

Akash Deep Singh

PH.D. STUDENT · ELECTRICAL AND COMPUTER ENGINEERING

Los Angeles, CA, USA

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Education

University of California Los Angeles (UCLA)

Los Angeles, CA, USA

PH.D. IN ELECTRICAL AND COMPUTER ENGINEERING

Sep. 2018 - PRESENT

- **Advisor:** Prof. Mani Srivastava
- ECE Department Fellowship 2018-19
- Networked & Embedded Systems Laboratory (NESL)

IIIT-D, New Delhi, India

New Delhi, India

B.TECH IN ELECTRONICS AND COMMUNICATION ENGINEERING

Aug. 2014 - May 2018

- **Department Rank:** 2
- **Gold Medal:** All-round Performance

Research Interests

Usable Privacy, Internet of Things, Human-computer Interaction, Multi-modal fusion

Publications

RadHAR: Human Activity Recognition from Point Clouds Generated through a Millimeter-wave Radar

Los Cabos, Mexico

3RD ACM WORKSHOP ON MILLIMETER-WAVE NETWORKS AND SENSING SYSTEMS **CO-LOCATED WITH MOBICom'19**

2019

- Authors: **Akash Deep Singh**, Sandeep Singh Sandha, Luis Garcia, and Mani Srivastava
- ([Link to the paper](#))

Co-channel interference between WiFi and through-wall micro-Doppler radar

Seattle, USA

IEEE RADAR CONFERENCE (RADARCONF)

2017

- Authors: **Akash Deep Singh**, Shelly Vishwakarma, and Shobha Sundar Ram
- ([Link to the paper](#))

Simulation of the radar cross-section of dynamic human motions using virtual reality data and ray tracing

Oklahoma City, USA

IEEE RADAR CONFERENCE (RADARCONF)

2018

- Authors: **Akash Deep Singh**, Shobha Sundar Ram and Shelly Vishwakarma
- ([Link to the paper](#))

A Two-Way Cooperative D2D Communication Framework for a Heterogeneous Cellular Network

Journal

WIRELESS PERSONAL COMMUNICATIONS

2019

- Authors: Naveen Gupta, **Akash Deep Singh**, Parth Shrivastava and Vivek Ashok Bohara
- ([Link to the paper](#))

Skills

- **Programming Languages:** [Proficient: C, Matlab, Python]; [Prior Experience: Embedded C, Spice, JavaScript]
- **Tools and Technologies:** GNU Radio, LabView, Cadence Virtuoso, Eldo Spice, Wireshark, Advanced Design System, LTSpice, Hostapd, iPerf, NodeJS, AngularJS, Bootstrap

Research

Detecting and localizing hidden clandestine sensors in a space

Los Angeles, CA

UNDER THE SUPERVISION OF **PROF. MANI SRIVASTAVA**

Apr. 2019 - Present

- We are in the process of developing a framework not only to detect any sensor in a space that is monitoring a person, but to also classify and localize the it.

Multi-modal sensor fusion for robust inferencing

Los Angeles, CA

UNDER THE SUPERVISION OF **PROF. MANI SRIVASTAVA**

July. 2019 - Present

- Single modalities struggle to perform robustly in the presence of adverse conditions. The goal of this project is to collect and combine information (like motion, temperature, sound and RF) present in the environment with visual data for robust sensing and inferencing.

Human Activity Recognition from Point Clouds Generated through a Millimeter-wave Radar

Los Angeles, CA

UNDER THE SUPERVISION OF **PROF. MANI SRIVASTAVA**

Mar. 2019 - June. 2019

- Developed a framework that performs accurate HAR (Human Activity Recognition) using sparse and non-uniform point clouds generated from a mmWave radar.

Analysis and measurements of through-wall radar and Wifi coexistence

New Delhi, India

UNDER THE SUPERVISION OF **DR. SHOBHA SUNDAR RAM**

Aug. 2016 - Nov. 2016

- Measured the effect of a through-wall radar on wifi and vice versa when both are operated at same frequency. Also, we are working to suggest possible solutions to overcome this interference problem.

