Maurice Rahme

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Education

- **Northwestern University** — **Evanston, IL**
  Master of Science in Robotics — **Sep. 2019 - Exp. Dec 2020**
  - GPA: 3.85
- **The University of Edinburgh** — **Edinburgh, UK**
  Bachelor of Engineering (Honors) in Electrical & Mechanical Engineering — **Sep. 2015 - Jul. 2019**
  - First Class (4.0 GPA)

Project Highlights

- **Baxter Plays Checkers** — **Northwestern University**
  Embedded Systems in Robotics — **Nov. 2019 - Dec. 2019**
  - Programmed a Baxter robot to play a full game of checkers. Placed 1^{st} in 6-team judged competition.
  - Project completed using ROS, MoveIt, OpenCV, and a custom AI move generator based on the minimax algorithm with alpha-beta pruning.
- **BEng Project (Thesis) - Supervised by Dr. Aristides Kiprakis** — **The University of Edinburgh**
  Pointing & Tracking Device for Bidirectional Laser Communication — **Sep. 2018 - May. 2019**
  - Designed and built two laser transceivers to command a submerged rover. Inverse Kinematics based motor actuation maintains system uplink in a half-spherical FOV.
  - Programmed pointing and tracking algorithm based on elliptical template matching via camera input processed in LabVIEW with occlusion-resistance using Kalman-filtering.
  - Awarded prize: IMechE Best BEng Project for 2019.
- **Final Year Group Project** — **The University of Edinburgh**
  Electromagnetic Levitation in Multiple Dimensions — **Sep. 2018 - Nov. 2018**
  - Created a stepwise control strategy to decouple a nonlinear two-solenoid MIMO system, then implemented cascaded compensators on decoupled paths for 2D levitation control.

Work Experience

- **ASEA Brown Boveri (ABB)** — **Dubai, UAE**
  Engineering Intern - Medium/Low Voltage and Building Automation — **May. 2018 - Aug. 2018**
  - Co-designed the GRMS layout for the Zabeel One project worth 500,000$.
  - Coded an automated project proposal sheet using VBA. Est. 1-2 hours saved per proposal.
  - Installed switch-gear and building automation products.
  - **Extension to August:** developed a building automation design tool using VBA for ABB's future® linear product line. It generates a bill of quotation along with local contact and legal details and a per-configuration appendix in PDF format. Reported time savings: 5 hours per client order. 2 hours per revision.

- **Jaguar Land Rover (JLR)** **Gaydon, UK**
  Engineering Intern - Body Control Module (BCM) **Jun. 2017 - Sep. 2017**
  - Received 'Outstanding' grade on performance review.
  - Coded a STATEFLOW model for blinker light control on a new car line.
  - Produced and tested BCM code for the 2017 Frankfurt Autoshow in STATEFLOW.
  - Led and took minutes for 10-person open issue list meetings and implemented a task allocation and follow-up system to boost work output.
  - Programmed and manufactured a digital strain gauge and line and wall following RC-car module to supplement challenges in JLR's '4x4 in Schools' competition.

Leadership Experience

- **Project InnSpace, The University of Edinburgh** **Edinburgh, UK**
  Executive Secretary **May. 2018 - May. 2019**
  - Conducted administration, communications, website maintenance, and event organization (teaching workshops, laboratory inductions, project exhibitions) for a 30-person society.
  - Created and maintained an online booking system in Javascript with file drop-off and process notifications for InnSpace's 3D printers.
- **Edinburgh University Formula Student (EUFS)** **Edinburgh, UK**
  Aerodynamics (2016-2017) and Suspension (2017-2018) Team Manager **Jul. 2016 - Jul. 2018**
  - Managed the design and manufacturing of suspension and aerodynamics components for teams of 8 people in each post.
  - Taught and assisted team members with CAD design in SOLIDWORKS.
  - Computed a SIMULINK model to calculate braking and cornering forces on wheels.
  - Constructed a MATLAB design tool for Parallel and Ackermann steering configurations.
  - Reviewed design reports and raised £9,000 in unmatched sponsorship (50% of budget in both years).
- **Edinburgh University Hyperloop Team (HypED)** **Edinburgh, UK**
  Dynamics Engineer **Sep. 2016 - Jun. 2017**
  - Researched halbach wheels for pod stability, thrust and braking.
  - Drafted a solenoid-actuated suspension design for pod stability.
  - Taught fibreglass manufacturing and wrote design reports.

Awards

IMechE Best BEng Project (UofE) 2019
The Edinburgh Award (extracurricular achievement - UofE) 2018
The Spirit of Formula Student Award (FSUK) 2016

Skills

- ROS
- $C++/C/Python$
- ML/AI
- $OpenCV/LabVIEW$
- $LaTeX$
- $SolidWorks/SolidEdge$
- $Altium$
- $Arduino/RaspberryPI$
- $MATLAB/SimuLink$

Languages

- $English - Fluent$
- $French - Native$
- $Arabic - Native$