Ameer Osman

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ABOUT ME

Electrical Engineer that's a physicist at heart. Driven by the desire to understand the mechanisms of nature. Conscientious, easy communicator, organized, with optimized time management. Always eager to learn new ideas with applications in tech and industry.

EDUCATION

MCGILL UNIVERSITY

B.Engineering - Electrical
Graduation: Dec 2020

TECHNICAL SKILLS

PROGRAMMING SKILLS

Java • C++ • C • Python • SQL • Javascript • HTML • CSS • Git • ARM • VHDL

DATA ANALYSIS TOOLS

Pandas • Numpy • Scikit

OS AND FRAMEWORKS

Ubuntu/Linux • Windows • React • Node

DESIGN AND SIMULATION

Altium • MATLAB • LTspice• Wireshark • Simulink • GO3D • OptiSystem • Lumerical Mode/Interconnect

ADVANCED COURSES

GRADUATE

Applied Machine Learning

UNDERGRADUATE

Communication Systems • Telecommunication Systems • Photonic Systems and Devices • Antennas • Discrete time signal processing • Fundamentals of Circuit Simulation • Microelectronics • edX Silicon Photonics Design, Fabrication, and Data Analysis

LANGUAGES

• English: Fluent written and spoken
• Arabic: First language

EXTRACURRICULARS

• McGill Rocket team: Designed analog 9-axis IMU PCB using Altium designer.
• ECSESS events coordinator

WORK EXPERIENCE

NATIONAL PAPER INDUSTRIES CO.

| May 2018 – Aug 2018 | Doha, Qatar |
Manufacturing Engineer Intern

• Optimized tissue paper production efficiency by monitoring and documenting sections of the manufacturing process.
• Co-operated the Seimens Micromaster Vector in control of variable speed drive connected to the AC motor.
• Replaced malfunctioning circuit breakers, contractors, and relays.

MAIN PROJECTS

PHOTONICS CAPSTONE PROJECT: YB-DCFA LASER SYSTEM

| Sept 2019 – Apr 2020 |
• Capstone Team leader tasked with the design of a Directed Energy Laser Amplifier system that augments 10mW input to 1W output.
• McGill Interstellar flight in collaboration with UCSB ("Breakthrough Starshot").
• Spearheaded extensive research into solid-state semiconductor sources, optical amplifiers, variable optical attenuators, optical band pass filters, and various other optical devices utilized.
• Simulated and validated the amplifier system using OptiSystem, verifying the 20dB of optical gain.
• Reduced cost of hardware components by creating work-arounds to unavailable or expensive components.

PERSONAL PROJECT: C++/CONTROL SYSTEMS

| May 2020 – Dec 2020 |
• Designing a Quadcopter as a personal project.
• Designed PID flight controller and transmitter station software in the C++ Arduino enviroment.
• Built the quadcopter hardware using Arduino Uno, Transceiver module, 6-axis IMU module, ESC, and BLDC motors.
• Documenting project with code available on github.

ANTENNAS

| Jan 2020 – Apr 2020 |
• Designed an antenna to operate at 2.4GHz for Wifi applications.
• Modelled and simulated half-wavelength dipole antenna using 4NEC2.
•Used MATLAB antenna toolkit to verify the design.
• Modelled classroom interior using GO3D for indoor wave propagation analysis and simulation.

TELECOMMUNICATIONS / JAVA

| Sept 2019 – Dec 2019 |
• Designed a DNS client in Java utilizing networking socket programming libraries.
• OSI 5-layer model analysis using wireshark software.
• Extensive research into ABR-algorithms for multimedia streaming.

ROBOTICS / JAVA

| Sept 2018 – Dec 2018 |
• Designed an Autonomous Search and Recover Robot for a design competition.
• Team Testing Manager: created and implemented testing process procedure(s). Provided team with software adjustment recommendations from testing feedback.
• Built object-oriented Java programs to test hardware and all the software methods.
• Coordinated with teammates using Gnatt chart to organize and allocate project resources.