Developed Machine Learning models to detect walking on stairs using only accelerometer on smartphone. Built custom data-labelling tool, data pre-processing pipelines
- ✔ My feature engineering and model achieved **90% accuracy**, robust to position and orientation of the phone, which is challenging as I used only time domain features for performance benefits
- ✔ Using time domain features over frequency domain, produced a lightweight feature extraction algorithm and inference model which was integrated into Huawei Android Framework

RESEARCH

SEE Lab
PhD Student
sept 2017 - **Present**
Machine Learning - IoT
Embedded Systems

- ✔ Developed a convolution enabled Hyper Dimensional classifier for lightweight and efficient image classification - **Under Review** at **DAC 2021**
- ✔ Ongoing research focused on Deep Learning methods and Hyperdimensional computing for efficient on-device learning
- ✔ Developed sparse hierarchical neural networks for distributed machine learning on the edge. **SenSys - ML' 2019**
- ✔ Deployed a wireless sensor network test bed for human activity recognition, developed fast neural network inference algorithms to run on bare metal ARM devices.

ICSL Columbia
Graduate Research
Assistant
Jan 2016 - Jun 2017
IoT - Embedded Systems
Sensor Networks - ML

- ✔ Built a headphone which analyzes ambient sounds using Random Forest and regression to warn users, about approaching cars. Designed custom hardware and firmware to satisfy real-time constraints - **Best Demo Runner up** at **SenSys'16**
- ✔ Implemented an energy footprinting system to provide occupants personalized actionable real-time insights into their energy usage. Deployed a building sensor network, backend and a dashboard - **Best Paper Runner** at **BuildSys'17**, **Best Poster** at **BuildSys'16**
- ✔ **Google IoT Research Pilot Award** for proposal on design of wearable using conductive fabric for comfort sensing
- ✔ Research in above yielded **6 publications** in leading conferences with Best Paper Runner up, Best Poster, Best Demo Runner up awards

Solarillion Foundation
Research Assistant
Aug 2013 - Jun 2015
Embedded Systems

- ✔ Implemented a 10\$ Intelligent Prepaid Energy Meter, which monitored consumption and provided recommendations to save. The research findings won **Best Poster Award** at **MIT IoT**
- ✔ Developed a 5\$ Gesture Recognition Glove, using custom designed flex sensors which **reduced cost** by **100x**. The findings were published at **IEEE GHTC**

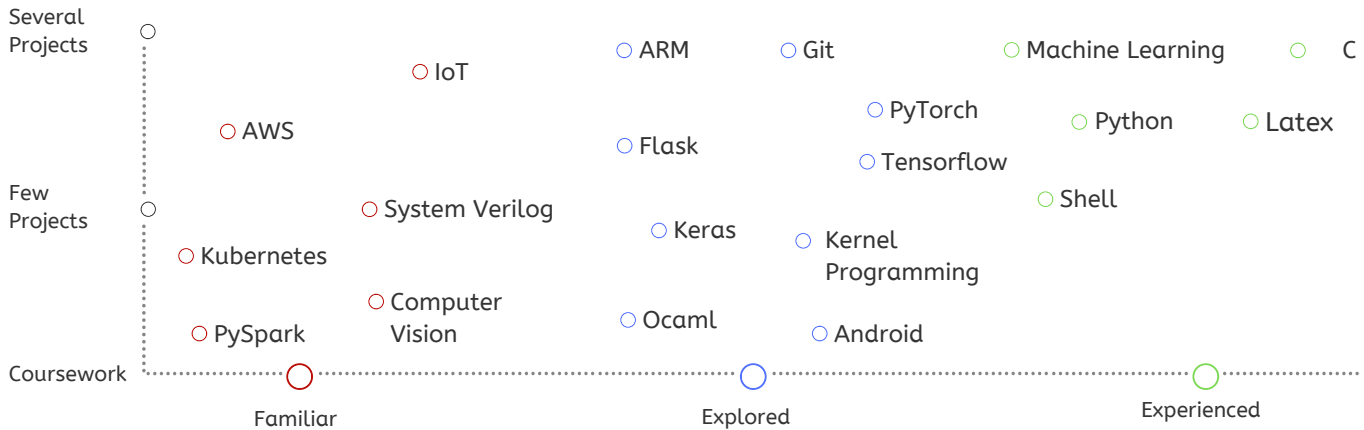
EDUCATION

University of California San Diego
 sept 2017 - **Present**
PhD
 Computer Science

Columbia University
 New York
 Jan 2016 - Jun 2017
MS
 Computer Engineering

Anna University
 India
 Aug 2011 - Jun 2015
BE
 Electrical & Electronics Eng

SKILLS



TEACHING

- Computer Vision**
 UCSD
Present
 - Undergraduate Computer Vision course covering basics of computer vision and deep learning methods for common vision problems
 - Designed assignments and exams for the course with over 100 students apart from handling Office Hours and teaching discussions
- Intro to AI - Statistics**
 UCSD
 Summer 2019
 40 students
 - Held office hours (OH) and held discussion sessions which involves teaching students supplementary material every week
 - Graded weekly quizzes and programming assignments - reviewing code and results
- Big Data Analytics**
 UCSD
 Spring 2018
 150 students
 - Managed entire course infrastructure, deployed containers and python notebooks for all students
 - Resolved various technical issues with backend, graded and held OH
- Artificial Intelligence**
 Columbia University
 Spring 2017
 300 students
 - As the head TA for the course managed 10 other TAs for both graduate and undergraduate students
 - Designed and implemented a fully automated grading system for all assignments using a combination of Python and Shell scripts
 - Held regular office hours and graded

