Pedro Enrique Iturria Rivera

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https://www.linkedin.com/in/pedro-iturria/

Researcher in AI-Enabled Wireless Networks. PhD Candidate (4th Year of 4)

EDUCATION

Sept 2020 – June 2024 — Doctorate in Electrical and Computer Engineering — Ongoing
University of Ottawa
Ottawa/ON, Canada – uottawa.ca
•Thesis: Distributed multi-agent learning in 6G and WiFi 7

Jan 2017– Dec 2018 — MSc. in Electronics Science — Grades: 10.0 / 10.0
Instituto Politecnico Nacional, BioPhotonics Lab.
Ciudad de Mexico, Mexico – ipn.mx
Thesis: *Color Correction of digital Images using ML*

Sept 2010 – Jul 2015 — Bachelor in Telecommunications and Electronics — Grades 5.15/5.0
Universidad Central Marta Abreu de las Villas
Santa Clara, Cuba – uclv.cu
Thesis: *Pentesting in Wi-Fi environments*

SCHOLARSHIPS

2020 – 2024 International Doctoral Scholarship – uOttawa
2021 – 2024 Admission Scholarship - uOttawa

AWARDS

2023 2x Best Paper Awards in International Conference in Communications (ICC'23), Rome, Italy

WORK EXPERIENCE

Jan 2023 – May 2023 — Cloud RAN Baseband Developer (Internship)
Ericsson Inc., Ottawa/ON, Canada
Some responsibilities:
- Troubleshooting BB scheduler ad 5G L2 stack
- Develop embedded real time software development running in cloud-based infrastructure.
- Implementation and testing of 5G Cloud RAN Baseband features related to L2 scheduler in CR DevOps

Sept 2020 – May 2021 — Teaching Assistant
University of Ottawa, Ottawa, ON, Canada
CEG 4186 Wireless Networks (Winter 2021)
ELG 5143 Topics in Computer Systems: AI-Enabled Wireless Networks (Fall 2020)

Sept 2018 – October 2018 — Spectral Imaging Researcher
University of Eastern Finland Inc., Joensuu, Finland

Sept 2015 – Jan 2017 — Main IT Security Specialist and professor
Universidad Central Marta Abreu de las Villas, Cuba

RESEARCH EXPERIENCE

Sept 2020 – Now — PhD Researcher
Mitacs/ Ciena/ Ericsson/ NetExperience and uOttawa (NETCORE Lab) and University of Bologna

Ottawa/ON, Canada – mitacs.ca, ciena.ca, ericsson.ca, nextexperience.ca, uottawa.ca, unibo.it

Graduate research assistant working on Mitacs projects with industry partners to develop innovative solutions in AI-Enabled Next Generation Wireless Networks. Topics include:

- Load Balancing and Traffic Steering in 5G and beyond.
- Handover in Multi-RAT Networks (4G & 5G).
- Spatial Reuse in Next Generation Wi-Fi Networks (Wi-Fi 6 and 7)
- Access Point and Channel Selection in Multi-Link Operation Wi-Fi 7 networks
- Optimization of XR traffic in 5G NR.
- Uplink Scheduling in Federated Learning
- Beam management in 5G NR.
- Applied AI in Open RAN.
- Reinforcement learning, Multi-agent Systems, supervised learning, unsupervised learning, distributed learning (split, federated), sequential and parallel transfer learning, meta-learning.

