**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

* 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 Python, with extensive experience in TensorFlow, PyTorch, Scikit-Learn, XGBoost, for tasks like image and text classification, object detection, 3D semantic segmentation, and time series forecasting,
* **Data Analytics and Visualization:** Skilled in R, SQL, Pandas and Scikit-Learn for managing large datasets and statistical analysis. Worked in transforming complex data into actionable insights using, Seaborn, Matplotlib, Tableau, and Power BI.
* **Programming and Simulation:** Broad programming skills in R, C, C++, with additional experience in FPGA tools like SystemVerilog, VHDL, and Quartus ModelSim. Comfortable with software development processes and optimization tools.
* **Language Proficiency:** Fluent in both English and Arabic, enabling effective communication in a variety of contexts.
* **Soft Skills:** Proven problem-solving, analytical thinking, and adaptability. Strong communication and project management skills 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 at 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 preparation at Carleton University's Data Day 9.0. More: <https://azizalnajjar.ca/#FWB>

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

Applied Deep Learning, Carleton University, Ottawa, ON, Canada **Feb 2022 – Nov 2022**

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