

Rostand A. K. Fezeu

Curriculum Vitae

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Education

2021 - Present

Ph.D. Computer Science, *University of Minnesota - Twin Cities*.

Advisor. Zhi-Li Zhang, **Expected: Summer 2025**

2021

M.S. Computer Science, *University of Minnesota - Twin Cities*.

2017

B.S. Computer Science, *Minnesota State University Moorhead*.

B.S Mathematics, Emphasis in Computations, *Minnesota State University Moorhead*.

Related Employment

Aug.2021 - Present

University of Minnesota – Twin Cities, Minneapolis, USA

Wireless (R&D AI/ML) Network Researcher.

- Addressed performance issues in 4G/5G/6G networks via extensive large-scale measurement-driven analyses.
- Utilized AI/ML techniques to engineer novel anomaly detection and throughput prediction models for commercial 5G networks, enhancing application quality of experience (QoE).
- Executed comprehensive performance assessments, pinpointing challenges faced by current commercial 4G/5G applications, and advocated for a cross-layer design approach to tackle these obstacles.
- Developed and refined in-network rate control mechanisms to optimize 5G Core, O-RAN/vRAN architectures tailored for immersive 5G and 6G applications.
- Formulated a cross-layer (UE-side) framework aimed at proactive application decision-making based on real-time wireless link channel dynamics.
- Authored and presented over a dozen technical publications detailing the application of AI/ML in wireless networks, contributing to 3GPP RAN1/RAN2 commercial 5G deployment and driving the development of innovative solutions for next-generation connected mobility.

May - Aug.2022

Microsoft, Redmond, Washington, USA

Software Engineering, PhD Intern.

Build a framework to test the scalability of SdnExpress, a Software Defined Network SaaS framework.

May - Aug.2021

Software Engineering, PhD Intern.

Design and prototyped FleetAgent: A large scale network performance monitoring tool.

July - June.2020

Cisco Systems, San Jose, California, USA

Data Scientist, PhD Intern.

Build a data preprocessing pipeline for detecting anomalies in streaming telemetry data using unsupervised Machine Learning.

Aug.2017 - Aug.2018

Information Mangement Systems, IMS, Fargo, North Dakota, USA

Network Administrator/Consultant.

Installed, deployed, configured and managed network devices including Citrix, Hyper-V and VMware servers, Microsoft active directory, VoIP, etc.

May.2014 - May.2017

Minnesota State University Moorhead, Moorhead, Minnesota, USA

Information Technology Tier I and Tier II Support.

Diagnosed and troubleshot network connectivity issues including telephony, printers, computers, etc.

2013 - March2017

Janitorial Worker, SODEXO Campus Dining.

Provided janitorial services on the campus dining center including, vacuuming, floor care, trash removal for over 5000+ students.

Research Experience

May. - Aug. 2024

FutureWei Technologies, Dallas, Texas, USA

Wireless Systems Architecture for 5G & 6G, Research Intern.

Worked on Network Assisted Rate Control for Immersive 5G and 6G Applications

Oct. - Dec. 2022

IMDEA Networks Institute, Madrid, Spain

5G Networks Visiting Researcher.

Orchestrated and conducted the largest cross border 5G Mid-Band data collection campaign in Europe.

May - Aug. 2022

Microsoft, Redmond, Washington, USA

PhD Software Engineering Intern, Research Project.

Build a framework to test the scalability of SdnExpress, a Software Defined Network SaaS framework.

May - Aug. 2021

PhD Software Engineering Intern, Research Project.

Design and prototyped FleetAgent: A large scale network performance monitoring tool.

Jan. 2014 - May. 2017

Minnesota State University Moorhead, MSUM, Moorhead, Minnesota, USA

A Possible Generalization of Bertrand's Postulate, Undergraduate Research.

Studied Bertrand's Postulate and investigated the conjecture: Between two consecutive multiples of a positive interger, n where $n \geq 2$, there is always an integer, m divisible by an odd prime number, p greater than n

Jan. 2014 - May. 2017

Radio Frequency Identification (RFID).

