Amgad Abdallah

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EDUCATION:

- **Cairo University:**
  M.Sc. in Data Science from Faculty of Graduate Studies for Statistical Research (2020 - 2023).
  - During this journey, I integrated Graph Neural Networks and Deep Reinforcement Learning for generating or optimizing molecules with desired chemical and geometrical properties in 3D space. Also, I extended the well-known SAC algorithm to operate on molecular graphs and to handle the multi-discrete action space. Moreover, the output included three high impact publications.
- **Helwan University:**

  B.Sc. in Business Information System with distinction with honors (2016 - 2020).

PREFERRED JOB:

AI Researcher – Quantum ML Researcher - Data Scientist - Machine Learning Scientist - Advanced Analytics.

SKILLS and TECHNOLOGIES:

1- **Programming and Scripting Languages:**
   - Includes but not limited to: Python – R – Java - C++ - C#- SQL - HTML5 - CSS3– XML – SQLite – MongoDB – Neo4J – PostgreSQL.

2- **Tools:**
   - Includes but not limited to: Networkx – sciket-learn – TensorFlow – Pytorch – Pytorch geometric- MSSQL server - Dash with Plotly - Power BI – Tableau - Qlik-Sens –seaborn – matplotlib.

3- **Theory and concepts:**
   - Includes but not limited to: Machine learning/Deep learning – Graph neural networks - Deep Reinforcement Learning – Quantum Machine Learning – Quantum Computing and Information - DS and Algorithms - NLP - CV – Time series -Multivariable Calculus - Linear Algebra – graph theory - Data Visualization & Communication - Advanced Statistics.

CAREER HIGHLIGHTS:

➢ Teaching Assistant. (Full-time)

At The British University in Egypt. (Feb 2023 - present)

- ✓ Preparing labs and teaching AI and CS related courses such as Deep Learning, Data Science, OOP, and more.
- ✓ Involved in research group interested in computational physics, Graph Neural Networks, Deep Reinforcement Learning, Generative AI, and Quantum computing.

- **Machine Learning and Graph Algorithms Engineer. (Contract)**

  At Motiftech.ai. (June 2022 - present)
  - ✓ Applying Graph algorithms in analog circuit design.
  - ✓ Applying Graph Neural Networks in analog circuit design.
- **Data Science Instructor. (Part-time)**

  At Epsilon AI Institute. (Mar 2022 - present)
- **Teaching Assistant. (Full-time)**

  At New Giza University. (September 2021 - October 2022)
  - ✓ Developing and designing interactive Labs, Assignments and quizzes for Data science, programming, and AI courses.
  - ✓ Involved in a research group, interested in Machine Learning with graphs, Deep learning, Deep Reinforcement Learning.
- **Data Scientist. (Full-time)**

  At Merck Sharp & Dohme (MSD). (Aug 2020 - September 2021)
  - ✓ Designing and Building Data Science projects to develop and deliver data driven use-cases.
  - ✓ Designing, building, and optimizing Machine and Deep Learning models mainly for Time Series and demand forecasting.
  - ✓ Representing and communicating the results.
- **Data Science Instructor (Volunteering).**

  At Google Developer Student Club. (Aug 2020 - Present)
  - ✓ Explaining topics in Data Science and Machine Learning and developing learning paths.
- **Data Science and Analytics freelancer.**

  At Up-work.com. (Nov 2019 - Aug 2020)
  - ✓ By building models that fit the problem best and communicating the results.

