Amr Alkhatib

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Summary — My research focuses on Trustworthy Machine Learning, particularly in Explainability and Conformal Prediction. Additionally, I have research and hands-on experience with Graph Neural Networks, Natural Language Processing, Language Modeling, and Transformers.

Experience

Ph.D. Candidate **Feb 2021 – Present**
KTH Royal Institute of Technology *Stockholm, Sweden*

- Conducted research on Explainable Machine Learning and Conformal Prediction
- Developed novel algorithms to ensure the interpretability and accuracy of predictions
- Published the findings in 8 peer-reviewed papers and presented the results at international conferences

AI Research Engineer **Nov 2017 – Jan 2021**
Mendel AI *San Jose, CA, USA (Remotely)*

- Trained and optimized deep learning models for named entity recognition, sequence tagging, and text classification
- Developed a semantic search engine with a spelling error-resilient autocomplete system
- Developed machine translation models using RNNs, language models, and statistical machine translation systems
- Collaborated in product development using Java and tackled data processing challenges with Python
- Gained expertise in SQL databases, Google Cloud Platform, data processing with SparkSQL and Apache Spark

Data Scientist **Jan 2017 – Nov 2017**
IST Networks *Cairo, Egypt*

- Conducted sentiment analysis on customer reviews about banking services, achieving state-of-the-art performance
- Developed a text pronunciation disambiguation system for a commercial text-to-speech application

Research Assistant **Sep 2016 – Mar 2017**
Nile University *Cairo, Egypt*

- Developed an emotional tone detection algorithm for tweets using Convolutional Neural Networks

Education

KTH Royal Institute of Technology **Stockholm, Sweden**
Ph.D. in Computer Science, Machine Learning *2021 – 2024*

Nile University **Cairo, Egypt**
M.Sc. in Information and Communication Technology *2016 – 2018*

Technical Skills

Machine Learning: Explainable AI, Conformal Prediction, Graph Neural Networks, NLP, Language Models, Transformers

Programming: Python, Java, Shell Scripting, SQL

Frameworks: PyTorch, Keras, Pandas, Scikit-learn, Numpy

Tools: Google Cloud Platform, Apache Spark, SparkSQL, Git

Awards

Alexey Chervonenkis Best Student Paper Award **COPA conference, 2023**

WASP Scholarship Fully funded by the Knut and Alice Wallenberg Foundation **WASP-Sweden, 2020**

Academic Activities

REVIEWER FOR
ECML-PKDD, ECAI, Machine Learning Journal

Selected Publications

- Amr Alkhatib, Sofiane Ennadir, Henrik Boström, and Michalis Vazirgiannis. "Interpretable Graph Neural Networks for Tabular Data". In: **ICLR 2024** DMLR Workshop, and accepted for presentation at the 27th European Conference on Artificial Intelligence (**ECAI 2024**)
- Amr Alkhatib, Henrik Boström, Sofiane Ennadir, and Ulf Johansson. "Approximating Score-based Explanation Techniques Using Conformal Regression". In: **COPA 2023**
- Sofiane Ennadir, Amr Alkhatib, Giannis Nikolentzos, Michalis Vazirgiannis, and Henrik Boström. "UnboundAttack: Generating Unbounded Adversarial Attacks to Graph Neural Networks". In: **Complex Networks** & Their Applications XII
- Amr Alkhatib, Henrik Boström, and Michalis Vazirgiannis. "Explaining Predictions by Characteristic Rules". In: **ECML PKDD 2022**
- Amr Al-Khatib and Samhaa R. El-Beltagy. "Emotional Tone Detection in Arabic Tweets". In: CICLing 2018

References

- Prof. Henrik Boström – KTH: ✉ bostromh@kth.se
- Prof. Michalis Vazirgiannis – KTH & Ecole Polytechnique: ✉ mvaz@kth.se