

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).

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

[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*.

[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**).*

[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].*

[Generating Graph Perturbations to Enhance the Generalization of GNNs.](#)

ENNADIR S. & Al. - Under Review

[Structure-Aware Antibiotic Resistance Classification Using Graph Neural Networks.](#)

*Qabel A., ENNADIR S. & Al. - AI4Science Workshop, **Neurips 2022**.*

- [Extended version](#) is currently under review.

[Interpretable Graph Neural Networks for Tabular Data.](#)

Alkhatib A., ENNADIR S. & Al. - Submitted to IJCAI-24.

¹Denotes Equal Contribution

PROFESSIONAL EXPERIENCE

- Mar. 2021 – Present** PhD/Researcher at **KTH Royal Institute of Technology** Stockholm
- Investigating the robustness and applications of GNNs.
 - Teaching Assistant in the following courses: “Introduction to LLMs & Deep Learning on Graphs” and “Deep Learning for time series, NLP and Graphs” for the “Executive Education Program” of l’Ecole Polytechnique in Paris taught by Prof. Vazirgiannis.
 - Supervising Master thesis students: [Marvin Kercini](#) - Matteo Santoro.
- 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 and proposing actionable insights and solutions. Example of cases:
 - Sales Forecasting and Stock Optimization for a car distributor.
 - Packaging Products and possible Cross-Selling for an M&A case.
- June – Sep. 2018** Research Scholar at **University of Louisville** Louisville, KY
- Worked with Prof. [Hichem Frigui](#) on developing 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 rate. The Data used was the same as 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

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]