ROBIN CHATAUT

160 Pearl Street
Fitchburg, MA, 01420
940-220-0158
rchataut@fitchburgstate.edu
www.robinchataut.com

EDUCATION

2016 - 2020 **Doctor of Philosophy, Computer Science and Engineering**
Department of Computer Science and Engineering
University of North Texas, Denton, Texas
Advisor: Robert Akl, Ph.D.
Dissertation: Optimization of Massive MIMO System for 5G Networks

2010 - 2014 **Bachelor of Engineering, Electronics, and Communication**
Department of Electronics and Computer Engineering
Institute of Engineering, Pulchowk Campus
Tribhuvan University, Nepal
Advisor: Mr. Anil Verma, Associate Professor
Thesis: Vehicle over Speed Detection and License Plate Recognition (Collaborated with Nepal Police)

RESEARCH INTERESTS

5G, B5G, 6G Networks, Network Security, AI and ML for Networks, Wireless Communication, IoT, Smart Cities, Vehicular Networks, Massive MIMO, mmWave, terahertz wave, Sensor Networks

RESEARCH AND TEACHING EXPERIENCE

2020 - Present **Assistant Professor**
Computer Science Department, Fitchburg State University

2017 - 2020 **Teaching Assistant**
Department of Computer Science and Engineering, University of North Texas

- Supported many undergraduate and graduate-level courses
- Advised undergraduate students on their research projects and senior design projects

2016 – 2020 **Research Assistant**
Wireless Sensor Lab, University of North Texas

- Worked on next generation wireless technologies
- Design and implementation of precoding, detection, user scheduling, and channel estimation algorithms for Massive MIMO and millimeter wave systems
- Research on Network Security, IoT, Smart Cities, and Vehicular Networks

2014 – 2015 **Instructor**
Department of Electronics and Computer Engineering, Institute of Engineering, Tribhuvan University
- Conducted undergraduate level lectures, and lab sessions
- Supervised undergraduate research projects

2010 – 2014 **Research Assistant**
Department of Electronics and Computer Engineering
Institute of Engineering, Tribhuvan University
- Research on Wireless Sensor Networks, RF and Microwave systems

PROFESSIONAL EXPERIENCE

2015 – 2016 **Software Developer, Jhilko Innovations**
- Developed an interactive Android Application targeted to children with autism and their parents (Application Name: Beautiful Minds [Apk Link]). (Collaborated with UNICEF Nepal and Autism Care Nepal Society)

2015 **Internship, Nepal Telecom**
- Assisted technicians in equipment inspection, gathered and compiled data for projects as wells as prepare weekly status reports

2012 – 2015 **Team Lead/ Coordinator (Department of IT)**
- Nepal UNESCO Centre (Affiliated under UNESCO NEPAL)
- Responsibilities include teaching at schools in the rural part of Nepal, collection, and distribution of information to the Government of Nepal

2012 – 2013 **Editor**
- Editor of the "Graphene" and "EPC" tech magazines on latest technological advancement

PUBLICATIONS

PEER-REVIEWED JOURNAL AND CONFERENCE PAPERS

P.21 **R. Chataut,** R. Akl and U.K. Dey." An Adaptive User Scheduling Algorithm for 6G Massive MIMO Systems," Feb 2023. 25th IEEE International Conference on Advanced Communications Technology (IEEE ICACT 2023), PyeongChang, Korea. **Won Best Paper Award.**

P.20 U.K. Dey, R. Akl, **R. Chataut**, " Performance Improvement in Cellular V2X (CV2X) by Using Massive MIMO Jacobi Detector,". Dec 2022. IEEE 19th International Conference on Smart Cities: Improving Quality of Life Using ICT & IoT and AI (IEEE HONET 2022), Kennesaw, GA.

P.19 **R. Chataut,** R. Akl and U.K. Dey." Massive MIMO Uplink Signal Detector for 5G and Beyond Networks," Apr 2022. The 13th IEEE Texas Symposium on Wireless and Microwave Circuits and Systems (IEEE TSWMCS 2022), Waco, Texas, USA.

P.18 U.K. Dey, R. Akl, **R. Chataut**." Performance Improvement in Cellular V2X (CV2X) by Using Low Density Parity Check (LDPC) Code,". Oct 2022. The 13th Annual Ubiquitous Computing, Electronics & Mobile Communications Conference (IEEE UEMCON 2022).

P.17 U.K. Dey, R. Akl, and **R. Chataut**. "Throughput Improvement in Vehicular Communication by Using Low Density Parity Check (LDPC) Code," Jan 2022 10th Annual Computing and Communication Workshop Conference (IEEE CCWC 2022).

