MATEO MAHAUT

PHD STUDENT - UPF

PERSONAL DETAILS

French / Swiss
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SKILLS

LLM PyTorch, fine-tuning, Reinforcement Learning, Matlab, Genetic Algorithms, Multi-Agent systems, Software Engineering
Data Analysis : Python, R (statistics, linear algebra), SQL
Communication : Adobe Premiere Pro, Statistical results with matplotlib, or seaborn.

COMMITMENT

- AISTATS & Neurips & Neurips workshop reviewer
- Volunteer participation to priority-education High School career days.
- Elected Member Arts Association
- Founding Member student engineering newspaper
- PSC1 - first level course to provide first aid

EDUCATION

2022-2026 : PhD - **Universitat Pompeu Fabra**
'Scaling emergent communication to realistic deep network communities and tasks' supervised by Marco Baroni. Emergent communication, Interpretability, Multi-Agent Reinforcement learning

2018-2021 : **National School of Cognitive Technologies,** (ENSC, Bordeaux INP)
Engineering, with specialisation in Artificial intelligence, Human cognition, Human-System Interactions, Project management.

INTERNSHIP EXPERIENCE

Research Intern | LLM team AWS - September 2023 to January 2024

- Study of factual confidence and uncertainty quantification metrics in LLMs, and their consistency. Accepted at ACL 2024

Research Intern | FLOWERS team INRIA - February to August 2021

- Ecologically inspired study of communication between reinforcement learning agents to improve performance on hierarchical tasks. PNAS paper under review.

PUBLICATIONS

- Acevedo S., Mascaretti A., Rende R., Mahaut M., Baroni M., Laio A. (2025). **An approach to identify the most semantically informative deep representations of text and images.** https://arxiv.org/abs/2505.17101 - Under review.
- Mahaut, M., Aina, L., Czarnowska, P., Hardalov, M., Müller, T., Marquez, L.(2024). **Factual Confidence of LLMs: on Reliability and Robustness of Current Estimators.** Accepted at ACL.
- Lambert, N., Roquet, D., Mahaut, M., Bitouzé, N., Chételat, G., Elmoata, A.(2024). **Convolutional Neural Network Application for Brain PET Image Translation to Support Alzheimer's Disease Diagnosis**. Accepted at ICGP.
- Mahaut, M., Franzon, F., Dessì, R., & Baroni, M. (2023). **Referential communication in heterogeneous communities of pre-trained visual deep networks**. ArXiv:2302.08913 [Cs]. https://arxiv.org/abs/2302.08913
- Nisioti, E., Mahaut, M., Oudeyer, P.-Y., Momennejad, I., & Moulin-Frier, C. (2022). **Social Network Structure Shapes Innovation: Experience-sharing in RL with SAPIENS.** ArXiv:2206.05060 [Cs]. https://arxiv.org/abs/2206.05060

INTERESTS

- 10 year Aïkido practice
- English Litterature
- 10 year piano practice, Jazz

LANGUAGES

French, English, Spanish

TEACHING

Computational Semantics (fall 2024, UPF)
Introduction to RL (2023 & 2022, Madagascar ML Summer School)

REFERENCES

Dr. Baroni (ICREA/Universitat Pompeu Fabra)
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Dr. Aina (AWS)
eailaura@amazon.es