Analyzed ethical issues associated with RFIDs implantation in human bodies including Violotion of Privacy, Security Concerns, RFID usage in Medical field and supply chaning management systems.

Teaching Experience/Assistantship

Spring 2022

University of Minnesota – Twin Cities, Minneapolis, Minnesota, USA

CSCI 8211: Advanced Computer Networks (Graduate Course).

Spring 2022

CSCI 4211: Introduction Computer Networks.

Spring 2019

CSCI 4211: Introduction Computer Networks.

Fall 2018

CSCI 4211: Introduction Computer Networks.

Spring 2017

Minnesota State University Moorhead, Moorhead, Minnesota, USA

MATH 366: Differential Equations.

Summer 2015

MATH 626: Calculus II.

Academic Achievements & Awards

Spring 2025

\$800 HotMobile 25 Travel Grant.

Spring 2024

\$1500 SIGCOMM 2024 Travel Grant.

Fall 2024

\$1000 Global Symposium on Mobility Innovation Student Poster Competition Graduate Runner-up Awards.

Fall 2023

\$1000 SIGCOMM 2023 Travel Grant.

Fall 2022

\$1500 CoNEXT 2022 Travel Grant.

Spring 2022

One of 12 students selected out of 57 applicants at the 3rd Annual AT&T Labs Graduate Student Symposium.

Spring 2020

3rd Annual AT&T Labs Graduate Student Symposium Travel Grant. \$750.

Fall 2017

Alumni Foundation Math Scholarship \$1000.

Fall 2016

Alumni Foundation Computer Science Scholarship \$500.

Summer 2016	8 th at the Digi-Key Programming Competition.
Fall 2015	Sophomore Mathematics Awards of \$500.
Fall 2015	Sophomore Mathematics Awards of \$500.
2015	2 st at the second MSUM Annual Math Contest.
2014	1 st in Minnesota State University Moorhead MAA-NCS team contest.
2014	14 st out of 100 teams at eh MAA-NCS team contest.

Certifications and Continuing Education Units (CEUs).

March. 2023	IEEE Machine Type Communication in 5G and Beyond.
Dec. 2021	IEEE 5G Security.
Nov. 2021	IEEE 5G Wireless Positioning and Location.
Sept. 2020	IEEE Next-Generation Multi-Access Service Based 5G Architecture.
Summer 2017	Cybersecurity Skills Assessment (CSI) boot camp.
Summer 2017	Sophos firewall Certified Engineer.

Presentations

Nov. 22 2019	Examining Challenges Governing Self-Driving/Autonomous Networks, 3 rd Annual AT&T Labs Graduate Student Symposium.
April. 11 2017	Cryptographic Properties of Hash Functions to Ensure Maximum Security, Minnesota State University Moorhead Student Academic Conference.
Feb. 2 2016	A Possible Generalization of Bertrand's Postulate, Minnesota State University Moorhead Student Academic Conference twice., 37 th Pi Mu Epsilon Conference College. College of St. Benedict/St. John's University, Minnesota State University Moorhead Mathematic Seminar.
Dec. 2016	RSA Encryption, Minnesota State University Moorhead Mathematics Seminar.

Affiliations

- National Association of Black Accountants (NABA), Student Member.
- Black Graduate and Professional Student Association (bgapsa) UMN..
- Golden Key International Honor Society, Student Member.
- Institute of Electrical and Electronics Engineers (IEEE), Student Member.
- Mathematical Association of America (MAA), Student Member.
- Minnesotat State University Moorhead Table Tennis Club, Founder and president.
- Chi-Alpha Christian Ministry, Small Grup Leader at MSUM.
- Minnesota State University Moorhead Mathematics Club.

