

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 Python, with extensive experience in TensorFlow, PyTorch, Scikit-Learn, and BERT, for tasks like image and text classification, object detection, 3D semantic segmentation, and time series forecasting.
- **Big Data Processing 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, Azure AI, Seaborn, Matplotlib, Tableau, and Power BI.
- **Programming and Simulation:** Broad skills in R, C/C++, MATLAB, and CAD tools, 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>