PUBLICATIONS

Efficient Sparse Processing for Smart Home Applications

Rishikanth Chandrasekaran, Yunhui Guo, Anthony Thomas, Masimiliano Menarini, Michael Ostertag, Tajana Rosing
ACM Conference on Embedded Network Sensor Systems (SenSys) 2019 (*To Appear*)

A Scalable System for Apportionment and Tracking of Energy Footprints in Commercial Buildings

Peter Wei, Xiaoqi Chen, Jordan Vega, Stephen Xia, **Rishikanth Chandrasekaran**, Xiaofan Jiang
ACM Transaction on Sensor Networks (TSON) 2018

PAWS: A Wearable Acoustic System for Pedestrian Safety

Daniel de Godoy, Bashima Islam, Stephen Xia, Md Tamzeed Islam, **Rishikanth Chandrasekaran**, Yen-Chun Chen, Shahriar Nirjon, Peter R Kinget, Xiaofan Jiang
Internet-of-Things Design and Implementation (IoTDI), 2018

ePrints: a real-time and scalable system for fair apportionment and tracking of personal energy footprints in commercial buildings

Peter Wei, Xiaoqi Chen, Jordan Vega, Stephen Xia, **Rishikanth Chandrasekaran**, Xiaofan Jiang
ACM International Conference on Systems for Energy-Efficient Built Environments (BuildSys) 2017

Adaptive and Personalized Energy Saving Suggestions for Occupants in Smart Buildings

Peter Wei, Xiaoqi Chen, **Rishikanth Chandrasekaran**, Fengyi Song, Xiaofan Jiang
ACM International Conference on Systems for Energy-Efficient Built Environments (BuildSys) 2016

SEUS: A Wearable Multi-Channel Acoustic Headset Platform to Improve Pedestrian Safety: Demo Abstract

Rishikanth Chandrasekaran, Daniel de Godoy, Stephen Xia, Md Tamzeed Islam, Bashima Islam, Shahriar Nirjon, Peter Kinget, Xiaofan Jiang
ACM Conference on Embedded Network Sensor Systems (SenSys) 2016

Personal energy footprint in shared building environment

Peter Wei, Xiaoqi Chen, **Rishikanth Chandrasekaran**, Fengyi Song, Xiaofan Jiang
International Conference on Information Processing in Sensor Networks (IPSN) 2016

Low-cost intelligent gesture recognition engine for audio-vocally impaired individuals

C Rishikanth, Harini Sekar, Gautham Rajagopal, Ramesh Rajesh, Vineeth Vijayaraghavan
Global Humanitarian Technology Conference (GHTC) 2014

Low-cost intelligent prepaid energy meter

Rishikanth Chandrasekaran, Akshaya Ravishankar, Anand Vignesh, Vikram Vel, Dhiwaakara Purushothaman, Vineeth Vijayaraghavan
MIT International Conference on the Internet of Things 2014

LEADERSHIP

Graduate Women in Computing

2019 - 2020

Event Coordinator

- ✔ Organizing the logistics of all events and constructing new creative events
- ✔ Increase participation and engage members actively to promote the goals of the org
- ✔ Was previously the Mentorship Coordinator where I headed the program to help students engage with seniors and providing a support forum for grad students

CSE PhD Admissions Committee

2018 - Present

Member

- ✔ Review PhD applications jointly with faculty to evaluate profiles and identify potential students to recruit

Undergraduate Mentorship

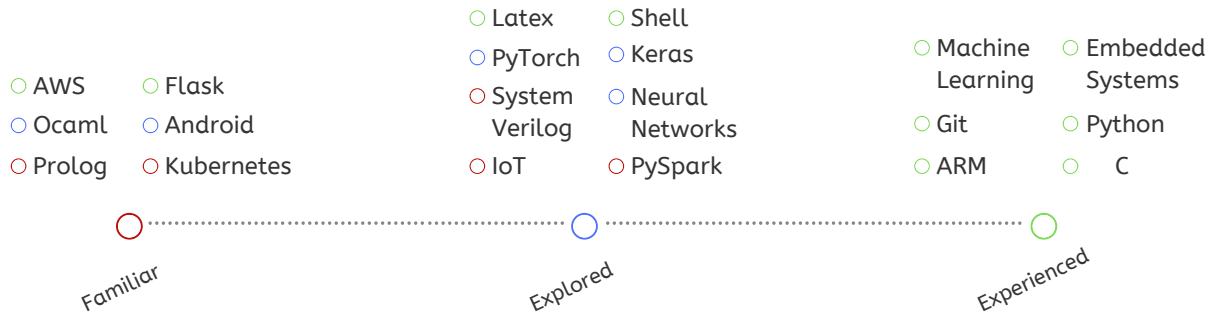
2013

Mentor

- ✔ Organized a semester long mentorship program jointly with Cognizant Technology Solutions to help support students from non-english backgrounds
- ✔ Held weekly activities curated to help them communicate with confidence breaking language barriers

INTERESTS





Intelligent Systems

Columbia University

Winter 2016

40 students

- ✔ Introduced new hardware for the course and designed assignments from scratch
- ✔ Handled Office Hours, lab tutorials and general grading

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