

Suraj Jog

PHD CANDIDATE, ELECTRICAL AND COMPUTER ENGINEERING,
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EDUCATION	University of Illinois at Urbana-Champaign <i>PhD Candidate</i> , Electrical and Computer Engineering <i>Aug 2016 - Present</i> Advisor: Prof. Haitham Hassanieh Overall GPA: 4.0/4.0
	Indian Institute of Technology (IIT) Bombay, India <i>Bachelor of Technology (with Honors)</i> , Electrical Engineering <i>Jul 2012 - May 2016</i> Overall GPA: 9.32/10

RESEARCH INTERESTS	Wireless Networking and RF sensing, IoT and Low Power Wide-Area Networks (LPWANs), and Machine Learning
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AWARDS AND HONORS	Qualcomm Innovation Fellowship Winner <i>2020-21</i>
	Joan and Lalit Bahl Fellowship, ECE Dept, UIUC <i>2020-22</i>
	Named a Fellow of the Mavis Future Faculty Fellows Academy <i>2020-21</i>
	M. E. Van Valkenburg Graduate Research Award, UIUC <i>2019-20</i>
	First Position in SIGCOMM'18 Graduate Student Research Competition (SRC) <i>2018</i>
	Presented my work to Mr. Bill Gates during his visit to our FarmBeats deployment site. The work also featured in an article on Bill Gates' blog, GatesNotes. <i>2018</i>
	Rambus Computer Engineering Fellowship, UIUC <i>2018-19</i>
	Cargill Global Scholarship <i>2014-16</i>
	All India Rank 24 in IIT Joint Entrance Exam (top 0.005% in India) <i>2012</i>
	All India Rank 24 in All India Engineering Entrance Exam (top 0.0025% in India) <i>2012</i>

PUBLICATIONS	Enabling IoT Self-Localization Using Ambient 5G Signals Suraj Jog , Ruo Chen Lu, Songbin Gong, Deepak Vasisht, Haitham Hassanieh, et al. NSDI 2022 , USENIX Symposium on Networked Systems Design and Implementation
	One Protocol to Rule Them All: Wireless Network-on-Chip using Deep Reinforcement Learning Suraj Jog , Zikun Liu, Sergi Abadal, Josep Torrellas, Haitham Hassanieh, et al. NSDI 2021 , USENIX Symposium on Networked Systems Design and Implementation
	Practical Null Steering in Millimeter Wave Networks Sohrab Madani, Suraj Jog , Jesus Lacruz, Joerg Widmer, Haitham Hassanieh NSDI 2021 , USENIX Symposium on Networked Systems Design and Implementation
	Through Fog High Resolution Imaging Using Millimeter Wave Radar Junfeng Guan, Sohrab Madani, Suraj Jog , Haitham Hassanieh, Saurabh Gupta Computer Vision and Pattern Recognition (CVPR), 2020

Many-to-Many Beam Alignment in Millimeter Wave Networks
Suraj Jog, Jiaming Wang, Junfeng Guan, Haitham Hassanieh, Romit Roy Choudhury, et al.
NSDI 2019, USENIX Symposium on Networked Systems Design and Implementation

Sharing within limits: Partial resource pooling in loss systems
Anvitha Nandigam, **Suraj Jog**, D. Manjunath, Jayakrishnan Nair, Balakrishna Prabhu
IEEE/ACM Transactions on Networking 2019

An Experimental Study of the Treewidth of Real-World Graph Data
Silviu Maniu, Pierre Senellart, **Suraj Jog**
ICDT 2019, International Conference on Database Theory

Une étude expérimentale de la largeur d'arbre de données graphe du monde réel
Silviu Maniu, Pierre Senellart, **Suraj Jog**
BDA 2018, Conference on Data Management - Principles, Technologies and Applications

Poster: Millimeter Wave Wireless Network on Chip Using Deep Reinforcement Learning
Suraj Jog, Zikun Liu, Sergi Abadal, Josep Torrellas, Haitham Hassanieh, et al.
SIGCOMM 2020, ACM Special Interest Group on Data Communication
Third Position in Student Research Competition (SRC)

