ALIREZA RAMYAD

M.Sc. Student in Communication Systems and Networks

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PROFILE

M.Sc. student at Tampere University with a 4.91/5.00 GPA, studying Communication Systems and Networks. Project experience in MATLAB-based MIMO and OFDM simulations, RF and 5G measurements, and GNSS receiver tracking. Open to part-time and full-time roles in industry, internships, thesis projects, research or project assistant positions, and PhD opportunities. Main interests include wireless communications, signal processing, RF, GNSS and satellite systems.

EDUCATION

Tampere University | M.Sc. in Computing Sciences and Electrical Engineering

Aug 2025 - Expected May 2027 | Communication Systems and Networks

GPA: 4.91/5.00 | 78 ECTS completed as of 23 Sep 2026 | 73 ECTS studied in English

Tampere University Tuition Fee Scholarship: 100% tuition fee coverage.

Selected coursework: Multicarrier and Multiantenna Techniques; Communication Theory; RF Equipment for Wireless Networks; Advanced Course on Wireless Communications. Grade: 5/5 in each.

Azad University Qazvin Branch | B.Sc. in Computer Engineering

2019 - 2023 | GPA: 16.93/20.00

Selected coursework: Signals and Systems (20/20); Engineering Probabilities and Statistics (19.75/20); Artificial Intelligence and Intelligent Systems, including machine learning.

SELECTED ACADEMIC PROJECTS

OFDM and 4x4 MIMO Link Simulation | Tampere University

Multicarrier and Multiantenna Techniques final project | Project grade: 5/5

- Implemented single-stream beamforming for a 4x4 MIMO link in MATLAB using a 64-vector codebook and SVD precoding on the strongest eigenmode; compared antenna selection and space-time block coding (STBC) with 4 transmit antennas.
- Evaluated bit error rate (BER) across 11 SNR points from 0 to 20 dB using 100 Rayleigh channel realizations per point and 10,000-symbol 4-QAM frames; tested channel estimation errors with variance 0.01 in beamformer design.
- Simulated CP-OFDM over a Veh-AE multipath channel with 16-QAM, least-squares channel estimation and zero-forcing equalization; averaged 1,000 frames per SNR point and recorded BER of 0.005117 at 24 dB.

Communication Theory and Physical Layer Simulation | Tampere University

- Extended course-provided MATLAB code to simulate 10,000 symbols with 4x oversampling and pulse shaping. Compared QPSK, 16-QAM and 64-QAM under different channel and phase-noise conditions, analyzing constellation distortion and intersymbol interference.

SELECTED ACADEMIC PROJECTS CONTINUED

RF Diversity Reception in an Indoor LTE Network | Tampere University

- Measured a 45% increase in mean LTE uplink throughput (8.8 to 12.8 Mbps) with 5-10 wavelength antenna spacing versus a single-antenna baseline, using indoor 2100 MHz measurements and empirical throughput CDFs.
- Quantified a 6 dB branch imbalance: mean throughput fell from 12.8 to 11.8 Mbps; checked RSRP, RSRQ and RSSI for channel consistency across runs.

5G NR Laboratory Project | Tampere University | Full report (PDF)

- Measured mean download throughput of 513.48 Mbps with 5G enabled versus 62.98 Mbps on 4G, using five measurements per mode. Mean latency was 11.6 ms and 20.6 ms, respectively.
- Calculated a 693.40 Mbps theoretical downlink peak for 60 MHz FR1, 30 kHz subcarrier spacing, 2x2 MIMO and 256-QAM; analyzed radio-quality measurements across 3 floors.

GNSS Receiver Tracking | Tampere University

- Built carrier and code tracking simulations in MATLAB/Simulink using phase-locked (PLL), frequency-locked (FLL) and delay-locked (DLL) loops.

TECHNICAL SKILLS

Programming and simulation: Python, MATLAB, Simulink; Monte Carlo link simulation and BER analysis.

Multiantenna and multicarrier systems: 4x4 MIMO, single-stream beamforming, codebooks, SVD precoding, antenna selection, STBC, CP-OFDM, least-squares channel estimation and zero-forcing equalization.

Wireless and signal processing: communication theory, radio propagation, Rayleigh fading, QAM, pulse shaping, matched filtering, phase noise, LTE/5G measurements and GNSS tracking.

Mathematical and computing foundations: probability theory and statistics; signals and systems; machine learning foundations through artificial intelligence coursework.

WORK EXPERIENCE

Engineer Intern | Oloompezeshki | Oct 2022 - Nov 2023

Provided IT support and performed system analysis, data processing and basic networking tasks.

TECHNICAL AND RESEARCH INTERESTS

Wireless communications and MIMO; physical-layer signal processing and receiver design; RF and radio propagation; GNSS and satellite communications; optimization and learning-based methods for future wireless systems.

LANGUAGES

English: C1 | Persian: Native | Finnish: A2