**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.

# Skills

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

# 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 extensive 900-million-point clouds to achieve accurate encroachment detection.
* Collaborated with cross-functional teams to align algorithms with project prerequisites, resulting in optimal performance, the preparation of two journal manuscripts, 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 (written assignments, video presentations, project git repositories)
* Improved clarity of course content, resulting in an engaging learning environment.

# 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,Cyprus **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 LiDAR. 2022 – 2023**

Critical Infrastructure Monitoring Lab, Carleton University - NRCan, Ottawa, ON, Canada

* Drove innovation in powerline safety by creating a LiDAR-based detection algorithm, achieving 98% precision and advancing failure prediction capabilities; results recognized for publication in IEEE Sensors Journal.

More: <https://azizalnajjar.ca/#ENC>

**Classifying Canadians’ Financial Well-Being Status and Predicting Global Shocks Impacts. 2023**

Data Science, Carleton University, Ottawa, ON, Canada

* Designed a machine learning model to forecast financial well-being for Canadians, uncovering critical economic insights during COVID-19, presented poster at Carleton University Data Day 9.0, and encapsulated findings in a scholarly paper. More: <https://azizalnajjar.ca/#FWB>

**Brain Wave Classification in MI-BCI using Ensemble of Deep Learners. 2022 – 2023**

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

* Crafted an advanced ensemble deep learning model to enhance brain-computer interface accuracy, outperforming benchmarks in EEG signal classification, earning presentation and publication at the IEEE 41st ICCE Conference

More: <https://azizalnajjar.ca/#DeepEnsemble>

**Machine vision-based control and warning system for autonomous RC car. 2020 – 2021**

Machine Vision Lab, Middle East Technical University, Ankara, Turkey

* Engineered a machine vision system for an autonomous vehicle prototype, integrating obstacle detection and lane tracking, tested on a scalable RC model—laying groundwork for advanced vehicle safety technologies.  
  More: <https://azizalnajjar.ca/#AutoRC>