Deepak Vasisht

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Assistant Professor, Computer Science
University of Illinois Urbana-Champaign

Professional Experience

2021–present **Assistant Professor**, *Computer Science*, University of Illinois, Urbana Champaign.
Affiliate Positions: Electrical & Computer Engineering, Coordinated Science Laboratory

2019–2021 **Researcher & Industry Research Fellow**, *Microsoft*.

Education

2013–2019 **Ph.D., Computer Science**, *Massachusetts Institute of Technology*.
Advisor: Prof. Dina Katabi
ACM SIGCOMM Doctoral Dissertation Award

2013–2015 **S.M., Computer Science**, *Massachusetts Institute of Technology*.
Advisor: Prof. Dina Katabi

2009–2013 **B.Tech.,Computer Science and Engineering**, *Indian Institute of Technology, Delhi*.
President of India Gold Medal, 2013
Graduate of the Last Decade, 2021

Conference Publications

MobiCom 2023 (To appear) Transmitting, Fast and Slow: Scheduling Satellite Traffic through Space and Time
Bill Tao, Maleeha Masood, Indranil Gupta, **Deepak Vasisht**

MobiCom 2023 (To appear) BatMobility: Flying without Seeing for Lightweight Unmanned Aerial Vehicles
Emerson Sie, Zikun Liu, **Deepak Vasisht**

NSDI 2023 Exploring Practical Vulnerabilities of Machine Learning-based Wireless Systems
Zikun Liu, Calvin Xu, Emerson Sie, Gagandeep Singh, **Deepak Vasisht**

MobiCom 2022 Non-Cooperative Wi-Fi Localization & its Privacy Implications
Ali Abedi, **Deepak Vasisht**

SIGCOMM 2022 RF-Protect: Privacy against Device-Free Human Tracking
Jayanth Shenoy, Zikun Liu, Bill Tao, Zachary Kabelac, **Deepak Vasisht**

ICRA 2022 RF-Annotate: Automatic RFID-Supervised Image Annotation of Common Objects in Context
Emerson Sie, **Deepak Vasisht**

IPSN 2022 MiLTOn: Sensing Product Integrity without Opening the Box using Non-Invasive Acoustic Vibrometry
Akshay Gadre, **Deepak Vasisht**, Nikunj Raghuvanshi, Bodhi Priyantha, Manikanta Kotaru, Swarun Kumar, Ranveer Chandra

NSDI 2022 Enabling IoT Self-Localization Using Ambient 5G Signals
Suraj Jog, Junfeng Guan, Sohrab Madani, Ruochen Lu, Songbin Gong, **Deepak Vasisht**, Haitham Hassanieh

NSDI 2022 Whisper: IoT in the TV White Space Spectrum
Tusher Chakraborty, Heping Shi, Zerina Kapetanovic, Bodhi Priyantha, **Deepak Vasisht**, Andrew Nelson, Parag Pandit, Prasad Pillai, Yaswant Chabria, Binh Vu, Ranveer Chandra

MobiCom 2021 FIRE: Enabling Reciprocity for FDD MIMO Systems
Zikun Liu, Gagandeep Singh, **Deepak Vasisht**

SIGCOMM 2021 L2D2: Low Latency Distributed Downlink for Low Earth Orbit Satellites
Deepak Vasisht, Jayanth Shenoy, Ranveer Chandra

HotNets 2020 A Distributed and Hybrid Ground Station Network for Low Earth Orbit Satellites
Deepak Vasisht, Ranveer Chandra

MobiCom 2020 Deep Learning based Wireless Localization for Indoor Navigation
Roshan Ayyalasomayajula, Aditya Arun, Chenfeng Wu, Sanatan Sharma, Abhishek Sethi, **Deepak Vasisht**, Dinesh Bharadia

ACM COMPASS 2019 Low-cost aerial imaging for small holder farmers
Aditya Jain, Zerina Kapetanovic, Akshit Kumar, Vasuki Narasimha Swamy, Rohit Patil, **Deepak Vasisht**, Rahul Sharma, Manohar Swaminathan, Ranveer Chandra, Anirudh Badam, Gireeja Ranade, Sudipta Sinha, Akshay Uttama Nambi S N
Best Paper Award

SIGCOMM 2018 In-body Backscatter Communication and Localization
Deepak Vasisht, Guo Zhang, Omid Abari, Jay Flanz, Hsiao Ming-Lu, Dina Katabi