Micro Doppler Signature Simulation using Kinect Data

New Delhi, India

UNDER THE SUPERVISION OF **DR. SHOBHA SUNDAR RAM**

Jan. 2017 - Jan. 2018

- Used the Skeletal data obtained from a Kinect v2 sensor to obtain accurate radar micro-doppler simulations.
- Optimized the cross-section simulation for higher frequencies.

A Two-Way Cooperative D2D Communication Framework for Heterogeneous Cellular Network

New Delhi, India

UNDER THE SUPERVISION OF **DR. VIVEK ASHOK BOHARA**

July. 2017 - Dec. 2017

- Used a two-way OFDMA based cooperative device-to-device communication (C-D2D) framework in a heterogeneous cellular network to compensate for infrastructure failure when 2 base stations want to communicate with each other.

Projects

Project AVA: Smart backpack for preventing child abduction

New Delhi, India

UNDER THE SUPERVISION OF **DR. AMAN PARNAMI**

Aug. 2017 - Dec. 2017

- Designed and Developed an augmented backpack - along with an accompanying Android application - for school-going children to help prevent child abduction.

Smart MarketPlace (Selected among the top 6 projects in IoT course)

New Delhi, India

UNDER THE SUPERVISION OF **DR. JUHI RANJAN**

Aug. 2017 - Dec. 2017

- Created a smart marketplace that automatically adds the items picked by a customer to her cart and presents the bill during checkout.

OFDMA based D2D Communication using USRP

New Delhi, India

UNDER THE SUPERVISION OF **DR. VIVEK ASHOK BOHARA**

Feb. 2017 - May. 2017

- Used USRPs as nodes of a cellular network as well as a D2D pair. The performance of Cellular link was calculated in the presence of a D2D pair(source of interference) in both overlay and subcarrier sharing mode.

GPS controlled Surveillance Bot

New Delhi, India

UNDER THE SUPERVISION OF **DR. JYOTI SINHA**

Mar. 2015 - May. 2015

- Created a Raspberry Pi rover that can navigate using GPS coordinates and click images and videos.

Experience

UCLA

Los Angeles, CA

GRADUATE STUDENT RESEARCHER (GSR)

September 2019 - Present

- Working as a GSR in Networked & Embedded Systems Laboratory (NESL)
- Primary task is to conduct my own research experiments and collaborate with others on their research projects.

IIIT-D

New Delhi, India

TEACHING ASSISTANT

Aug. 2016 - Apr. 2018

- Under **Prof. Raj Ayyar**
 - **Course:** Critical Thinking, Jan. 2018 – May. 2018
 - **Course:** Perspectives on Knowledge, . Aug. 2017 – Dec. 2017
 - **Course:** Philosophy of Religion, Jan. 2017 – May. 2017
 - **Course:** Philosophy of Literature, . . . Aug. 2016 – Dec. 2016

As a TA, my responsibilities are organizing presentations, researching course material, solving student doubts and assisting the professor in grading submissions.

Uber

New Delhi, India

MARKETING INTERN

Jul. 2016 - Aug. 2016

- Worked on marketing campaigns and strategic tie-ups

Aashansh Foundation

New Delhi, India

WEB DEVELOPMENT

May. 2016 - Jul. 2016

- Built a new website and course portal for the Aashansh Foundation which has enabled underprivileged students to access free education and skill development programs easily.

ADEPT Consulting Partners

New Delhi, India

MARKET RESEARCHER

Jun. 2015 - Jan. 2016

- Worked in the Legal Recruitment team in data collection and analysis.
- Assisted multiple organizations in finding the right candidate.

Honors & Awards

2017	Dean's List for academic achievement, IIIT-D , Got special mention in the dean's list of academic achievers 2016-17 for obtaining a SGPA of 9.3/10 in the academic year 2016-17.	New Delhi, India
2017	First Prize, Innovation Challenge , Research Showcase 2017, IIIT-D	New Delhi, India
2014	Student of the Year (All-Rounder) 2013-14 , Bal Bhavan School	Bhopal, India
	NTSE Scholar , Awarded the National Talent Search Scholarship by NCERT (National Council Of Educational Research And Training), Government of India in 2010. Out of 500,000 students who appear for the exam, only 1000 students are granted this prestigious scholarship.	India
2010	Runners-Up , Horlicks WizKids	Bhopal, India

Languages

- **English:** Full Professional Proficiency
- **Hindi:** Native Proficiency