

# Adnan Amara

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## EDUCATION

- **Master of Engineering - Electrical Engineering** Montréal, Canada  
École de Technologie Supérieure January 2024 - Now  
Courses: Analog Microelectronics, Planning a research project in engineering, Project team management and leadership, Energy Quality, Market Analysis, Creativity and Innovation.
- **Master of Engineering - Electronics and embedded systems** Algeria  
École Nationale Polytechnique d'Oran Maurice Audin December 2020 - July 2023  
Courses: Analog and Digital Electronics, Advanced Processor, Discrete Control Systems, Software Engineering, Embedded Systems, Radio Frequency Systems, Antenna, Artificial Intelligence, Robotics, Radar, Telecommunication.
- **Preparatory classes in science and technology** Algeria  
École Nationale Supérieure d'Hydraulique September 2018 - November 2020  
Courses: Analysis, Algebra, Organic Chemistry, Physics, Rational Mechanics, Fluid Mechanics, Strength of Materials, Economics.

## SKILLS SUMMARY

- **Languages:** Python, C, C++, SQL, VHDL, Octave, Latex, Matlab, Assembly
- **Frameworks:** Scikit-learn, TensorFlow, Arduino, Mbed, ROS
- **Tools:** GIT, MySQL, Microsoft Office
- **Platforms:** Linux, Windows, Arduino, Raspberry
- **Soft Skills:** Leadership, Writing, Public Speaking, Time Management

## EXPERIENCE

- **Electrical System Specialist R&D** Montreal, Canada  
Cora Robotique April 2024 - December 2024
  - In charge of low-level programming of an industrial autonomous mobile robot.
  - Responsible for the design and optimization of the robot's electrical system.
  - Development and implementation of technical solutions aimed at improving the performance and reliability of the robotic system.
  - Close collaboration with research and development teams to integrate innovative technologies and optimize the robot's performance.
- **Instrumentation Intern** Algeria  
Sonatrach March 2023 - April 2023
  - Gained in-depth experience in instrumentation and industrial processes.
  - Analyzed the Mark V lubrication system and the oil temperature control loop.
  - Advanced practice with WinCC.
  - Enhanced understanding of the oil and gas industry.
- **Automation and Electrical Systems Intern** Algeria  
LM Electric June 2022 - July 2022
  - Designed and installed an electrical power supply system.
  - Used EPLAN software for electrical schematics.
  - Gained operational expertise with Tia Portal.
  - Held full responsibility for setting up the electrical system.
  - Acquired advanced skills in electrical engineering and automation.
- **Maintenance Intern** Algeria  
Shariket Kahraba El-Djazair-SKE March 2021 - April 2021 & December 2021 - January 2022
  - Actively participated in the operations of the electrical service.
  - Directly involved in the repair of electrical machines and the installation of electrical cabinets.
  - Performed deep analysis of batteries and learned about protocols and digital communication systems.
  - Practical learning in industrial automation processes.

## VOLUNTEER EXPERIENCE

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- **Hands For Charity** Montreal, Canada  
December 2023 - Present
  - Organization and coordination of charity events to raise funds and raise awareness for various social causes.
  - Participation in the distribution of food and clothing to people in need.
- **Muhandis Club** Oran, Algeria  
October 2022 - July 2023
  - Creation and management of content for social media platforms, including Facebook, Twitter, and LinkedIn, aligning with the mission and message of the club.
  - Organization of events and workshops for club members to promote learning and professional development.
- **American Corner Oran** Oran, Algeria  
October 2021 - October 2023
  - Organization of an electronics workshop and participation in cultural events to promote exchange and cultural engagement.
  - Leading discussion sessions and presentations to share technical and cultural knowledge with participants.

## PROJECTS

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- **Design and Simulation of an Operational Amplifier in CMOS-0.18 $\mu$ m Technology and Chip Design:** I designed and simulated a two-stage operational amplifier using CMOS 0.18  $\mu$ m technology, focusing on achieving specific performance metrics such as high gain, phase margin, and low power consumption. The project involved creating both a standard operational amplifier and a cascode-based amplifier to compare their performance. I conducted extensive DC, AC, and transient simulations to validate the amplifier's functionality in open-loop and closed-loop configurations, ensuring stability and meeting design specifications. Additionally, I optimized the cascode structure to achieve higher gain and bandwidth while maintaining a phase margin of 53° and a gain of over 75 dB at low frequencies. The layout design phase included synthesizing the chip using Cadence tools, performing DRC and LVS checks, and running post-layout simulations to account for parasitic effects.
- **Design and Implementation of an embedded electronic and computer interface for localization and navigation of a mobile robot in an unknown environment:** Developed an autonomous navigation system for an indoor mobile robot using the Robot Operating System (ROS). The project involved three key modules: mapping (SLAM algorithm with 2D/3D sensor data), localization (AMCL approach for pose estimation), and planning (utilizing the navigation stack for collision-free trajectory generation and control commands).
- **Temperature Indicator:** A system that takes into account both external and internal temperatures, equipped with two temperature probes, one to be placed outside and the other inside the habitat (both to be kept in the shade). The motivation behind the development of this system stems from periods of high temperatures, during which it is recommended to ventilate the rooms at night and keep them closed during the day.
- **Arduino Based CNC Plotter Machine:** Numerous CNC machines exist globally, with some being highly technical and complex to manufacture or operate successfully. Due to this, the decision was made to construct a straightforward CNC machine based on the Arduino platform, which is by far the easiest to construct.

## LANGUAGE PROFICIENCY

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- English - Fluent
- French - Fluent
- Spanish - Beginner
- Arabic - Native