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

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

Honor Bachelor of Science (BSc), Electrical and Electronics Engineering

* Cumulative GPA: **3.3/4.0 (Dean's Honor List - Top 5%)**
* Scholarship Recipient, Specialized in Computer Architecture.

# 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 (PointCNN and RandLANet) and data analysis methods to process extensive 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, 2 & 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.

# Internships & Volunteer Experiences

**Rebranded Group - Logistics, Board Member,** Ottawa, ON, Canada **Mar 2022 – Sep 2023**

**Muslim Student Association - Volunteer,** Carleton University, Ottawa, ON, Canada **Feb 2022 – Sep 2023 Problem-Solving Society - Co-founder, Logistics Director,** METU,NCC, Turkey **Feb 2018 – Jun 2021 KIBTEK - Electrical Engineer (Intern),** Nicosia**,** Cyprus **Jun 2020 – Aug 2020**

**ACES Co. - Electronics Engineer (Intern),** Riyadh, Saudi Arabia **Jul 2019 – Aug 2019**

# Projects and 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 2023**

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

**Machine vision-based control and warning system for autonomous RC car.**

Machine Vision Lab, Middle East Technical University, Ankara, Turkey **Nov 2020 – Jun 2021**

* Successfully build and tested a cost-effective self-driving RC car with enhanced road safety and accessibility, featuring both autonomous and manual operation modes. More: <https://azizalnajjar.ca/#AutoRC>

# Certificates and Courses

* 3 High Honor and 3 Honor Certificates – Middle East Technical University 2018-2021
* The Complete SQL Bootcamp: Go from Zero to Hero - Udemy 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