MAURICE RAHME

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Chicago, IL

PROJECT HIGHLIGHTS

TD3 Reinforcement Learning for Bipedal Robot

Northwestern University

₩ Jan 2020 - Mar 2020

- Implemented TD3 algorithm with biologically-inspired reward function.
- Simulated PLEN robot in Gazebo and Pybullet using OpenAI Gym interface
- Designed manual foot trajectory and deployed to real robot.

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

Mov 2019 - Dec 2019

- Won 1^{st} Place out of 6 teams \P .
- Together with 3 teammates, programmed a Baxter robot to play checkers.
- Utilized ROS, Movelt, OpenCV, and a custom AI move generator based on the minimax algorithm with alpha-beta pruning.

BEng Thesis: PATBLC The University of Edinburgh

₩ Jan 2019 - May 2019

- Awarded prize: IMechE Best BEng Project for 2019 \mathbb{T}.
- Developed 2-DOF laser transceivers to command an underwater rover.
- Implemented Kalman Filter and template matching for tracking in LABVIEW.

EXPERIENCE

Building Automation Intern

ASEA BROWN BOVERI (ABB) ♥ Dubai, UAE

May 2018 - Aug 2018

- Co-designed GRMS layout for the Zabeel One project worth 500,000\$.
- Developed automation design tool in VBA that saved 5 hours per client order.

Electrical Engineering Intern - Body Control Module (BCM) **Jaguar Land Rover ♀** Gaydon, UK

- ## Jun 2017 Sep 2017
- Received 'Outstanding' grade on performance review (highest possible).
- Implemented task allocation and follow-up system to boost work output, while leading 10-person open issue list meetings.
- Produced BCM code for the 2017 Frankfurt Autoshow in STATEFLOW.
- Developed 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.
- Taught and assisted team members with CAD in SOLIDWORKS.
- Used SIMULINK to calculate wheel braking and cornering forces.
- Built a MATLAB design tool for Parallel/Ackermann steering design.
- Reviewed design reports and successfully raised £9,000 in sponsorship.

EDUCATION

MSc in Robotics

Northwestern University

2019 - 2020

GPA: 3.85/4.0

B.Eng (Honors) in Electrical & Mechanical Engineering The University of Edinburgh # 2015 - 2019

• First Class (GPA: 4.0)

</>> LANGUAGES

C++ Python

C

LabVIEW

MATLAB/SimuLink

VBA

SKILLS

ROS/Gazebo/MoveIt! **Robot Manipulation** OpenAl Gym/PyBullet

Machine Learning Pvtorch

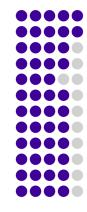
Path Planning

Bayesian Filters Search Algorithms

Linux

Version Control (Git) Analogue Electronics

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



English French Arabic Spanish

