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*

- **GPA: 3.975/4**
- **Advisor:** Prof. Mani Srivastava
- ECE Department Fellowship 2018-19
- Networked & Embedded Systems Laboratory (NESL)

University of California, Los Angeles (UCLA)	*Los Angeles, CA, USA*
Masters of Science (MS) in Electrical and Computer Engineering	*Sep. 2018 - Mar 2020*

- **GPA: 3.975/4**

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

Wireless Sensing, Multi-modal Sensor Fusion, Usable Privacy, Internet of Things, Human-computer Interaction

Publications

I Always Feel Like Somebody's Sensing Me! A Framework to Detect, Identify, and Localize Clandestine Wireless Sensors	*Vancouver, Canada*
USENIX Security'21	*2021*

- Authors: **Akash Deep Singh**, Luis Garcia, Joseph Noor, and Mani Srivastava
- (Link to the paper)

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:** PyTorch, TensorFlow, Keras, GNU Radio, LabView, Cadence Virtuoso, Eldo Spice, Wireshark, Advanced Design System, LTSPice, Hostapd, iPerf, NodeJS, AngularJS, Bootstrap

Projects

Collaborative reinforcement learning to optimize the redistribution of critical medical supplies during the COVID-19 pandemic

Los Angeles, CA

Under the supervision of Dr. Mihaela Van der Schaar

Apr. 2020 - Jun. 2020

- Designed and developed a reinforcement learning agent that can facilitate near-optimal collaborative exchange of equipment between states in real-time to bolster the public health response to future diseases.

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.

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.

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*
2010	**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