Computer skills

Research Interests	5G, Machine Learning, Systems and Networking – SDN, NFC, 5G RAN & Core Network, IoT, Smart Homes, Self-Driving Networks, Security and Privacy, 3GPP LTE and 5G, MIMO, 5G PHY Layer (L1), 5G MAC Layer (L2), Teleoperations, Autonomous Driving, Teleoperated Driving
Tools	srsRAN, OpenAIR, O-RAN, XCAL/XCAP, QXDM, DM, adb, diag, ROS, CARLA, GStreamer
Programming Languages	Python, C/C++, racket, Maple, LaTeX, MS Office, HTML, CSS, JavaScript, Bach Scripting, Linux commands, PowerShell scripting, Machine Learning, Data Mining,
Operating Systems	Linux, Mac OS, Windows
Database	MySQL, SQL, Mongo db, Redis

Language Fluent in English and French.

Service

- **Artifact Evaluation Committee:**, *CoNEXT'25*.
- **Program Committee:**, *16th ACM S³ 2025 Workshop @ MobiCom'25, Hong Kong, China*.

Hobbies

- **Running**, *Ran 310 miles summer 2019, 2020, 2021 and 2022 – 10k 4 times a week*.
- **Biking, Swimming, Playing/Watching Soccer, Travelling**.

Publications

In Conference Proceedings and Workshops

- 2025 **[CCAT]** Rushikesh Zende, Sree Ganesh Lalitaditya Divakarla, Jason Carpenter, **Rostand A. K. Fezeu**, Ajay Kumar Gurumadiah, Eman Ramadan, and Zhi-Li Zhang. Poster: Impact of 5g mobility on teleoperation of cav. In *CCAT '25*. Global Symposium on Mobility Innovation, 2025.
- 2025 **[HotMobile]** **Rostand A. K. Fezeu**, Jason Carpenter, Eman Ramadan, Faaq Bilal, Ziyang Wu, Nanditha Naik, Duncan Joly, Dehkontee Chea Cuppah, and Zhi-Li Zhang. A peek into 5g nsa vs. sa control plane performance. In *Proceedings of the 26th International Workshop on Mobile Computing Systems and Applications*, HotMobile '25, page 49–54, New York, NY, USA, 2025. Association for Computing Machinery.
- 2025 **[arXiv]** **Rostand A. K. Fezeu**, Jason Carpenter, Rushikesh Zende, Sree Ganesh Lalitaditya Divakarla, Nitin Varyani, Faaq Bilal, Steven Sleder, Nanditha Naik, Duncan Joly, Ajay Kumar Gurumadiah, Eman Ramadan, and Zhi-Li Zhang. Teleoperating autonomous vehicles over commercial 5g networks: Are we there yet?, 2025.
- 2025 **[CoNEXT]** **UNDER REVIEW** Ahmad Hassan, Anlan Zhang, Jason Carpenter, **Rostand A. K. Fezeu**, Myungjin Lee, Ruiyang Zhu, Shuwei Jin, Wei Ye, Akshay Jajoo, Feng Qian, Morley Mao, and Zhi-Li Zhang. Opcn: Opportunistic performance-driven cell management for 5g/xg networks. In *Proceedings of the ACM, CoNEXT*, 2025.
- 2025 **[VTC2025-Fall]** Moinak Ghoshal, Abbas Kiani, Amanda Xiang, John Kaippallimalil, Tony Saboorian, **Rostand A. K. Fezeu**, and Nirwan Ansari. Ai/ml-based sensing-assisted energy-efficient communications in next-gen cellular networks. In *IEEE 102nd Vehicular Technology Conference*, VTC2025-Fall, 2025.
- 2024 **[SIGCOMM]** Wei Ye, Xinyue Hu, Steven Sleder, Anlan Zhang, Udhaya Kumar Dayalan, Ahmad Hassan, **Rostand A. K. Fezeu**, Akshay Jajoo, Myungjin Lee, Eman Ramadan, Feng Qian, and Zhi-Li Zhang. Dissecting carrier aggregation in 5g networks: Measurement, qoe implications and prediction. In *Proceedings of the ACM, SIGCOMM*, 2024.
- 2024 **[CCAT]** Nitin Varyani, Jason Carpenter, Steven Sleder, Wei Ye, **Rostand A. K. Fezeu**, Eman Ramadan, and Zhi-Li Zhang. Poster: Impact of data compression on ai perception tasks for teleoperated autonomous vehicles. In *CCAT '24*. Global Symposium on Mobility Innovation, 2024.
- 2024 **[CCAT]** Nitin Varyani, Jason Carpenter, Steven Sleder, Wei Ye, **Rostand A. K. Fezeu**, Eman Ramadan, and Zhi-Li Zhang. Poster: Cross-layer feasibility study of av teleoperations on 5g networks. In *CCAT '24*. Global Symposium on Mobility Innovation, 2024.
- 2024 **[SIGCOMM]** **Rostand A. K. Fezeu**, Claudio Fiandrino, Eman Ramadan, Jason Carpenter, Lilian Coelho de Freitas, Faaq Bilal, Wei Ye, Joerg Widmer, Feng Qian, and Zhi-Li Zhang. Unveiling the 5g mid-band landscape: From network deployment to performance and application qoe. In *Proceedings of the ACM, SIGCOMM*, 2024.
- 2024 **[INFOCOM]** **Rostand A. K. Fezeu**, Claudio Fiandrino, Eman Ramadan, Jason Carpenter, Daqing Chen, Yiling Tan, Joerg Widmer, Feng Qian, and Zhi-Li Zhang. Roaming across the european union in the 5g era: Performance, challenges and opportunities. In *IEEE International Conference on Computer Communications*, INFOCOM, 2024.

