**Abdul-Aziz Al-Najjar**

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# Education

**Carleton University, Ottawa, ON, Canada** **Jan 2022 – Jun 2023**

Master of Engineering (MEng), Electrical and Computer Engineering, Data Science Specialization

* Cumulative GPA: **3.92/4.0.**
* Part of the Multimedia Research Group, under the supervision of Prof. Marzieh Amini

**Middle East Technical University, Ankara, Turkey Feb 2017 – Jun 2021**

Bachelor of Science (B.Sc.), Electrical and Electronics Engineering

* Cumulative GPA: **3.3/4.0 (Dean's Honor List - Top 5%)**

# Full Time Work Experience

**Research Associate**  **Sep 2022 – Current**

Carleton University - Natural Resources of Canada (NRCan), Ottawa, ON, Canada, (Currently remotely from Riyadh)

* Conducted research in infrastructure monitoring using machine learning techniques with LiDAR datasets to classify point clouds and identify high-risk vegetation encroachment on powerlines.
* Trained advanced Neural Network models and data analysis methods to process 900-million-point clouds to achieve accurate encroachment detection.
* Collaborated with cross-functional teams to align algorithms with project prerequisites, resulting in the preparation of two journal manuscripts (Data Collection and Algorithm Development), and a Master's project completion.

**Teaching Assistant Sep 2022 – Jun 2023** Carleton University - Department of Information Technology, Ottawa, ON, Canada

* Collaborated with instructors to enhance Applied Deep Learning and Computer Vision course materials.
* Graded assignments and provided constructive feedback to 30+ Data Science students in different modalities.
* Improved clarity of course contents, for topics such as regression (simple, multivariate), classification (binary, multi-class, multi-label), clustering, object detection, data augmentation, and multiple deep and machine learning techniques.

# Skills

* **Data Science and Machine Learning:** Proficient in applying machine learning and deep learning frameworks such as Azure AI, TensorFlow, PyTorch, Scikit-Learn, and BERT for image and text classification, object detection, semantic segmentation, financial analysis, and time series forecasting.
* **Big Data Processing and Visualization:** Skilled in analyzing large datasets with Pandas, and utilizing big data technologies like Apache Hadoop, and Spark. Strong capabilities in translating complex data into insightful visual reports using data visualization tools including Seaborn, Matplotlib, Tableau, and Power BI.
* **Programming and Simulation:** Broad programming skills with a foundation in Python, R, and SQL for various data analysis applications. Additional experience in C/C++ and FPGA tools such as SystemVerilog, VHDL, and Quartus ModelSim.
* **Language Proficiency:** Fluent in both English and Arabic, enabling effective communication in various contexts.
* **Soft Skills:** Proven problem-solving, analytical thinking, and adaptability. Solid communication and project management capabilities honed through research collaborations and teaching roles.

# Publications

**Identifying Areas of High-Risk Vegetation Encroachment on Powerlines using point clouds**

Infrastructure Monitoring Lab, Carleton University, Ottawa, ON, Canada **Sep 2022 – Oct 2023**

* Accepted for an article publication in the IEEE Sensors Journal. More: <https://azizalnajjar.ca/#ENC>

**Classifying Canadians’ Financial Well-Being Status and Predicting Global Shocks Impacts.**

Data Science Department, Carleton University, Ottawa, ON, Canada **Jan 2023 – May 2023**

* Poster presentation and paper publication at Carleton University's Data Day 9.0. More: <https://azizalnajjar.ca/#FWB>

**Brain Wave Classification in MI-BCI using Ensemble of Deep Learners.**

Multimedia Research Lab, Carleton University, Ottawa, ON, Canada **Feb 2022 – Nov 2022**

* Published and presented at the IEEE 41st ICCE conference. More: <https://azizalnajjar.ca/#DeepEnsemble>