Publications:

- ✓ Abdallah, Amgad & Alyan, Nada & Elkerdawy, Ahmed & TANABE, SHIHORI & Andres, Frederic & Pester, Andreas & Ali, Hesham. (2023). Geom-SAC: Geometric multi-discrete soft actor critic with applications in de novo drug design. (Manuscript submitted for publication).
- ✓ Abdallah, Amgad & Alyan, Nada & Elkerdawy, Ahmed & TANABE, SHIHORI & Andres, Frederic & Pester, Andreas & Ali, Hesham. (2023). A New Graph-Based Reinforcement Learning Environment for Targeted Molecular Generation and Optimization. In ICSIE 2023 conference. (Awarded as the best paper, and awarded as best presentation in the conference).
- ✓ Abdallah, Amgad & Alyan, Nada & Elkerdawy, Ahmed & TANABE, SHIHORI & Andres, Frederic & Pester, Andreas & Ali, Hesham. (2023). 3D molecular generation using deep learning approaches: A review on theory and experiment. (Manuscript submitted for publication).
- ✓ Greneche, Nicolas & Andres, Frederic & Tanabe, Shihori & Pester, Andreas & Ali, Hesham & Abdallah, Amgad & Bascle, Dominique. (2023). Leverage data security policies complexity for users: an end-to-end storage service management in the Cloud based on ABAC attributes.

COURSES and CERTIFICATIONS:

- **Reinforcement Learning Specialization (Coursera – Alberta University).**
- **This Specialization contains 4 courses:**
  - Fundamentals of Reinforcement Learning
  - Sample-based Learning Methods
  - Prediction and Control with Function Approximation
  - A Complete Reinforcement Learning System (Capstone)

- **Natural Language Specialization (Coursera - Deeplearning.ai).**
- **This Specialization contains 4 courses:**
  - Natural Language Processing with Classification and Vector Spaces.
  - Natural Language Processing with Probabilistic Models.
  - Natural Language Processing with Sequence Models.
  - Natural Language Processing with Attention Models.
- **Data Scientist Specialization (Coursera - Johns Hopkins University).**
- **This Specialization contains 10 courses:**
  - The Data Scientist's Toolbox.
  - R Programming.
  - Getting and Cleaning Data.
  - Exploratory Data Analysis.
  - Reproducible Research.
  - Statistical Inference.
  - Regression Models.
  - Practical Machine Learning.
  - Developing Data Products.
  - Data Science Capstone.
- **Data Scientist Nanodegree (Udacity).**
- **In this Nanodegree I have worked in 4 projects:**
  - Write a Data Science Blog Post.
  - Build Disaster Response Pipelines with Figure Eight.
  - Design a Recommendation Engine with IBM.
  - Data Science Capstone Project.
- **Applied Data Science with Python Specialization (Coursera - Michigan University).**
- **This Specialization contains 5 courses:**
  - Introduction to Data Science in Python.
  - Applied Plotting, Charting & Data Representation in Python.
  - Applied Machine Learning in Python.
  - Applied Text Mining in Python.
  - Applied Social Network Analysis in Python.
- **Mathematics for Machine Learning (Coursera - Imperial College London)**
- **This Specialization contains 3 courses:**
  - Linear Algebra.
  - Multivariate Calculus.
  - PCA.
- **Advanced Machine Learning (Coursera - National Research University)**
- **This Specialization contains 7 courses:**
  - Introduction to Deep Learning.
  - How to Win a Data Science Competition.
  - Bayesian Methods for Machine Learning.
  - Practical Reinforcement Learning.
  - Deep Learning in Computer Vision.
  - Natural Language Processing.
  - Addressing Large Hadron Collider Challenges by Machine Learning.

- **Deep Learning (Coursera - DeepLearning.AI)**
- **This Specialization contains 5 courses:**
  - Neural Networks and Deep Learning
  - Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization.
  - Structuring Machine Learning Projects.
  - Convolutional Neural Networks.
  - Sequence Models.

GitHub:

- https://github.com/AmgadAbdallah

VOLUNTEERING and ACTIVITIES:

- HR member at 3DOS.
- HR head at EYC.
- Fundraising vice-head at ASME (American Society of Mechanical Engineers).
- President at Min-Agl-Misr.
- IT member at CFA ambassadors.
- Volunteering in Life Makers.
- Volunteering in Resala.
- Volunteer listener at 7Cups.s
- Innovegypt camp participant.
- Internship at National Bank of Egypt.

Available for Relocation & Travel