P.16 **R. Chataut,** R. Akl and U.K. Dey."An Efficient and Fast-Convergent Detector for 5G and Beyond Massive MIMO Systems,". Dec 2021. The 12th Annual Ubiquitous Computing, Electronics & Mobile Communications Conference (IEEE UEMCON 2021).

P.15 U.K. Dey, R. Akl, **R. Chataut**. ."Selective MIMO in Vehicular Communication for Reliable Safety Services and High-Speed Non-Safety Services,". Dec 2021. The 12th Annual Ubiquitous Computing, Electronics & Mobile Communications Conference (IEEE UEMCON 2021).

P.14 M. Robaei, R. Akl, and **R. Chataut,** U.K Dey. "Adaptive Millimeter-Wave Channel Estimation and Tracking," Feb 2022. The 23rd International Conference on Advanced Communications Technology (IEEE ICACT 2021).

P.13 **R. Chataut**., R. Akl, U.K Dey, M. Robaei. "SSOR Preconditioned Gauss-Seidel Detection and its Hardware Architecture for 5G and Beyond Massive MIMO Networks," MDPI Electronics, Special issue on MIMO for Next Generation Wireless Systems, 2020.

P.12 **R. Chataut**, R. Akl, "Massive MIMO Systems for 5G". June 2020. MDPI.

P.11 **R. Chataut**., R. Akl. "Massive MIMO Systems for 5G and Beyond Networks: Overview, Recent Trends, Challenges, and Future Research Direction," Sensors Special issue on 5G and beyond Cellular Networks for Intelligent Sensing Systems, 2020.

P.10 **R. Chataut**, R. Akl, "Efficient and Low-Complexity Iterative Detectors for 5G Massive MIMO Systems" .May 2020. First IEEE International Workshop on Distributed and Intelligent Computing at the Edge (IEEE DICE 2020).

P.9 **R. Chataut**, R. Akl. "An Efficient and Fair Scheduling for Downlink 5G Massive MIMO Systems," May 2020. 11th IEEE Texas Symposium on Wireless and Microwave Circuits and Systems (IEEE TSWMCS 2020), Waco, Texas, USA.

P.8 U.K. Dey, R. Akl**, R. Chataut.,** and M. Robaei." Modified PHY Layer for High Performance V2X Communication using 5G NR," Oct 2020 *11sth IEEE Annual Ubiquitous Computing, Electronics and Mobile Communication Conference (*IEEE *UEMCON 2020*), New York, NY, 2020.

P.7 **R. Chataut**, R. Akl, M. Robaei "Accelerated and Preconditioned Refinement of Gauss-Seidel Method for Uplink Signal Detection in 5G Massive MIMO Systems," Jan 2020. IEEE 8th Annual Computing and Communication Workshop and Conference (IEEE CCWC 2020), Las Vegas, NV.

P.6 U.K. Dey, R. Akl, **R. Chataut** "High Throughput Vehicular Communication Using Spatial Multiplexing MIMO," Jan 2020 IEEE 8th Annual Computing and Communication Workshop and Conference (IEEE CCWC 2020), Las Vegas, NV.

P.5 **R. Chataut**, R. Akl, "Channel Gain Based User Scheduling for 5G Massive MIMO Systems,". Oct 2019. IEEE 16th International Conference on Smart Cities: Improving Quality of Life Using ICT & IoT and AI (IEEE HONET 2019), Charlotte, NC.

P.4 **R. Chataut**, R. Akl and U. K. Dey, "Least Square Regressor Selection Based Detection for Uplink 5G Massive MIMO Systems," March 2019. IEEE 20th Wireless and Microwave Technology Conference (IEEE WAMICON 2019), Cocoa Beach, FL, USA, 2019, pp. 1-6.

P.3 **R. Chataut**, R. Akl, "Huber Fitting based ADMM Detection for Uplink 5G Massive MIMO Systems. Nov. 2018 9th IEEE Annual Ubiquitous Computing, Electronics and Mobile Communication Conference (IEEE UEMCON 2018), New York, NY, 2018.

P.2 **R. Chataut**, R. Akl, "Efficient and Low Complex Uplink Detection for 5G Massive MIMO Systems," April 2018 IEEE 19th Wireless and Microwave Technology Conference (IEEE WAMICON 2018), Sand Key, FL, 2018, pp. 1-6.

P.1 **R. Chataut**, R. Akl, "Optimal Pilot Reuse Factor Based on User Environment in 5G Massive MIMO," Jan 2018. IEEE 8th Annual Computing and Communication Workshop and Conference (IEEE CCWC 2018), Las Vegas, NV, USA, 2018, pp. 845-851.

