Taha YASSINE

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Summary

I received the engineering degree in computer science and the Ph.D. degree in machine learning and wireless communications both from the National Institute of Applied Sciences (INSA Rennes), France, in 2020 and 2024, respectively, and the M.Sc. (Research) degree in computer science from the University of Rennes 1, Rennes, France, in 2020. My research topics included *signal processing*, *wireless communications* and *machine learning*.

I'm currently interested in applications of *generative AI* in general and *Large Language Models* (LLMs) in particular. Some of the research directions I'm particularly excited about include speculative decoding, 1-bit models, agentic workflows, and mechanistic interpretability.

Work Experience

PhD student — *b<>com, IETR* Oct. 2020 - Apr. 2024

Proposed and developed deep learning models for different physical level tasks (channel estimation, beamforming, channel charting, etc.) in the context of massive MIMO systems. The models are inspired and guided by principles derived from signal processing and wireless communications theory. Produce papers presenting the work.

Research internship — *b<>com* Feb. - July 2020

Developed a deep learning model for channel estimation in the context of massive MIMO systems. The internship was a great introduction to doing research and an opportunity to get a foot in the door. Produced a paper presenting the work as well.

Education

2020 - 2024	PhD in machine learning and wireless communications with **INSA Rennes**, **IETR** and **b<>com**
2015 - 2020	Engineering degree in computer science at **INSA Rennes**
2019 - 2020	M.S in research in computer science (SIF) at **INSA Rennes**
2019	Erasmus exchange at **Newcastle University**

Publications

Luc Le Magoarou, **Taha Yassine**, Stéphane Paquelet, and Matthieu Crussière (Oct. 2022). "Channel charting based beamforming". In: *2022 56th Asilomar Conference on Signals, Systems, and Computers*. Pacific Grove, CA, USA. Pacific Grove, CA, USA: IEEE, pp. 1185–1189. ISBN: 978-1-6654-5907-5.

Luc Le Magoarou, **Taha Yassine**, Stéphane Paquelet, and Matthieu Crussière (May 2022). "Deep Learning for Location Based Beamforming with Nlos Channels". In: *ICASSP 2022 - 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. Singapore, Singapore. Singapore, Singapore: IEEE, pp. 8812–8816. ISBN: 978-1-6654-0541-6.

Taha Yassine and Luc Le Magoarou (July 2022). "mpNet: Variable Depth Unfolded Neural Network for Massive MIMO Channel Estimation". In: *IEEE Transactions on Wireless Communications* 21.7 (99), pp. 5703–5714. ISSN: 1558-2248.

Taha Yassine, Luc Le Magoarou, Stéphane Paquelet, and Matthieu Crussière (July 2022). "Leveraging triplet loss and nonlinear dimensionality reduction for on-the-fly channel charting". In: *2022 IEEE 23rd International Workshop on Signal Processing Advances in Wireless Communication (SPAWC)*. Oulu, Finland. Oulu, Finland: IEEE, pp. 1–5. ISBN: 978-1-6654-9456-4.

Mattia Merluzzi et al. (2023). "The Hexa-X Project Vision on Artificial Intelligence and Machine Learning-Driven Communication and Computation Co-Design for 6G". In: *IEEE Access* 11, pp. 65620–65648. ISSN: 2169-3536.

Taha Yassine, Baptiste Chatelier, et al. (Oct. 2023). "Model-Based Deep Learning for Beam Prediction Based on a Channel Chart". In: *2023 57th Asilomar Conference on Signals, Systems, and Computers*. IEEE, pp. 1636–1640.

Taha Yassine, Luc Le Magoarou, Baptiste Chatelier, et al. (Aug. 2023). "Cartographie du canal par réduction de dimension et réseaux triplets". In: *29° Colloque sur le traitement du signal et des images*. 2023-1381. Grenoble: GRETSI - Groupe de Recherche en Traitement du Signal et des Images, pp. 1165–1168.

Taha Yassine, Luc Le Magoarou, Matthieu Crussière, and Stéphane Paquelet (2024). "Optimizing Multicarrier Multiantenna Systems for LoS Channel Charting". In: *IEEE Transactions on Wireless Communications*, pp. 1–1. ISSN: 1558-2248.

Skills

Programming	Python, Java, C/C++, Bash, Nix, JavaScript, PHP.
Frameworks/Libraries	PyTorch, NumPy, Transformers, SentenceTransformers, scikit-learn, SciPy, Sionna, Matplotlib, Bokeh.
Other	Docker, LaTeX, Linux, Git, Jupyter.