

MAURICE RAHME

 [moribots.github.io](https://github.com/moribots)

 github.com/moribots

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EXPERIENCE

Robotics Engineer - Stretch

Boston Dynamics

 Waltham, MA  Nov 2020 – Present

- Wrote on-board arm joint and vacuum pump calibration routine.
- Implemented Directed Graph search library for Atlas.
- Co-authored CAN-interfacing high-rate motor controller code.
- Built bringup software to increase robot assembly rate by 4x.
- Developed actuator characterisation suite for BLDC motors.

Electrical Engineering Intern - Body Control Module (BCM)

Jaguar Land Rover

 Gaydon, UK  Jun 2017 – Sep 2017

- Produced BCM code for the 2017 Frankfurt Autoshow in StateFlow.
- Built a line and wall following RC-car module coupled with a digital strain gauge to supplement JLR's "4x4 in Schools" competition.

Aerodynamics '17 & Suspension '18 Team Manager

Edinburgh Univ. Formula Student

 Edinburgh, UK  Jul 2016 – Jul 2018

- Designed and manufactured Aerodynamic and Suspension components.
- Managed teams of 8-10 people and led training workshops.
- Calculated wheel braking and cornering forces using SIMULINK.
- Built a MATLAB design tool for Parallel/Ackermann steering design.
- Taught CAD in SolidWorks and raised £9,000 in sponsorship.

PROJECTS

Quadruped Locomotion from Scratch


Northwestern University

 Apr 2020 - Aug 2020

- Crafted 12-point Bezier Curve Gait and Leg/Body Inverse Kinematics.
- Simulated custom quadruped in Pybullet with sim2real ROS framework.
- Architected novel Reinforcement Learning method for Terrain Adaptation.
- Designed custom quadruped that can be built for under \$600.

Motion Planning Library in C++ and ROS

Northwestern University

 Apr 2020 - Jun 2020

- Implemented scalable Probabilistic Roadmap and Grid Map.
- Developed Library containing A*, Theta*, D*Lite, Potential Fields, MPPI.
- Co-created and taught course for 1 credit at Northwestern.

EKF SLAM on Turtlebot3

Northwestern University

 Jan 2020 – Mar 2020

- Developed 2D Kinematics library in C++ for Differential Drive robots.
- Wrote feature detection algorithm for LiDAR scanner.
- Performed EKF SLAM with Unknown Data Association.

Baxter Plays Checkers

Northwestern University

 Nov 2019 – Dec 2019

- Led 3 teammates to program a Baxter robot to play checkers.
- Utilized ROS, MoveIt, OpenCV, and a custom AI move generator based on the minimax algorithm with alpha-beta pruning.
- Won 1st Place out of 6 teams 🏆.

EDUCATION

Northwestern University

Master of Science in Robotics

 Aug 2020

- GPA: 3.95/4.0

The University of Edinburgh

B.Eng (Honors) in Electrical & Mechanical Engineering

 Jun 2019

- GPA: 4.0/4.0; equivalent of First Class

</> LANGUAGES

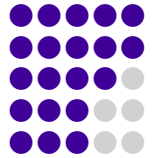
C++

Python

C

Bash

MATLAB



SKILLS

Robot Manipulation

Motion Planning

Bayesian Filters

ROS

Gazebo, Pybullet

URDF/Xacro

Optimal Control

Linux (Ubuntu)

Version Control (Git)

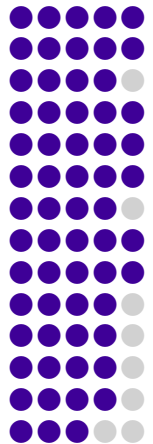
Unit Testing

Altium

Analogue Electronics

3D Printing

SolidWORKS



AWARDS



IMechE - Best BEng Project

The University of Edinburgh
The Institution of Mechanical Engineers



The Edinburgh Award

The University of Edinburgh



The Spirit of Formula Student

Formula Student UK

👤 LANGUAGES

English

French

Arabic