GRANTS /AWARDS

2023 **2023 NSF SaTC Aspiring PI workshop Grant**

2023 **CTL Teaching Grant for Mobile Application Development**

2023 **MSCA Professional Development Grant**

2022 **MSCA Professional Development Grant**

2021 **MSCA Professional Development Grant**

2020 **Outstanding Ph.D. Student, University of North Texas**
Won outstanding Ph.D. Student of the year award at University of North Texas

2020 **TGS GSC Travel Grant**
Awarded by Toulouse Graduate School, University of North Texas

2019 **College of Engineering Department Award**
Awarded by College of Engineering, University North Texas

2019 **TGS GSC Travel Grant**
Awarded by Toulouse Graduate School, University of North Texas

2019 **TGS Summer Award**
Awarded by Toulouse Graduate School, University of North Texas

2019 **Texas Public Education Grant**
Awarded by the State of Texas

2018 **TGS GSC Travel Grant**
Awarded by Toulouse Graduate School, University of North Texas

2018–2020 **Multicultural Scholastic Award**
Awarded by Office of Outreach, University of North Texas

2007 **Karnes Bryant Centennial Scholarship**
Awarded by the APA Science Directorate

2018 **Texas Public Education Grant**
Awarded by the State of Texas

2016-2019 **Tuition Benefit Program Award**
Awarded by University of North Texas

2010-2014 **Nepal Government Full Scholarship for Undergraduate Degree**
Awarded by Government of Nepal

2008-2010 **Mahatma Gandhi Scholarship for Academic Excellence**
Awarded by Embassy of India in Nepal

PRESENTATIONS

TALKS

Feb 2023 An Adaptive User Scheduling Algorithm for 6G Massive MIMO Systems," Feb 2023. 25th IEEE International Conference on Advanced Communications Technology (IEEE ICACT 2023), PyeongChang, Korea.

March 2022 Massive MIMO Uplink Signal Detector for 5G and Beyond Networks. The 13th IEEE Texas Symposium on Wireless and Microwave Circuits and Systems (IEEE TSWMCS 2022), Baylor University, Waco, Texas, USA.

Dec 2021 Interview featured in the Research Live quarterly newsletter; Improving Bandwidth Efficiencies

Dec 2021 An Efficient and Fast-Convergent Detector for 5G and Beyond Massive MIMO Systems. The 12th Annual Ubiquitous Computing, Electronics & Mobile Communications Conference (IEEE UEMCON 2021).

June 2020 Efficient and Low-Complexity Iterative Detectors for 5G Massive MIMO Systems. The First IEEE International Workshop on Distributed and Intelligent Computing at the Edge (IEEE DICE 2020), Los Angeles, CA, USA.

May 2020 An Efficient and Fair Scheduling for Downlink 5G Massive MIMO Systems. The 11th IEEE Texas Symposium on Wireless and Microwave Circuits and Systems (IEEE TSWMCS 2020), Baylor University, Waco, Texas, USA.

Jan 2020 Accelerated and Preconditioned Refinement of Gauss-Seidel Method for Uplink Signal Detection in 5G Massive MIMO Systems. 2020 IEEE 8th Annual Computing and Communication Workshop and Conference (IEEE CCWC 2020), Las Vegas, NV, USA.

Jan 2020 High Throughput Vehicular Communication Using Spatial Multiplexing MIMO. 2020 IEEE 8th Annual Computing and Communication Workshop and Conference (IEEE CCWC 2020), Las Vegas, NV.

Nov 2019 Panelist, College of Engineering PhD Preview, University of North Texas

Oct 2019 Channel Gain Based User Scheduling for 5G Massive MIMO Systems. 2019 IEEE 16th International Conference on Smart Cities: Improving Quality of Life Using ICT & IoT and AI (IEEE HONET 2019), University of North Carolina, Charlotte, North Carolina, USA.

Apr 2019 Least Square Regressor Selection Based Detection for Uplink 5G Massive MIMO Systems. The 20th Annual Wireless and Microwave Technology Conference (IEEE WAMICON 2019), Cocoa Beach, Florida, USA.

Nov 2018 HUBER fitting Based ADMM Detection for Uplink 5G Massive MIMO systems. The 9th Annual Ubiquitous Computing, Electronics & Mobile Communications Conference (IEEE UEMCON 2018), Colombia University, New York, USA.

Apr 2018 Efficient and Low Complex Uplink Detection for 5G Massive MIMO Systems. The 19th Annual Wireless and Microwave Technology Conference (IEEE WAMICON 2018), Clearwater Beach, Florida, USA.

Mar 2018 Optimization for Massive MIMO Systems. NCCS I/UCRC Industrial Advisory Board Meeting (IAB Meeting 2018), Arizona State University, Arizona, USA.

