

# Aziz Al-Najjar

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## Career Objective

As a skilled recent graduate with a Data Science Master's and a track record of successful projects in deep learning, Computer Vision, and NLP, I am seeking a challenging position in the field of artificial intelligence. Backed by a robust project management background and collaborative mindset, I am committed to leveraging cutting-edge technologies, including AI and machine learning for innovative solutions to intricate challenges. I am eager to contribute my skills and knowledge to an organization that aligns with my values and has a strong vision for the future.

## Education

### **Master of Engineering (MEng), Electrical and Computer Engineering** **2021 – 2023**

Carleton University, Ottawa, ON, Canada

- Data Science Specialization with the Supervision of Prof. Marzieh Amini and a 11.76 CGPA (3.92/4)
- Relevant Courses: Applied Deep Learning, Pattern Classification, Data Science, Simulation and Modeling, The Internet of Things, and Design of High-Performance Software.

### **Bachelor of Science (BSc), Electrical and Electronics Engineering** **2017 – 2021**

Middle East Technical University, Ankara, Turkey

- Specializing in Computer Architecture, Dean's Honor List, Scholarship Recipient.

## Skills

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

## Work Experience

### **Research Associate** **2022 – 2023**

Carleton University - Natural Resources of Canada (NRCan), Ottawa, ON, Canada

- Conducted research in infrastructure monitoring and the utilization of LiDAR datasets for identifying high-risk vegetation encroachment on powerlines, leading to the completion of a Master's project, and preparation of a journal manuscript (expected summer 2023).
- Employed advanced data analysis methods to process extensive 900-million-point clouds, and successfully trained multiple cutting-edge Point Convolutional Neural Network (CNN) and RandLA-Net models for accurate encroachment detection.
- Maintained close collaboration with cross-functional teams to ensure alignment of the algorithm with project prerequisites, resulting in optimal performance achievement.

### **Teaching Assistant** **2022 – 2023**

Carleton University - Department of Information Technology, Ottawa, ON, Canada

- Collaborated with the instructors to prepare course materials (lab presentations, assignments, etc.) resulting in updated course/lab materials and improved clarity of course content.
- Explained course materials on complex topics in Applied Deep Learning and Computer Vision techniques, leading to an engaging and effective lab environment.
- Graded assignments and provided constructive feedback to 30+ Data Science students in different modalities (written assignments, video presentations, project git repositories)

## **Applied Projects**

### **Identifying Areas of High-Risk Vegetation Encroachment on Powerlines using LiDAR. 2022 – 2023**

Infrastructure Monitoring Lab, Carleton University, Ottawa, ON, Canada

- Developed a novel point-based encroachment detection algorithm with an exceptional 98% precision rate, significantly enhancing powerline failure prediction and leading to the submission of a journal article to the IEEE Sensors Journal for publication. More: [azizalnajjar.ca/Enc.html](https://azizalnajjar.ca/Enc.html)

### **Classifying Canadian Citizens' Financial Well-Being Status and Predicting Global Shocks Impacts. 2023**

Data Science Course, Carleton University, Ottawa, ON, Canada

- Constructed a predictive machine learning model that accurately predicts Canadians' Financial Well-Being (FWB) status, identifying key drivers, with notable insights on the disproportionate impact of COVID-19, leading to a presentation at Carleton University's Data Day 9.0 and the creation of a paper and poster. More: [azizalnajjar.ca/FWB.html](https://azizalnajjar.ca/FWB.html)

### **Brain Wave Classification in MI-BCI using Ensemble of Deep Learners. 2021 – 2022**

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

- Developed an innovative DeepEnsemble model, combining advanced deep learning techniques (Transformers, MLP, CNN, XGboost) to classify EEG signals for a Brain-Computer Interface (BCI) system, achieving superior accuracy and earning presentation and publication at the IEEE 41st International Conference on Consumer Electronics (2023 ICCE). More: [azizalnajjar.ca/DeepEnsemble.html](https://azizalnajjar.ca/DeepEnsemble.html)

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

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

- Designed and developed a cost-effective self-driving car capable of autonomous operation with obstacle detection and real-time lane tracking using machine vision algorithms, as well as manual operation. Successfully tested the system on an RC car with Raspberry Pi and Arduino controllers, contributing to improved road safety and accessibility. Additionally, created a comprehensive report and demonstration video. More: [azizalnajjar.ca/AutoRC.html](https://azizalnajjar.ca/AutoRC.html)

## **Volunteer Experience:**

**Logistics, Volunteer, Rebranded Group, Ottawa, ON, Canada 2022 – 2023**

**Volunteer, Muslim Student Association, Carleton University, Ottawa, Canada 2022 – 2023**

**Co-founder, Logistics Director, Problem Solving Society, METU, Northern Cyprus 2018 – 2021**

## **Certificates and Courses**

- 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