UbiComp 2018 Duet: Estimating User Position and Identity in Smart Homes using Intermittent and Incomplete RF-Data
Deepak Vasisht, Anubhav Jain, Chen-Yu Hsu, Zachary Kabelac, Dina Katabi

CoNEXT 2018 BLoc: CSI-based Accurate Localization for BLE Tags
Roshan Ayyalasomayajula, **Deepak Vasisht**, Dinesh Bharadia

NSDI 2017 Farmbeats: An IoT Platform for Data-Driven Agriculture
Deepak Vasisht, Zerina Kapetanovic, Jongho Won, Xinxin Jin, Ranveer Chandra, Ashish Kapoor, Sudipta Sinha, Madhusudhan Sudarshan, Sean Stratman

SIGCOMM 2016 Eliminating Channel Feedback in Next-Generation Cellular Networks
Deepak Vasisht, Swarun Kumar, Hariharan Rahul, Dina Katabi
Best Paper Award

NSDI 2016 Decimeter-Level Localization with a Single WiFi Access Point
Deepak Vasisht, Swarun Kumar, Dina Katabi

SIGCOMM 2015 Caraoke: An E-Toll Transponder Network for Smart Cities
Omid Abari, **Deepak Vasisht**, Dina Katabi

IEEE FG 2015 Exploiting Sparsity and Co-occurrence Structure for Action Unit Recognition
Yale Song, Daniel McDuff, **Deepak Vasisht**, Ashish Kapoor

SIGKDD 2014 Active Learning for Sparse Bayesian Multilabel Classification
Deepak Vasisht, Andreas Domianou, Manik Varma, Ashish Kapoor

SIGCOMM 2014 RF-IDraw: Virtual Touch Screen in the Air Using RF Signals
Jue Wang, **Deepak Vasisht**, Dina Katabi

Awards and Achievements

2023 NSF CAREER Award

2022 Outstanding Advisor Award, Grainger College of Engineering, UIUC

2021	List of Teachers Ranked as Excellent by their Students, UIUC
2021	IIT Delhi Graduate of the Last Decade (GOLD) Award
2020	ACM SIGCOMM Doctoral Dissertation Award
2019	ACM COMPASS Best Paper Award
2016–18	Microsoft Research PhD Fellowship
2017	FarmBeats listed as one of ten projects that inspired him in 2017 by Satya Nadella.
2016	Winner, Microsoft Oneweek Hackathon (Industry Category)
2016	ACM SIGCOMM Best Paper Award
2013	President of India Gold Medal for the highest CGPA among graduating students at IIT Delhi
2013	MIT EECS Great Educators Fund Fellowship for academic year 2013-14
2010, 2008	Had the honour of attending Republic Day Parade from Prime Minister's box for being among the top 25 students (nationwide) in Secondary and Senior Secondary examinations (twice)

Teaching Experience

Spring 2023	CS 438: Communication Networks, UIUC
Spring 2022	CS 438: Communication Networks, UIUC
Fall 2021	CS 498: Machine Learning in Wireless Systems, UIUC
Spring 2021	CS 598: Wireless Networks and the Internet of Things, UIUC *List of Teachers Ranked as Excellent by their Students*
Fall 2015	(Teaching Assistant) Computer Networks, MIT
Spring 2013	(Teaching Assistant) Data Structures, IIT Delhi

Service

Working Group	NIST, NSF, DoD NextG Communications Gap Analysis, 2022
Program Committee	MIT Undergraduate Research Technology Conference, 2017 ACM SIGCOMM, 2020 ACM MobiSys, 2021 ACM MobiSys, 2022 ACM HotNets, 2022 ACM MobiCom, 2023 USENIX NSDI, 2024 IEEE INFOCOM, 2024
Panels	NSF Nets Small, 2022 and 2023
Organization	Workshop Chair, ACM Mobicom 2022
External Reviewer	ACM SIGCHI 2019 ACM IMWUT/UbiComp 2017, 2021

Journal Reviews	IEEE/ACM Transactions on Networking IEEE Transactions on Mobile Computing IEEE Transactions on Knowledge and Data Engineering IEEE Internet of Things Journal IEEE Transactions on Wireless Communications IEEE Transactions on Image Processing IEEE Wireless Communication Letters IEEE Transactions on Vehicular Technology

