

Pedram Kheirkhah Sangdeh

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SUMMARY

- A Ph.D. student in CS, skilled in wireless communications, signal processing, and machine learning
- Interested in design, analysis, and implementation of PHY/MAC protocols for WLANs, 5G, 6G & beyond
- Published a book chapter and 16 research papers in JSAC, ToN, MobiHoc, INFOCOM, and TWC

TECHNICAL SKILLS

- **Core skills:** Wireless communications, signal processing, machine learning, networking, optimization
- **Technologies:** Wi-Fi (IEEE 802.11 ac/ax), 5G NR, 3GPP LTE, 802.11p, Bluetooth, ZigBee, mmWave
- **Platforms and Tools:** Python, MATLAB, C++, PyTorch, CVX, GNURadio, USRP, FMCW Radar
- **Techniques:** MIMO, OFDM, detection, estimation, simulation, implementation, OOP, prototyping

EDUCATION

PhD in Computer Science	Michigan State University (MSU)	2020-present
PhD in Electrical and Computer Eng.	University of Louisville (Transferred to MSU)	2017-2020
MS in Electrical Engineering	University of Tehran	2011-2014
BS in Electrical Engineering	Iran University of Science and Technology	2006-2011

EXPERIENCE

- **Computer Networks and Sensing Systems Lab, MSU, East Lansing, MI** (Sep. 2020 – Present)
Research Assistant,
 - Research on wireless communications and machine learning including protocol design, theoretical analysis, system implementation (PHY/MAC), field test, and data collection
 - Learning-based multiplexing for MU-MIMO-OFDMA mode in 802.11ax
 - In-band underlay D2D and 5G NR communications
 - Low-overhead sounding for MU-MIMO in IEEE 802.11ac/ax
 - Jamming-resilient communications for VANETs
 - Low-latency V2X (V2V/V2I) communications
- **Digital Wireless Communications Lab, UofL, Louisville, KY** (Aug. 2017 – Aug. 2020)
Research Fellow,
 - Design, simulation, optimization, and implementation of protocols in WLANs, cellular networks, and VANETs to enhance spectral efficiency and mitigate co-channel interference
 - Wi-Fi/LTE coexistence in unlicensed band
 - Taming interference in densely deployed Wi-Fi networks
 - Blind spectrum sharing in cognitive radio networks
 - Uplink distributed MIMO for wireless LANs
 - Design and operate lab-scale networks using USRP, clock, switches, spectrum analyzer, FMCW Radar, POWDER-RENEW, GNURadio, WireShark, CSI tools

SELECT FIRST-AUTHOR PUBLICATIONS

1. DeepMux: Deep-learning-based channel sounding and resource allocation for IEEE 802.11ax
IEEE Journal on Selected Areas in Communications (JSAC), 2021.
2. DM-COM: Combining device-to-device and MU-MIMO communications for cellular networks
IEEE Internet of Things Journal (IoTJ), 2021.
3. A practical spectrum sharing Scheme for cognitive radio networks: Design and experiments
IEEE/ACM Transactions on Networking (ToN), 2020.
4. LB-SciFi: Online learning-based channel feedback for MU-MIMO in wireless LANs
IEEE International Conference on Network Protocols (ICNP), 2020.
5. A downlink NOMA scheme for wireless LANs
IEEE Transactions on Communications (TCOM), 2020.