ROBIN CHATAUT
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RESEARCH INTERESTS

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

PROFESSIONAL EXPERIENCE

2023 - Present
Assistant Professor of Cybersecurity and Computer Science
School of Computing and Engineering, Quinnipiac University

2020 - 2023
Assistant Professor of Computer Science
Computer Science Department, Fitchburg State University

2020 - Present
Adjunct Professor of Computer Science
School of Graduate, Online and Continuing Education, Fitchburg State University

- Teaching graduate courses in computer science and data science program
- Supervising graduate students on their research projects

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

- Supported undergraduate and graduate-level courses and labs
- 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 5G, B5G, and 6G networks
- 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

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**

- Worked on the 3G deployment project in Nepal
- Assisted technicians in testing, inspection, data assessment, prepare project reports.

2014 – 2015 **Instructor**
Department of Electronics and Computer Engineering, Institute of Engineering, Tribhuvan University

- Conducted undergraduate level lecture 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, collecting and distributing 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.

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)

PUBLICATIONS

PEER-REVIEWED JOURNAL AND CONFERENCE PAPERS

P.28 **R. Chataut,** Y. Usman, F. Scholl " **Unveiling Cyber Threats: A Comprehensive Analysis of Connecticut Data Breaches "** ***2024*** *ASEE-NE Annual Conference.*

P.27 **R. Chataut,** R. Akl "An Adaptive User Scheduling Algorithm for 6G Massive MIMO Systems". *IEEE Transactions on Advanced Communications Technology*, **2024**. ***Invited Journal paper***.

P.26 **R. Chataut,** P.K Gyawali, Y. Usman " Can AI Keep You Safe? A Study of Large Language Models for Phishing Detection". *Jan 2024 12th Annual Computing and Communication Workshop Conference (IEEE CCWC **2024**).*

P.25 **R. Chataut**, M. Nankya and**,** R. Akl " 6G Networks and AI Revolution - Exploring Technologies, Applications, and Emerging Challenges". *Sensors Special Issue on 5G and Beyond Networks and Technologies*, **2024**, 2789127.

P.24 M. Nankya, **R. Chataut,** R. Akl "Securing Industrial Control Systems: Components, Cyber Threats, and Machine Learning-Driven Defense Strategies". *Sensors Special Issue on Cyber-Physical Systems and Industry* 4.0, **2023**, 8840. ***Invited Journal paper***.

P.23 **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

TALKS

April 2024 Unveiling Cyber Threats: A Comprehensive Analysis of Connecticut Data Breaches. *2024 ASEE-NE Conference.*

Feb 2024 From Massive MIMO to 6G: Architecting the Next Wave of Wireless Communication, CSE PhD Seminar Series, University of Louisville, Louisville, KY, USA.

Jan 2024 Can AI Keep You Safe? A Study of Large Language Models for Phishing Detection. 2024 IEEE 12th Annual Computing and Communication Workshop and Conference (IEEE CCWC 2024), Las Vegas, NV, USA.

Nov 2023 Optimization of Massive MIMO System of 5G, BFG, and 6G, Networks, S Cubed Seminar, Quinnipiac University, Hamden, CT, USA.

Sep 2023 Bsides CT 2023, Opening Keynote, Hamden, CT, USA.

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.

Mar 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

Apr 2024. Enhancing Cybersecurity: Leveraging AI and LLMs for Advanced Phishing. ASEE-NE Conference, Fairfield CT.

Apr 2024 AI and LLMs for Cybersecurity Offense and Defense, CAE Symposium 2024, Louisville, KY, USA.