- 2023 **[IEEE MeditCom]** Wei Ye, Jason Carpenter, Zejun Zhang, **Rostand A. K. Fezeu**, Feng Qian, and Zhi-Li Zhang. A closer look at stand-alone 5g deployment from the ue perspective. In *IEEE MeditCom 2023: IEEE International Mediterranean Conference on Communications and Networking 2023*, IEEE MeditCom 2023. Association for Computing Machinery, 2023.
- 2023 **[arXiv]** **Rostand A. K. Fezeu**, Timothy J Salo, Amy Zhang, and Zhi-Li Zhang. Dissecting iot device provisioning process. *arXiv preprint arXiv:2310.14125*, 2023.
- 2023 **[PAM]** **Rostand A. K. Fezeu**, Eman Ramadan, Wei Ye, Benjamin Minneci, Jack Xie, Arvind Narayanan, Ahmad Hassan, Feng Qian, Zhi-Li Zhang, Jaideep Chandrashekar, et al. An In-Depth measurement analysis of 5G mmwave PHY latency and its impact on End-to-End delay. In *International Conference on Passive and Active Network Measurement*, PAM '23, pages 284–312. Springer, Springer Nature Switzerland, 2023.
- 2023 **[arXiv]** **Rostand A. K. Fezeu**, Jason Carpenter, Claudio Fiandrino, Eman Ramadan, Wei Ye, Joerg Widmer, Feng Qian, and Zhi-Li Zhang. Mid-band 5g: A measurement study in europe and us. In *arXiv*. arXiv, 2023.
- 2023 **[IEEE NETWORK]** Udhaya Kumar Dayalan, Timothy J. Salo, **Rostand A. K. Fezeu**, and Zhi-Li Zhang. Kaala 2.0: Scalable iot/nextg system simulator. *IEEE Network*, volume 37, pages 240–246, 2023.
- 2022 **[IEEE DCOSS]** Udhaya Kumar Dayalan, **Rostand A. K. Fezeu**, Timothy J. Salo, and Zhi-Li Zhang. Prototyping a fine-grained qos framework for 5g and nextg networks using powder. In *2022 18th International Conference on Distributed Computing in Sensor Systems (DCOSS)*, pages 416–419, 2022.
- 2022 **[SIGCOMM NET4us]** Udhaya Kumar Dayalan, **Rostand A. K. Fezeu**, Timothy J. Salo, and Zhi-Li Zhang. Kaala: Scalable, end-to-end, iot system simulator. In *Proceedings of the ACM SIGCOMM Workshop on Networked Sensing Systems for a Sustainable Society*, NET4us '22, page 33–38, New York, NY, USA, 2022. Association for Computing Machinery.
- 2021 **[IMC POSTER]** **Rostand A. K. Fezeu**, Timothy J Salo, Amy Zhang, and Zhi-Li Zhang. Poster: Unveiling iot devices provisioning process. In *Proceedings of the ACM Internet Measurement Conference*, IMC '21. Association for Computing Machinery, 2021.
