Maverick Khaf

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AI/ML Researcher & Engineer | Reinforcement Learning | Telecom AI (5G/6G) | Technical Leadership

PROFESSIONAL SUMMARY

PhD candidate in Electrical Engineering (GPA 4.3/4.3) with applied experience in telecom AI, reinforcement learning, and standards-aware 5G/6G research. Author of 7 IEEE publications with 250+ combined citations. Former Ericsson AI Accelerator intern. Proven record of cross-functional collaboration, technical mentoring, and translating research into deployable strategies. Authorized to work in Canada — no visa or work permit required.

CORE SKILLS

AI/ML:	Reinforcement learning (DQN, PPO, SAC, A2C, DDPG, TD3), deep learning, supervised/unsupervised learning, federated learning, model evaluation	**Telecom:**	5G NR, B5G/6G, O-RAN, 3GPP, network slicing, MEC, cognitive radio, NTN, HAPS, spectrum management
Stack:	Python, C/C++, MATLAB, SQL, JavaScript, PyTorch, TensorFlow, Keras, scikit-learn, Ray, OpenAI Gymnasium, Pandas, NumPy, Git, Linux	**Leadership:**	Technical mentoring, curriculum design, stakeholder communication, cross-functional execution, IEEE governance

PROFESSIONAL EXPERIENCE

AI Researcher & PhD Candidate — ÉTS Montréal, LaCIME Lab *Montreal, Canada | Jan 2020 – Present*

- Design and evaluate multi-agent RL methods for dynamic spectrum and resource management in cognitive radio and next-generation wireless systems.
- Author and co-author of 7 IEEE publications (250+ combined citations) on cooperative RL, spectrum sensing, and 6G non-terrestrial networks.
- Supervise and mentor graduate and undergraduate researchers on AI experimentation, reproducibility, and technical reporting.
- Drive industry-aligned research collaborations focused on resilient, energy-aware, standards-compliant connectivity.

Industrial Intern, 5G AI Research — Ericsson Global AI Accelerator *Montreal, Canada | May 2022 – Jan 2023*

- Developed RL-based approaches for radio resource allocation in heterogeneous networks aligned with 3GPP and O-RAN specifications.
- Built benchmarking tools for ultra-reliable low-latency network slicing (eMBB, uRLLC).
- Developed autonomous rollout strategies for mission-critical cellular deployments.
- Contributed to patent exploration around dynamic spectrum coordination.

Lecturer & Research Associate — GIK Institute of Engineering Sciences & Technology
Pakistan | Jan 2019 – Jan 2020

- Taught Communication Theory and Digital Control Systems to 180+ engineering students; designed outcome-focused curriculum.
- Supervised capstone projects and mentored students in applying theory to real engineering problems.
- Launched IEEE Women in Engineering programming focused on accessibility and inclusion.

Trainee Officer (Automation) — Ibrahim Fibers Ltd. *Pakistan | Oct 2018 – Jan 2019*

- Automated production data workflows, reducing manual processing effort by ~97%. Implemented validation and alerting logic for data quality.

Research Assistant — Bilkent University *Ankara, Turkey | Sep 2015 – Jun 2018*

- Developed spatiotemporal co-kriging models for ionospheric modality interpolation (MS thesis research).
- Supported faculty research through literature review and technical implementation; evaluated student work.

SELECTED PUBLICATIONS

Federated Hierarchical Reinforcement Learning for Resilient Spectrum Sharing in 6G Non-Terrestrial Networks. Khaf, S., Kaddoum, G. *IEEE Open Journal of the Communications Society, 2026.* Submitted

HAPs-Assisted Cognitive Radio with UE Capability-Centered Cooperation. Khaf, S., Kaddoum, G., Altamimi, M. *IEEE GLOBECOM 2024, 1317–1322.*

Partially Cooperative RL for Hybrid Action CRNs with Imperfect CSI. Khaf, S., Kaddoum, G., de Carvalho Evangelista, J. V. *IEEE Open Journal of the Communications Society 5, 3762–3774, 2024.* 4 citations

Partially Cooperative Scalable Spectrum Sensing in Cognitive Radio Networks Under SDF Attacks. Khaf, S., Alkhodary, M. T., Kaddoum, G. *IEEE Internet of Things Journal 9(11), 8901–8912, 2021.* 20 citations

A Deep Learning Approach for Mobility-Aware and Energy-Efficient Resource Allocation in MEC. Ali, Z., Khaf, S., Abbas, Z. H., Abbas, G., Muhammad, F., Kim, S. *IEEE Access 8, 179530–179546, 2020.* 49 citations

A Deep Learning Approach for Energy Efficient Computational Offloading in Mobile Edge Computing. Ali, Z., Jiao, L., Baker, T., Abbas, G., Abbas, Z. H., Khaf, S. *IEEE Access 7, 149623–149633, 2019.* 173 citations

EDUCATION

PhD, Electrical Engineering — École de technologie supérieure (ÉTS), Canada *Jan 2020 – Present | GPA: 4.3/4.3*
Research: Cognitive radio networks, reinforcement learning, beyond-5G/6G systems

MS, Electrical & Electronics Engineering — Bilkent University, Turkey *Sep 2015 – Jun 2018 | GPA: 3.29/4.00*
Thesis: Spatiotemporal co-kriging for ionospheric modalities

BE, Electrical Engineering — National University of Sciences & Technology (NUST), Pakistan *Sep 2011 – Jun 2015 | GPA: 3.45/4.00*

AWARDS & LEADERSHIP

- IEEE Canada Foundation Women in Engineering Prize
- FRQNT Doctoral Scholarship
- P.E.O. International Peace Scholarship
- 3MT ÉTS 1st Prize; 3MT Eastern Region 3rd Prize
- Vice Regional Student Rep., IEEE Canada (2024–Present)
- Treasurer, IEEE WIE Montreal (2023–Present)
- Chair, IEEE ÉTS Student Branch (2021–Present)
- 45+ talks & workshops across 9 countries

LANGUAGES

Urdu (Native) • **English** (C1 / IELTS 7.5) • **French** • Hindi • Punjabi • German • Turkish

Work Authorization: Authorized to work in Canada — no visa or work permit required

Full portfolio, publications, and project details at maverickkhaf.com