Poster: Enabling Dense Spatial Reuse in mmWave Networks
Suraj Jog, Jiaming Wang, Haitham Hassanieh, Romit Roy Choudhury
SIGCOMM 2018, ACM Special Interest Group on Data Communication
First Position in Student Research Competition (SRC)

Poster: Multi-User Wireless Virtual Reality with Millimeter Wave Networks
Suraj Jog, Anadi Chaman, Haitham Hassanieh
NSF Millimeter-Wave RCN Workshop 2017

PATENTS

Neural Network-Based Millimeter-Wave Imaging System
Junfeng Guan, Sohrab Madani, **Suraj Jog**, Haitham Hassanieh, Saurabh Gupta
Patent Pending: US 62/951388

INVITED TALKS

CSL Student Conference 2019, UIUC *Feb 2019*
Talk: FarmBeats - AI and IoT for Agriculture

Microsoft Research, Redmond *Aug 2018*
Talk: Long Range IoT Networks - From Communication to Sensing

WORK EXPERIENCE

FarmBeats: AI and IoT platform for data driven agriculture *Summer 2018*
Research Intern, Microsoft Research, Redmond | Dr. Ranveer Chandra

- **Project 1: LoRa for RF Sensing**

Designed a low-cost RF-based wind sensor, that reduces cost from 100 USD to less than 2 USD. Presented a working prototype to Mr. Bill Gates during his visit to our farm.

- **Project 2: Networking for Long-Range IoT radios**

Designed intelligent cross-layer MAC and channel selection protocols for low-power IoT radios over the TV White spaces for scalable networking solutions for sensors in farms.

- FarmBeats was listed as one of the ten projects that inspired Satya Nadella, and is one of the flagship projects for Microsoft AI for Earth.

Metric Learning with Random Forests

Summer 2015

Research Intern, Siemens, India | Dr. Amit Kale

- Designed a metric learning framework using Supervised Random Forests integrated with WTA-Hash, in order to quantify the similarity between two images under noisy conditions
- Achieved reduction in False Positive Rate from 3.5 % to 0.4 % (at 95 % True Positive Rate) for the task of classifying images as similar or dissimilar in standard image datasets

ACTIVITIES AND SERVICES

Program Committee

ACM S3 2019, 11th ACM Wireless of the Students, by the Students, and for the Students

Journal Reviews

IEEE/ACM Transactions on Networking

IEEE Transactions on Mobile Computing

IEEE Transactions on Network and Service Management

Web Chair

mmNets 2017, 1st ACM Workshop on Millimeter-Wave Networks and Sensing Systems

TEACHING EXPERIENCE

Guest Lecture

ECE 420: Embedded DSP Laboratory (UIUC)

Spring 2020

Teaching Assistant

ECE 598HH: Wireless Networks and Mobile Systems (UIUC)

Spring 2018 & Fall 2020

ECE 438: Communication Networks (UIUC)

Fall 2017

PH 103: Electricity and Magnetism (IIT Bombay)

Fall 2014 & Fall 2015

EXTRA-CURRICULAR ACTIVITIES

- Secured First Position in Oman National-Level Chess Tournament (Junior Category)
- Top 40 contestants from Mumbai in Indian Idol 2012 (Singing Reality Competition)
- Elected as *Institute Cultural Mentor for Music 2013-14*, to mentor a batch of 880 freshmen

REFERENCES

Prof. Haitham Hassanieh (Advisor)

ECE & CS, University of Illinois at Urbana-Champaign

Website: <http://haitham.ece.illinois.edu>

Prof. Romit Roy Choudhury

ECE & CS, University of Illinois at Urbana-Champaign

Website: <http://croy.web.engr.illinois.edu>

Dr. Ranveer Chandra

Managing Director, Research for Industry

Partner Manager, Networking Research

CTO, Agri-Food

Website: <https://www.microsoft.com/en-us/research/people/ranveer>