

## ROBIN CHATAUT

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### RESEARCH INTERESTS

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

### PROFESSIONAL EXPERIENCE

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|----------------|---|
| 2023 - Present | <b>Assistant Professor of Cybersecurity and Computer Science</b><br>School of Computing and Engineering, Quinnipiac University  |
| 2020 - 2023    | <b>Assistant Professor of Computer Science</b><br>Computer Science Department, Fitchburg State University   |
| 2020 - Present | <b>Adjunct Professor of Computer Science</b><br>School of Graduate, Online and Continuing Education, Fitchburg State University <ul style="list-style-type: none"><li><input type="checkbox"/> Teaching graduate courses in computer science and data science program</li><li><input type="checkbox"/> Supervising graduate students on their research projects</li></ul>   |
| 2017 - 2020    | <b>Teaching Assistant</b><br>Department of Computer Science and Engineering, University of North Texas <ul style="list-style-type: none"><li><input type="checkbox"/> Supported many undergraduate and graduate-level courses</li><li><input type="checkbox"/> Advised undergraduate students on their research projects and senior design projects</li></ul>   |
| 2016 – 2020    | <b>Research Assistant</b><br>Wireless Sensor Lab, University of North Texas <ul style="list-style-type: none"><li><input type="checkbox"/> Worked on next generation wireless technologies</li><li><input type="checkbox"/> Design and implementation of precoding, detection, user scheduling, and channel estimation algorithms for Massive MIMO and millimeter wave systems</li><li><input type="checkbox"/> Research on Network Security, IoT, Smart Cities, and Vehicular Networks</li></ul> |

- 2015 – 2016      **Senior Software Developer, Jhilko Innovations**
- Developed an interactive Android Application targeted to children with autism and their parents (Application Name: Beautiful Minds [[Apk Link](#)]). (Project in collaboration with UNICEF Nepal and Autism Care Nepal Society)
- 2015      **Internship, Nepal Telecom**
- Assisted technicians in equipment inspection, gathered and compiled data for projects as well as prepare weekly status reports
- 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
- 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
- 2010 – 2014      **Research Assistant**  
Department of Electronics and Computer Engineering  
Institute of Engineering, Tribhuvan University
- Research on Wireless Sensor Networks, RF and Microwave systems
- 2011 – 2014      **Lead Editor**
- Editor of the "Graphene" and "EPC" tech magazines on latest technological advancement.

## EDUCATION

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- 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)

## **PUBLICATIONS**

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### ***PEER-REVIEWED JOURNAL AND CONFERENCE PAPERS***

- P.23 **R. Chataut**, R. Akl "An Adaptive User Scheduling Algorithm for 6G Massive MIMO Systems". IEEE Transactions on Advanced Communications Technology, 2023. **Invited Journal paper.**
- P.22 **R. Chataut**, Phoummalayvane. A, and R. Akl. "Unleashing the Power of IoT: A Comprehensive Review of IoT Applications, Advancements, and Future Prospects in Healthcare, Agriculture, Smart Homes, Smart Cities, and Industry 4.0". Sensors Journal, 2023, 23, 7194.
- P.22 Zostant. M., and **Chataut, R.** "Privacy in computer ethics: Navigating the digital age". *Computer Science and Information Technologies*, 4(2), 183-190, 2023.
- 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 *11th 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.

## PRESENTATIONS

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### *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.

## ***MEDIA INTERVIEWS***

- 2023 [Experts warn cyber attacks increasing in frequency](#), Interview for **Fox61 News**
- 2023 [Investigation in ECHN Cyberattack continues, may not be related to FBI takedown of Qakbot](#), Interview for **Fox61 News**
- 2023 [Cyber attacks increasing in frequency](#), Interview for **WKYC 3 Studios, Ohio**
- 2022 [“Ask an Expert” Series](#) , Interview for **Tech Guide**
- 2021 [Improving Bandwidth Efficiencies](#), Interview for **Research Live Journal**