PUBLICATIONS

- P. E. Iturria-Rivera, H. Zhang, H. Zhou, S. Mollahasani, and M. Erol-Kantarci, “Multi-Agent Team Learning in Virtualized Open Radio Access Networks (O-RAN),” Sensors, vol.22, no.14, pp.1-13, Jul. 2022.
- R. Joda, T. Pamuklu, P. E. Iturria-Rivera and M. Erol-Kantarci, "Deep Reinforcement Learning-Based Joint User Association and CU–DU Placement in O-RAN,"IEEE Transactions on Network and Service Management, vol. 19, no. 4, pp. 4097-4110, Dec. 2022.
- P. E. Iturria-Rivera, M. Chenier, B. Herscovici, B. Kantarci and M.Erol-Kantarci,"Meta-Bandit: Spatial Reuse Adaptation via Meta-Learning in Distributed Wi-Fi 802.11ax", IEEE Networking Letters, Apr. 2023
- P. E. Iturria-Rivera and M. Erol-Kantarci, "Competitive Multi-Agent Load Balancing with Adaptive Policies in Wireless Networks," (Accepted to 2021 IEEE CCNC), pp. 10-16, Oct. 2021.
- P. E. Iturria-Rivera and M. Erol-Kantarci, "QoS-Aware Load Balancing in Wireless Networks using Clipped Double Q-Learning," (Accepted to 2022 IEEE CCNC), pp. 796-801, Jan. 2022.
- M. A. Habib, H. Zhou, P. E. Iturria-Rivera, M. Elsayed, M. Bavand, R. Gaigalas,S. Furr, and M. Erol-Kantarci, “Traffic Steering for 5G Multi-RAT Deployments using Deep Reinforcement Learning,” (Accepted to 2023 IEEE CCNC), pp. 164-169, Jan. 2023.
- P. E. Iturria-Rivera, M. Elsayed, M. Bavand, R. Gaigalas, S. Furr and M. Erol-Kantarci, "Hierarchical Deep Q-Learning Based Handover in Wireless Networks with Dual Connectivity," (Accepted to 2022 IEEE CCNC), pp. 6553-6558, Dec. 2022.
- P. E. Iturria-Rivera, M. Chenier, B. Herscovici, B. Kantarci and M. Erol-Kantarci,"RL meets Multi-Link Operation in IEEE 802.11 be: Multi-Headed Recurrent Soft-Actor Critic-based Traffic Allocation", (Accepted to 2023 IEEE ICC, Best Paper Award), May. 2023.
- Y. Dantas, P. E. Iturria-Rivera, H. Zhou, M. Elsayed, M. Bavand, R. Gaigalas, S.Furr, and M. Erol-Kantarci, “Traffic Steering for 5G Multi-RAT Deployments using Deep Reinforcement Learning,” (Accepted to 2023 IEEE ICC), May. 2023.
- M. Skojac, P. E. Iturria-Rivera, M. Erol-Kantarci and R. Verdone, “Uplink Scheduling in Federated Learning: an Importance-Aware Approach via Graph RepresentationLearning,” (Accepted to 2023 IEEE ICC Workshops), May. 2023.
- P. E. Iturria-Rivera, M. Chenier, B. Herscovici, B. Kantarci and M. Erol-Kantarci,"Channel Selection for Wi-Fi 7 Multi-Link Operation via Optimistic-Weighted VDN and Parallel Transfer Reinforcement Learning", (Accepted to 2023 IEEE PIMRC), Sept. 2023.
- M. A. Habib, H. Zhou, P. E. Iturria-Rivera, M. Elsayed, M. Bavand, R. Gaigalas,S. Furr,and M. Erol-Kantarci, “Intent-driven Intelligent Control and Orchestration in O-RAN Via Hierarchical Reinforcement Learning”, (Accepted to 2023 IEEE MASS), Sept. 2023.
- Y. Dantas, P. E. Iturria-Rivera, H. Zhou, M. Elsayed, M. Bavand, R. Gaigalas, S.Furr, and M. Erol-Kantarci, “Split Learning for Sensing-Aided Single and Multi-Level Beam Selection in Multi-Vendor RAN,” (Accepted to 2023 IEEE Globecom), Dec. 2023.

And more (For a complete list, visit https://www.researchgate.net/profile/Pedro-Iturria-Rivera) **.**

ADDITIONAL INFORMATION

Skills	Python, C++, PHP, HTML, CSS, Julia, Bash, Linux, Networking, Wireless simulators (ns-3 and Omnet++), Git.
Languages	▪ English (C1, IELTS), Spanish (Native), French (A1, DELF)