- 2021 **[SIGCOMM 5G-MeMU]** Eman Ramadan, Arvind Narayanan, Udhaya Kumar Dayalan, **Rostand A. K. Fezeu**, Feng Qian, and Zhi-Li Zhang. Case for 5g-aware video streaming applications. In *Proceedings of the 1st Workshop on 5G Measurements, Modeling, and Use Cases*, 5G-MeMU '21, page 27–34, New York, NY, USA, 2021. Association for Computing Machinery.
- 2021 **[IEEE CCGrid]** Udhaya Kumar Dayalan, **Rostand A. K. Fezeu**, Nitin Varyani, Timothy J. Salo, and Zhi-Li Zhang. Veeredge: Towards an edge-centric iot gateway. In *2021 IEEE/ACM 21st International Symposium on Cluster, Cloud and Internet Computing (CCGrid)*, pages 690–695, 2021.
- 2021 **[HotMobile]** Udhaya Kumar Dayalan, **Rostand A. K. Fezeu**, Nitin Varyani, Timothy J. Salo, and Zhi-Li Zhang. Eciot: Case for an edge-centric iot gateway. In *Proceedings of the 22nd International Workshop on Mobile Computing Systems and Applications*, HotMobile '21, page 154–156, New York, NY, USA, 2021. Association for Computing Machinery.
- 2020 **[ICNP]** **Rostand A. K. Fezeu** and Zhi-Li Zhang. Anomalous model-driven-telemetry network-stream bgp detection. In *2020 IEEE 28th International Conference on Network Protocols (ICNP)*, pages 1–6, 2020.
- 2020 **[IMC]** Arvind Narayanan, Eman Ramadan, Rishabh Mehta, Xinyue Hu, Qingxu Liu, **Rostand A. K. Fezeu**, Udhaya Kumar Dayalan, Saurabh Verma, Peiqi Ji, Tao Li, Feng Qian, and Zhi-Li Zhang. Lumos5g: Mapping and predicting commercial mmwave 5g throughput. In *Proceedings of the ACM Internet Measurement Conference*, IMC '20, page 176–193, New York, NY, USA, 2020. Association for Computing Machinery.

Journal Articles

- 2025 [SUBMITTED] **Rostand A. K. Fezeu**, Claudio Fiandrino, Eman Ramadan, Jason Carpenter, Lilian Coelho de Freitas, Faaq Bilal, Wei Ye, Dustin Maas, Daqing Chen, Yiling Tan, Feng Qian, Joerg Widmer, and Zhi-Li Zhang. Performance implications of 5g tdd frame structure configuration of commercial 5g networks. *IEEE Transaction on Networking*. IEEE, 2025, (**Impact Factor:4**).
- 2025 [SUBMITTED] **Rostand A. K. Fezeu**, Jason Carpenter, Faaq Bilal, Rushikesh Zende, Steven Sleder, Nitin Varyani, Nanditha Naik, Eman Ramadan, and Zhi-Li Zhang. Teleoperating connected and autonomous vehicles over commercial 5g networks: Are we there yet? *IEEE Transaction on Networking*. IEEE, 2025, (**Impact Factor:4**).

References

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