# ROBIN CHATAUT

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## 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 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 future generation wireless technologies

- Design and implementation of precoding, detection, user scheduling, and channel estimation algorithms for Massive MIMO systems
- Research on IoT and Smart Cities

2014 – 2015 **Teaching Assistant/ Co-Instructor**
Institute of Engineering, Tribhuvan University
- Conducted undergraduate level lectures, and lab sessions
- Supervised undergraduate research projects

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

## PROFESSIONAL EXPERIENCE

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

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)

2012 – 2015 **Team Lead/ Coordinator (Department of IT)**
- Held volunteer position at 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 first issue of "Graphene" and "EPC" tech magazines on latest technological advancement

## HONORS /AWARDS

| | |
|---|---|
| 2021 | **MDPI Electronics Appreciation for Article Review**<br>50 Swiss Franc (CHF) |
| 2021 | **MSCA Professional Development Fund**<br>$656 USD |
| 2021 | **MDPI Applied Sciences Appreciation for Article Review**<br>100 Swiss Franc (CHF) |
| 2020 | **Outstanding Ph.D. Student, University of North Texas**<br>Won outstanding Ph.D. Student of the year award at University of North Texas |
| 2020 | **TGS GSC Travel Grant**<br>Awarded by Toulouse Graduate School, University of North Texas |
| 2019 | **College of Engineering Department Award**<br>Awarded by College of Engineering, University North Texas |
| 2019 | **TGS GSC Travel Grant**<br>Awarded by Toulouse Graduate School, University of North Texas |
| 2019 | **TGS Summer Award**<br>Awarded by Toulouse Graduate School, University of North Texas |
| 2019 | **Texas Public Education Grant**<br>Awarded by the State of Texas |
| 2018 | **TGS GSC Travel Grant**<br>Awarded by Toulouse Graduate School, University of North Texas |
| 2018–2020 | **Multicultural Scholastic Award**<br>Awarded by Office of Outreach, University of North Texas |
| 2007 | **Karnes Bryant Centennial Scholarship**<br>Awarded by the APA Science Directorate |
| 2018 | **Texas Public Education Grant**<br>Awarded by the State of Texas |
| 2016-2019 | **Tuition Benefit Program Award**<br>Awarded by University of North Texas |
| 2010- | **Nepal Government Full Scholarship for Undergraduate Degree** |

2014 Awarded by Government of Nepal

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

## PUBLICATIONS

### *PEER-REVIEWED JOURNAL PAPERS*

J.3 **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.

J.2 **R. Chataut**, R. Akl, "Massive MIMO Systems for 5G". June 2020. MDPI.

J.1 **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.

### *PEER-REVIEWED CONFERENCE PAPERS*

C.11 M. Robaei, R. Akl, and **R. Chataut**. "Millimeter-Wave Channel Estimation-Tracking Measuring Channel's Instantaneous Rate of Change," The 23rd International Conference on Advanced Communications Technology (IEEE ICACT 2021).

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

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

C.8 U.K. Dey, R. Akl, **R. Chataut**., and M. Robaei." High Throughput Vehicular Communication Using Spatial Multiplexing MIMO," he 10th Annual Computing and Communication Workshop Conference (IEEE CCWC 2020).

C.7 **R. Chataut**, R. Akl, M. Robaei "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 (CCWC), Las Vegas, NV.

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

C.5 **R. Chataut**, R. Akl, "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 (HONET-ICT), Charlotte, NC.

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

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

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

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

## PRESENTATIONS

### *TALKS*

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 (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 (CCWC), Las Vegas, NV, USA.

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

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 (HONET-ICT), 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

**Fitchburg State University**

- CSC 1000 Intro to Programming
- CSC 1500 Computer Science I
- CSC 1550 Computer Science II
- CSC 3050 Web Programming
- CSC 3400 Data Communication and Networking
- CSC 3450 Local Area Networks
- CSC 3560 Mobile Application Development
- CSC 7200 Object-Oriented Programming
- CSC 8040 Topics: Internet of Thing and Smart Cities

## RESEARCH INTERESTS

3G/4G/5G/6G Networks, Wireless Communication, Massive MIMO, Millimeter Waves, Sensor Networks, IoT, Smart Cities, Vehicular Communication

## PROFESSIONAL AFFILIATIONS AND SERVICES

**TPC/ Editorial Board Member**
(a) MDPI Sensors
(b) IEEE HONET 2020

**Ad-hoc Reviewer**
a) Applied Sciences Journal, MDPI
b) Electronics, MDPI
c) IEEE Wireless Communications Magazine
d) 2019 IEEE 16th International Conference on Smart Cities: Improving Quality of Life Using ICT & IoT and AI (HONET-ICT)
e) Journal of Electrical and Electronic Engineering, Science Publishing Group.

**Professional Organization Member**
a) IEEE
b) IEEE Young Professionals
c) Future Networks Community, IEEE
d) American Communication Association