Public Media

Indoor Localization	MIT News, World Economic Forum, CBC, Science Alert, Daily Mail, IEEE Spectrum, Gizmodo, Engadget, and others
FarmBeats	BBC, Economist, Gates Notes, Forbes, Business Insider, Economic Times, TechCrunch, Agri-Pulse, Fruit Grower Network, and others
In-Body Devices	MIT News, Engadget, CNet, Business Standard, Slashgear, Economic Times, South China Morning Post, Elysium Health, and others

Patents

2020(Grant)	Scheduling satellite data transmissions using differing sets of ground stations **Deepak Vasisht**, Ranveer Chandra. US Patent 11096188.
2020 (Grant)	Secure wireless IOT platform Nissanka Arachchige Bodhi Priyantha, **Deepak Vasisht**, Ranveer Chandra, Heping Shi. US Patent 10992338.
2019 (Grant)	Low-cost Long-term Aerial Imagery Ranveer Chandra, Manohar Swaminathan, Vasuki Narasimha Swamy, Zerina Kapetanovic, **Deepak Vasisht**, Akshit Kumar, Anirudh Badam, Gireeja Ranade, Sudipta Sinha, Rohit Patil. US Patent 11153535.
2019 (Grant)	Location determination of wireless communications devices Sai Roshan Ayyalasomayajula, Dinesh Bharadia, **Deepak Vasisht**, Dina Katabi. US Patent 11140651.
2019 (Application)	Power-efficient Base Station Ranveer Chandra, Zerina Kapetanovic, **Deepak Vasisht**. US Patent 10785719.
2018 (Grant)	IoT Gateway for Weakly Connected Settings Ranveer Chandra, Ashish Kapoor, Sudipta Sinha, Amar Phanishayee, **Deepak Vasisht**, Xinxin Jin, Madhusudhan Gumbalapura Sudarshan. US Patent 10084868.
2018 (Grant)	Characterizing transmit channels from an antenna array to a transceiver Dina Katabi, **Deepak Vasisht**. US Patent 10756831.
2017 (Application)	Aerial Imaging of a Region Using Above Ground Aerial Camera Platform Ranveer Chandra, Manohar Swaminathan, Vasuki Narasimha Swamy, Zerina Kapetanovic, **Deepak Vasisht**, Akshit Kumar, Apurv Mehra, Avikalp Gupta, Sudipta Sinha, Rohit Patil. US Patent Application 20180213187.
2016 (Grant)	Generating Real-Time Sensor Maps From Videos And In-Ground Sensor Data Ranveer Chandra, Ashish Kapoor, Sudipta Sinha, **Deepak Vasisht**. US Patent 10089716.

2016 (Grant) IoT Gateway for Weakly Connected Settings
Ranveer Chandra, Ashish Kapoor, Sudipta Sinha, Amar Phanishayee, **Deepak Vasisht**, Xinxin Jin, Madhusudhan Gumbalapura Sudarshan. US Patent 10084868.

2016 (Grant) Sub-decimeter Radio Frequency Ranging
Deepak Vasisht, Swarun Kumar, Dina Katabi. US Patent 9961495.

2016 (Grant) Transponder Localization
Omid Abari, **Deepak Vasisht**, Dina Katabi. US Patent 9504006.

2015 (Grant) Radio Frequency Localization
Jue Wang, **Deepak Vasisht**, Dina Katabi. US Patent 9958529.

Invited Talks

2022 Rural Connectivity Solutions for Digital Agriculture
FCC Taskforce on the Connectivity and Technology Needs of Precision Agriculture in the United States

2022 Low Latency Data Downlink for LEO Satellites
Cisco

2021 FarmBeats: An AI & IoT Platform for Data-driven Agriculture
University of Washington

2021 Networking in the Wild: In-body, Farms, and Space
Planet Inc.

2021 Low Latency Data Downlink for LEO Satellites
LEOCONN, ETH Zurich

2018 In-body GPS: Locating in-body Devices using Radio Signals
MIT Family Weekend

2018 Low Power Networks, Topic Preview
Invited Talk, ACM MobiCom 2018

2018 In-body Backscatter Communication and Localization
ACM SIGCOMM

2018 Smart Environments using IoT Systems
Invited Talk, Indian Institute of Technology, Delhi
Invited Talk, Indian Institute of Technology, Bombay
Invited Talk, Microsoft Research, India

2018 FarmBeats: An AI & IoT Platform for Data-driven Agriculture
Invited Talk, MIT Sense.Nano Symposium

2016 RF-IDraw: Virtual Touchscreen in the Air using RF Signals
Invited Talk, Microsoft Research Student Summit on Mobility, Systems, and Networking