Aziz Al-Najjar

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Summary

Ambitious Data Scientist with a master's in data science and expertise in deep learning, AI, and NLP with transformers. Accomplished projects in Finance, Infrastructure Monitoring, Signal Processing, and Autonomous Vehicles. Eager to contribute to organizational growth, while fostering continuous learning and influencing the evolution of AI-powered solutions.

Skills

- **Scientific/Research:** Python (PyTorch, TensorFlow, spaCy, Transformers, Open3D, Pandas, OpenCV, Scikit-Learn), MATLAB, R.
- **Programming and Database:** SQL, Python, R, C, C++, SystemVerilog, AVR, MIPS Assembly.
- **Data Analytics and Visualization:** R, Tableau, Power BI, Excel, Python (Seaborn, SciPy, Pandas, Matplotlib).
- **Soft Skills:** Research, Adaptability, Communication, Teamwork, Project Management, Analytical Thinking.
- **Languages:** Fluent in English and Arabic. Beginner in French and Turkish.

Education

Master of Engineering (MEng), Electrical and Computer Engineering, Specializing in Data Science **Jan 2022 – Jun 2023**
Carleton University, Ottawa, ON, Canada

- Cumulative GPA: 3.92/4
- Relevant Courses: Applied Deep Learning, Pattern Classification, Data Science, Simulation and Modeling, The Internet of Things, and Design of High-Performance Software.

Bachelor of Science (BSc), Electrical and Electronics Engineering **Feb 2017 – May 2021**
Middle East Technical University, Ankara, Turkey

- Cumulative GPA: 3.30/4 (Dean's list)
- Achievements: Specializing in Computer Architecture, Dean's Honor List, Scholarship Recipient.

Experience

Data Science Research Assistant **Sep 2022 – Aug 2023**
Carleton University, Natural Resources of Canada (NRCan), Ottawa, ON, Canada

- Utilized Python and ArcGIS on high-performing computing Linux clusters to develop and optimize a deep learning algorithm to identify high-risk vegetation encroachment on powerlines using LiDAR data.
- Applied advanced data analysis techniques and analyzed 900-million-point clouds for model building and feature extraction.
- Collaborated closely with cross-functional teams to ensure the algorithm met project requirements and achieved optimal performance.

Data Science Teaching Assistant **Jan 2023 – Jun 2023**
Carleton University, Department of Information Technology, Ottawa, ON, Canada

- Assisted in the delivery of ITEC 5920 (Applied Deep Learning) and OSS 4009 (Computer Vision) courses at the master's level.
- Explained course materials on complex topics in Applied Deep Learning and Computer Vision, including Machine Learning techniques, NLPs, CNNs, RNNs, image segmentation, and object detection.
- Designed and led lab sessions and tutorials, evaluated coursework, and supported 30+ students in their Data Science-related projects.

Applied Projects

Identifying areas of high-risk vegetation encroachment on powerlines using LiDAR **Sep 2022 – Aug 2023**
Infrastructure Monitoring Lab, Carleton University, Ottawa, ON, Canada

- Collaborated with the National Resources of Canada to predict powerline failures via LiDAR data, driving the development of a deep learning-based solution for encroachment detection.
- Executed comprehensive data preprocessing and cleaning, and leveraged diverse technologies including Python (ArcGIS, Keras, PyTorch), C programming, and Cloud Compare.
- Implemented novel point-based encroachment detection algorithm; achieved a remarkable 98% precision in efficiently identifying encroachments across diverse datasets from Surrey, Toronto, and Ottawa.

Classifying Canadian Citizens' Financial Well-Being Status and Predicting the Impact of Global Shocks **Jan 2023 – Jun 2023**
Data Science Project, Carleton University, Ottawa, ON, Canada

- Developed an XGBoost-based machine-learning model in collaboration with the Financial Consumer Agency of Canada (FCAC) to classify Canadians' FWB using Python (Sci-Kit Learn, SciPy, Keras) and R.
- Analyzed annual financial survey data (2018-2022) to predict factors influencing FWB, when considering global events like COVID-19.
- Presented precise FWB driver predictions and policy recommendations, employing data visualization tools like Tableau for effective communication.

DeepEnsemble: A Novel Brain Wave Classification in MI-BCI using Ensemble of Deep Learners **Jan 2022 – Dec 2022**

Applied Deep Learning, Carleton University, Ottawa, ON, Canada

- Developed DeepEnsemble, an innovative deep learning-based solution, to classify EEG signals for right hand and right leg movements in a Brain-Computer Interface (BCI) system using Python (Keras, Jupyter Notebooks) and MATLAB.
- Integrated diverse Deep Learning models like Transformers, MLP, CNN, and Hybrid models through an ensemble approach for enhanced accuracy.
- Outperformed state-of-the-art methods, culminating in presentation and publication at the IEEE 41st International Conference on Consumer Electronics (2023 ICCE).

Machine vision-based control and warning system for autonomous cars. **Aug 2020 – July 2021**

Machine Vision, Middle East Technical University, Ankara, Turkey

- Engineered an innovative autonomous driving system by analyzing camera data, integrating image processing techniques for real-time car lane detection and tracking.
- Trained a YOLO-based object detection model using Python (OpenCV, Keras, Sci-Kit Learn) and C programming, enabling obstacle detection and control signal generation.
- Successfully tested the system on an RC car, validating its robustness for both Raspberry Pi and Arduino controllers, showcasing adaptability and real-world feasibility.

Certificates and Courses

- The Complete SQL Bootcamp: Go from Zero to Hero - Udemy 2023
- SQL for Data Analysis - Linked in Learning 2023
- Natural Language Processing: NLP With Transformers in Python - Udemy 2023
- Generative AI, from GANs to CLIP, with Python and PyTorch - Udemy 2023
- Cloud Essentials – AWS Training and Certification 2023
- Relational Databases Essential Training- Linked in Learning 2023
- Tableau and R for Analytics Projects - Linked in Learning 2022
- The Complete Self-Driving Car Course - Applied Deep Learning – Udemy 2021