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/PUBLIC INTERVIEWS

2024 Undersea cables are the unseen backbone of the global internet, Article published in Conversation.
2024 Are private conversations truly private? A cybersecurity expert explains how end-to-end encryption protects you, Article published in Conversation.
2024 Surge in devices stealing information from debit, credit cards raises concern in CT
Interview for Hearst Media
2023 Amid increasing demand, CT colleges in arms race to add cybersecurity programs, faculty, Interview for Hartford Business Journal
2023 Should You Let Apps Track You? Here's What Tech Pros Personally Choose, Interview for **Huffpost**
2023 Should You Let Apps Track You? Interview for **Yahoo! news**
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**

COURSES TAUGHT

- Intro to Programming (Python/C++/Java)
- Computer Science I (Python/C++/Java/VB)
- Computer Science II (Python/Java/C++)
- Operating Systems and Networking (Java/C/C++)
- Object-Oriented Programming (Java/Python)
- Object Oriented Design (Java)
- Web Programming (HTML, CSS, JS, jQuery PHP, React)
- Mobile Application Development, Android/iOS (Java, Kotlin, Swift)
- Programming and Problem Solving (Java, Python)
- Software Development Life Cycle

- Data Communication and Networking
- Local Area Networks
- Computer Networks
- Advanced Computer Networks
- Internet of Things and Smart Cities
- System Administration
- Network Administration

- Computer Security
- Network Security
- Introduction to Cybersecurity
- Introduction to Designing, Testing, and Operating Resilient Systems
- Ethics and Impacts of Computing

- Digital Electronics
- Digital Logic and Design
- Theory of Computation
- Computer Architecture and Organization
- Independent Study: Database Management (SQL, NoSQL)
- Independent Study: IoT and Smart City Technologies

CERTIFICATIONS/BADGES/COURSES

- ISC2 Certified in Cybersecurity (CC)
- Google Cybersecurity Specialization Certificate
- Cisco Introduction to Cybersecurity Badge
- Google Assets, Threats, and Vulnerabilities Certificate
- Google Automate Cybersecurity Tasks with Python Certificate
- Google Connect and Protect: Networks and Network Security Certificate
- Google Foundations of Cybersecurity Certificate
- Google Play It Safe: Manage Security Risks Certificate
- Google Put It to Work: Prepare for Cybersecurity Jobs Certificate
- Google Sound the Alarm: Detection and Response Certificate
- Google Tools of the Trade: Linux and SQL Certificate
- Udemy Ethically Hack the Planet Course
- Udemy: CompTIA Network+ Course (N10-008)
- Udemy: CompTIA Security+ Certification Course

PROFESSIONAL AFFILIATIONS AND SERVICES

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)
(e) **Session Chair**: IEEE CCWC 2024, Image and Signal Processing; Sensor Networks
(f) **Session Chair**: IEEE UEMCON 2022), 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 Committee Service

a) Point of Contact, Quinnipiac University, NSA DHS NCAE-CD
b) NCAE-CD Committee, QU (2023-Present)
c) ABET Assessment Committee, QU (2023- Present)
d) Curriculum Development and Assessment Committee, QU (2023- Present)
e) CS Tenure Track Faculty Search Committee Member, QU (2024)
f) CS and Game Design Fulltime Faculty Search Committee Member, QU (2024)
g) Undergraduate Research Framework Development Committee, QU (2023)
h) Curriculum and Assessment Committee, FSU (2020-2023)
i) ABET Committee, FSU (2020-2023)
j) Graduate and Undergraduate Internship Supervisor, FSU (2020-2023)
k) CS Graduate Committee, FSU (2020-2023)
l) Technology Advisory Committee, GSU (2022-2023)
m) International Advisory Committee, FSU (2022- 2023)
n) CS Tenure Track Faculty Search Committee Chair, FSU (2023)
o) CS Full Time Faculty Search Committee Chair, FSU (2023)
p) Center for Teaching and Learning Advisory Committee, FSU (2021-2022)
q) First Year Experience Advisory Committee, FSU (2020-2021)
r) University Parking Committee, FSU (2022-2023)

Professional Organization Membership
Senior Member IEEE, IEEE Young Professionals, IEEE Future Networks Community, IEEE Communications Society, Internet of Things Community, IEEE, American Society of Nepalese Engineers (AsNEgr)

April 2024