

Lara Tarkh

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Research Interests

AI-driven orchestration in 5G/B5G | Reinforcement learning for network optimization

Education

2024–2025	University of Western Ontario MSc Computer Science Courses: Machine Learning, Networking
2019–2023	American University of Beirut BSc Applied Mathematics Minors: Computer Science, Computational Science Mastercard Foundation Scholar

Publications & Manuscripts

2025	Tarkh, L., et al. <i>MAGHE: Predictive Mobility-Aware VNF Embedding</i> , IEEE VCC 2025 (Accepted).
2025	Tarkh, L., Chouman, A. “RL-Loop for 5G Slice Resource Allocation.” Under Review.

Presentations & Talks

Nov 2025	<i>MAGHE</i> , IEEE VCC (upcoming).
May 2025	<i>AI for Resource Management</i> , Ontario Math Grad Conf., University of Toronto.
Jan 2025	<i>Resilient Systems in Practice</i> , Women in Science Conference, University of Toronto.
Oct 2022	<i>SIR Model for COVID-19</i> , AUB Undergraduate Research Day.

Projects & Research Experience

2024–2025	MSc Thesis Network Resource Management , UWO MAGHE: Mobility-aware embedding with XGBoost + clustering 3.6% latency gain, 100% success. RL-Loop: RL-based slice allocation 15% CPU reduction, stable QoS.
2024	Network Security Project Encrypted Client Hello (ECH) , UWO Built ECH testbed with OpenSSL/Nginx fallback + GREASE testing 100% success, +0.016s latency.
2022–2023	Research Assistant COVID-19 SIR Model , AUB Developed epidemiological models in Python/MATLAB produced final advisor report.
2022–2023	Research Volunteer WPS Agenda , Asfari Institute Conducted literature review on gender and peace in Arab states.
2021–2023	Software Developer Jamalco, Lebanon Designed, maintained, and optimized PHP/MySQL web apps improved DB queries, added new features.

Teaching & Leadership

2024–	Teaching Assistant UWO CS Dept. Led labs, guided students, graded assignments.
2024–	Math Instructor Seriously Addictive Math (Remote, Montreal HQ) Delivered personalized support for K–12 and college.
2021	Math Intern PADILEIA (AUB & King's College London) Delivered online math lessons to 50+ underserved students.
2021–2022	Debate Team Leader AUB, Qatar, Algerian Debate Foundations Organized national workshops 3rd place of 54 teams (Jordan Internationals).

Awards & Scholarships

2019–2023	Mastercard Foundation Scholarship AUB Prestigious full scholarship covering tuition and living costs awarded for academic excellence, leadership, and community impact.
2024–2025	Graduate Research fund UWO Competitive research award supporting MSc thesis in 5G/B5G optimization and reinforcement learning.
2019–2023	Dean's Honor List AUB Recognized for consistent high academic standing across multiple semesters.

Technical Skills

Programming: Python, R, MATLAB, SQL, Java, C++

Libraries: scikit-learn, pandas, NumPy, Jupyter, Git

Networking: 5G/B5G slicing, VNF embedding, mobility prediction, RL for resource allocation

Other: Machine Learning, Data Analysis, LaTeX, Markdown

Workshops & Outreach

2020–2022	Debate workshops AUB, Qatar, Algeria Trained 100+ students.
2021–2025	Outreach in math/science PADILEIA, Women in Science initiatives.

Training & Certifications

2023	Machine Learning Specialization (Coursera, Andrew Ng).
2024	Network Security Project Presentation, UWO.

Languages

Arabic (Native) | English (Fluent) | French (Fluent) | German (Basic)