Jan 2018 Optimal Pilot Reuse Factor Based on User Environments in 5G Massive MIMO. Oral Presentation presented at the 8th Annual Computing and Communication Workshop Conference (IEEE CCWC 2018), University of Nevada, Las Vegas, USA.

Oct 2017 Optimization for Massive MIMO Systems. NCCS I/UCRC Industrial Advisory Board Meeting (IAB Meeting 2017), University of North Texas, Denton, Texas, USA.

Apr 2017 Optimization for Massive MIMO Systems. NCCS I/UCRC Industrial Advisory Board Meeting (IAB Meeting 2017), University of Texas at Dallas, Richardson, Texas, USA.

POSTER PRESENTATIONS

Feb 2020 5G Key Enabling Technologies and Applications. IEEE North Tech-SAS, Denton, Texas, USA.

Jan 2019 5G Key Enabling Technologies, Massive MIMO, and Millimeter Waves. Computer Science and Engineering Open House, University of North Texas

Apr 2018 Efficient and Low Complex Uplink Detection for 5G Massive MIMO Systems. The 19th Annual Wireless and Microwave Technology Conference (IEEE WAMICON 2018), Clearwater Beach, Florida, USA.

Mar 2018 Optimization for Massive MIMO Systems. NCCS I/UCRC Industrial Advisory Board Meeting (IAB Meeting 2018), Arizona State University, Arizona, USA.

Oct 2017 Optimization for Massive MIMO Systems. NCCS I/UCRC Industrial Advisory Board Meeting (IAB Meeting 2017), University of North Texas, Denton, Texas, USA.

Apr 2017 Optimization for Massive MIMO Systems. NCCS I/UCRC Industrial Advisory Board Meeting (IAB Meeting 2017), University of Texas at Dallas, Richardson, Texas, USA.

COURSES TAUGHT

- Intro to Programming
- Computer Science I (Python/C++)
- Computer Science II (Java/C++)
- Digital Electronics
- Digital Logic
- Data Communication and Networking
- Local Area Networks
- Computer Networks
- Computer Security
- Internet of Thing and Smart Cities
- System Administration
- Web Programming (HTML, CSS, JS, PHP, React)
- Mobile Application Development (Android/iOS)
- Theory of Computation
- Operating Systems and Networking (Java/C/C++)
- Object-Oriented Programming (Java/Python)
- Ethics and Impacts of Computing
- Independent Study: Database Management
- Independent Study: IoT and Smart City Technologies

PROFESSIONAL AFFILIATIONS AND SERVICES

Technical Program Chair/Session Chair/Editorial Board Member

(a) **Topics Board Editor**: Sensors Journal, MDPI
(b) **Technical Program Chair**: 2019 IEEE 16th International Conference on Smart Cities: Improving Quality of Life Using ICT & IoT and AI (HONET-ICT)
(c) **Review editor on the Editorial Board**: Frontiers in Artificial Intelligence
(d) **Session Chair**: IEEE 12th Annual Computing and Communication Workshop and Conference (CCWC), Image and Signal Processing; Sensor Networks

Ad-hoc Reviewer for Journal/Conferences

a) Applied Sciences Journal, MDPI
b) Electronics Journal, MDPI

c) Sensors Journal, MDPI
d) Networks Journal, MDPI
e) Entropy, MDPI
f) IEEE Wireless Communications Magazine Journal
g) 2020 IEEE 17th International Conference on Smart Cities: Improving Quality of Life Using ICT & IoT and AI (HONET-ICT)
h) 2019 IEEE 16th International Conference on Smart Cities: Improving Quality of Life Using ICT & IoT and AI (HONET-ICT)
i) Journal of Electrical and Electronic Engineering, Science Publishing Group.

Department and University Service

a) Curriculum and Assessment Committee (2020-Present)
b) ABET Committee (2020-Present)
c) Graduate and Undergraduate Internship Supervisor (2020-Present)
d) CS Graduate Committee (2020-Present)
e) Technology Advisory Committee (2022-2023)
f) International Advisory Committee (2022- 2023)
g) CS Faculty Search Committee Chair (2023)
h) Center for Teaching and Learning Advisory Committee (2021-2022)
i) First Year Experience Advisory Committee (2020-2021)
j) University parking Committee (2022-2023)

Professional Organization

a) **Member**: IEEE
b) **Member**: IEEE Young Professionals
c) **Member**: IEEE Future Networks Community,
d) **Member**: IEEE Communications Society
e) **Member**: Internet of Things Community, IEEE
f) **Member**: American Society of Nepalese Engineers (AsNEgr)