Sofiane ENNADIR

🌐 sennadir.github.io | ✉ ennadir@kth.se | 📱 +46.7.00.18.33.67

EDUCATION

KTH Royal Institute of Technology   Mar 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: Investigating the adversarial robustness and applications of Graph Neural Networks (GNNs).

Ecole Polytechnique - IPP Paris   Sep 2019 - Dec 2020
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   Sep 2014 - Aug 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.

---

[1]Denotes 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% ($\pm$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]