Sofiane Ennadir

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Education

KTH Royal Institute of Technology 2021 - Present

Ph.D candidate in Deep Learning for graphs Stockholm, Sweden

- Advisor: Prof. Michalis Vazirgiannis (KTH/Ecole Polytechnique) and Prof. Henrik Boström (KTH).
- Thesis: On the Adversarial Robustness and Applications of Graph Neural Networks (GNNs).
- Expected Graduation Date: February 2025.

Ecole Polytechnique - IPP Paris 2019 - 2021

MSc in Data Science - M2 Data Science Paris, France

- Advisor: Prof. Eric MOULINES and Prof. Erwan LE PENNEC.
- Thesis: Interpretability and Explicability of Machine Learning Models.

EMINES School Of Industrial Management - UM6P 2014 - 2019

Master of Engineering Morocco

- A Co-Directed Program by Ecole Polytechnique and supervised by Prof. Eric MOULINES including 2 years preparatory classes and 3 years General, Industrial Management Engineering Courses.

Publications

If You Want to Be Robust, Be Wary of Initialization.
*Ennadir S.& Al. - Accepted at the 38th Annual Conference on Neural Information Processing Systems (**Neurips 2024**).*

Joint Embedding go Temporal.
*Ennadir S.& Al. - Accepted at the TSALM Workshop, **Neurips 2024**.*

Bounding the Expected Robustness of Graph Neural Networks Subject to Node Feature Attacks.
*Abbahaddou Y.[1], Ennadir S.[1] & Al. - Accepted at the 13th International Conference on Learning Representations (**ICLR 2024**).*

A Simple and Yet Fairly Effective Defense for Graph Neural Networks.
*Ennadir S. & Al. - Accepted at the 38th AAAI Conference on Artificial Intelligence (**AAAI 2024**).*
- Initial version presented at *AdvML Workshop, **ICML 2023**.*

Interpretable Graph Neural Networks for Tabular Data.
*Alkhatib A., Ennadir S. & Al. - Accepted at the 27th European Conference on Artificial Intelligence (**ECAI 2024**).*
- Initial version presented at *DMLR Workshop, **ICLR 2024**.*

UnboundAttack : Generating Unbounded Adversarial Attacks to Graph Neural Networks
*Ennadir S. & Al. - Oral at the 12th International Conference on Complex Networks and their Applications (**CNA 2023**).*

Conformalized Adversarial Attack Detection for Graph Neural Networks.
*Ennadir S. & Al. - Oral at the 12th Symposium on Conformal and Probabilistic Prediction with Applications (**COPA 2023**).*

[1]Denotes Equal Contribution

Approximating Score-based Explanation Techniques Using Conformal Regression.
*Alkhatib A., Ennadir S. & Al. - Oral at the 12th Symposium on Conformal and Probabilistic Prediction with Applications (**COPA 2023**) - [Best student paper award].*

Structure-Aware Antibiotic Resistance Classification Using Graph Neural Networks.
*Qabel A., Ennadir S. & Al. - AI4Science Workshop, **Neurips 2022**.*
- Extended version is currently under review.

Professional Experience

Sep. 2024 – Present Research Intern at **King (AI Labs)** Stockholm

- Working on Self-supervised representation learning on continuous-time dynamic graphs (CTDG).

Jun. 2024 – Aug. 2024 Research Intern at **Flatiron Institute - Simons Foundation** New York

- Affiliated to the Polymathic AI initiative, I worked on investigating the usage of the Joint-Embedding Predictive Architectures (JEPA) for time series pre-training.

June – Dec. 2020 Research Intern at **BNP Paribas** Paris

- Worked within the RISK Artificial Intelligence Research center (Risk AIR) on the Interpretability of ML/DL Models, mainly using counterfactual explanations in a black-box model approach.

April – Sep. 2019 Visiting Associate at **Boston Consulting Group - BCG** Casablanca

- Applied Data Science based methodologies to resolve diverse client challenges (Sales Forecasting, Cross-Selling ..)

June – Sep. 2018 Research Scholar at **University of Louisville** Louisville, KY

- Worked with Prof. Hichem Frigui on a ML-based approach to detect Lung Cancer from CT Images. The output was a Computer Aided Diagnosis System with a 94% (±0.6) accuracy on the Luna Challenge.

Skills

Languages | *Fluent:* English (Toef Score 102). *Native:* Arabic, French
Programming | *Proficient:* Python. - *Prior experience:* MATLAB, C++, SQL, HTML.
Software Tools | PyTorch, PyTorch Geometric, Deep Graph Library, TensorFlow.

Awards

WASP Doctoral Scholarship funded by the Knut and Alice Wallenberg Foundation 2021
OCP Full Excellence merit scholarship for outstanding results in entrance examination. 2014

Teaching and Academic Services

- **Teaching Assistant:**

- Introduction to LLMs & Deep Learning on Graphs - Ecole Polytechnique.
- Deep Learning for time series, NLP and Graphs - Ecole Polytechnique Executive Education.

- **Conference Reviewer:** ICLR 2025 - Learning on graphs (LOG) 2024 - Neurips 2024 - TMLR.

References

Prof. Michalis Vazirgiannis KTH/ Ecole Polytechnique - [mvaz@kth.se]

Prof. Henrik Boström KTH - [bostromh@kth.se]

Prof. Eric Moulines Ecole Polytechnique - [eric.moulines@polytechnique.edu]

Prof. Hichem Frigui University of Louisville - [h.frigui@louisville.edu]