## **HONORS/GRANTS /AWARDS**

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- 2023            **CTL Teacher Appreciation Award**, Fitchburg State University
- 2023            **MSCA Professional Development Grant**, Fitchburg State University

2023	<b>2023 NSF SaTC Aspiring PI Grant</b>
2023	<b>CTL Teaching Grant</b> , Fitchburg State University
2022	<b>MSCA Professional Development Grant</b> , Fitchburg State University
2022	<b>CTL Teacher Appreciation Award</b> , Fitchburg State University
2021	<b>MSCA Professional Development Grant</b> , Fitchburg State University
2020	<b>Outstanding Ph.D. Student Award</b> Won outstanding Ph.D. Student of the Year award at the University of North Texas
2020	<b>TGS GSC Travel Grant</b> Awarded by Toulouse Graduate School, University of North Texas
2019	<b>College of Engineering Department Award</b> Awarded by College of Engineering, University North Texas
2019	<b>TGS GSC Travel Grant</b> Awarded by Toulouse Graduate School, University of North Texas
2019	<b>TGS Summer Award</b> Awarded by Toulouse Graduate School, University of North Texas
2019	<b>Texas Public Education Grant</b> Awarded by the State of Texas
2018	<b>TGS GSC Travel Grant</b> Awarded by Toulouse Graduate School, University of North Texas
2018– 2020	<b>Multicultural Scholastic Award</b> Awarded by Office of Outreach, University of North Texas
2007	<b>Karnes Bryant Centennial Scholarship</b> Awarded by the APA Science Directorate
2018	<b>Texas Public Education Grant</b> Awarded by the State of Texas
2016– 2019	<b>Tuition Benefit Program Award</b> Awarded by University of North Texas
2010– 2014	<b>Nepal Government Full Scholarship for Undergraduate Degree</b> Awarded by Government of Nepal



## **COURSES TAUGHT**

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- ☐ 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)
- ☐ Introduction to Cybersecurity
- ☐ System Administration
- ☐ Programming and Problem Solving
- ☐ Ethics and Impacts of Computing
- ☐ Independent Study: Database Management
- ☐ Independent Study: IoT and Smart City Technologies

## **PROFESSIONAL AFFILIATIONS AND SERVICES**

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### **Technical Program Chair/Session Chair/Editorial Board Member**

- (a) **Topics Board Editor:** Sensors Journal, MDPI
- (b) **Editorial Board:** Frontiers in Artificial Intelligence
- (c) **Guest Editor, MDPI Sensors** (SI: Topical Advisory Panel Members' Collection Series: 5G and Beyond Networks and Technologies)
- (d) **Technical Program Chair:** International Conference on Smart Cities: Improving Quality of Life Using ICT & IoT and AI (IEEE HONET-ICT 2019)
- (e) **Session Chair:** IEEE Annual Computing and Communication Workshop and Conference (CCWC), Image and Signal Processing; Sensor Networks

### **Ad-hoc Reviewer for Journal/Conferences**

- a) IEEE Wireless Communications Magazine Journal
- b) Applied Sciences Journal, MDPI
- c) 2020 IEEE 17th International Conference on Smart Cities: Improving Quality of Life Using ICT & IoT and AI (IEEE HONET-ICT)

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

### **Department and University Service**

- a) Undergraduate Research Framework Development Committee, QU (2023)
- b) Curriculum and Assessment Committee, FSU (2020-2023)
- c) ABET Committee, FSU (2020-2023)
- d) Graduate and Undergraduate Internship Supervisor, FSU (2020-2023)
- e) CS Graduate Committee, FSU (2020-2023)
- f) Technology Advisory Committee, GSU (2022-2023)
- g) International Advisory Committee, FSU (2022- 2023)
- h) CS Tenure Track Faculty Search Committee Chair, FSU (2023)
- i) CS Full Time Faculty Search Committee Chair, FSU (2023)
- j) Center for Teaching and Learning Advisory Committee, FSU (2021-2022)
- k) First Year Experience Advisory Committee, FSU (2020-2021)
- l) University Parking Committee, FSU (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), Co-chair web development Team

Sep 2023