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