AMRO AL-BAALI

M. Eng Mechanical Engineering

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EDUCATION

M. Eng Mechanical — McGill University
Graduated May 2021

- CGPA: 3.77/4.00.
- Thesis title: *Augmenting Sensor Measurements with INS Estimates in a Graph Based SLAM Problem*.
- Supervisor: Prof. J. R. Forbes.

B. Eng Honours Mechanical, Minor in Computer Science — McGill University
Graduated May 2019

- CGPA: 3.83/4.00. Dean's Honour List 2015, 2018.
- Supervisor: Prof. J. R. Forbes.

EXPERIENCE

Software Developer - Localization and Mapping — Avidbots
09/2021 – Present Kitchener, Canada

Develop and maintain the calibration, localization, and mapping algorithms for a robot equipped with a 2D LIDAR and a camera such that it is well localized within a pre-defined map. The primary tools used in this job are **ROS**, **C++**, **Python**, and nonlinear least squares (mainly using Ceres).

Graduate Student - SLAM — DECAR group
05/2019 – 08/2021 Montreal, Canada

Developed a SLAM algorithm for an AUV equipped with a third-party INS treated as a black box and a high-precision laser scanner. The primary tools used in the project are: Lie groups, state estimation, optimization (convex, on-manifold), **MATLAB**, and **C++**.

Mechanical Engineering Intern — MY01
05/2018 – 04/2019 Montreal, Canada

Designed and executed mechanical tests on the MY01 device. This included programming the testing platform using **Python** and customizing Autodesk Vault using **C#**.

Undergraduate Researcher Assistant — DECAR group
09/2017 – 05/2018 Montreal, Canada

Developed a systematic method of controlling a non-minimum phase system with minimal effect on the performance of the system. **MATLAB** was used in this project (control toolbox, LMIs, optimization).

Teaching Assistant — McGill University
09/2017 – 04/2021 Montreal, Canada

- MECH 513 (Control Systems) (Winter 2021)
- MECH 309 (Numerical Methods) (Fall 2019)
- MECH 412 (System Dynamics and Control) (Fall 2017)

AWARDS

- Best Seminar Award 2021
- MEUSMA Award, 2019
- NSERC-USRA Award, 2019
- McGill SURE award, 2017
- Habib Abou-Fayssal Prize, 2018
- Dean's Honour List, 2015, 2018
- Rio Tinto-Evans Exchange Award, 2018

SKILLS

Theory

Programming

Software

LANGUAGES