AYOUB HSAINE

Robotics and Cobotics Engineer Seeking PhD Starting in September

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in Ayoub Hsaine ⌗ Ayoub Hsaine 🌐 Portfolio 🚗 Driving License B

EDUCATION

State Engineer in Robotics and Cobotics
Euromed University of Fez

📅 Sep 2021 - Jun 2024   📍 Fez, Morocco

Preparatory Cycle
Euromed University of Fez

📅 Sep 2019 - Jun 2021   📍 Fez, Morocco

Baccaleureat in Physical Sciences
Mohammed EL Rafrai High Schoo

📅 2019   📍 EL JADIDA, Morocco

PUBLICATIONS

🏆 **Exploring Maze Navigation: A Comparative Study of DFS, BFS, and A* Search Algorithms**
Statistics, Optimization & Information Computing

A comparative study was conducted using Python and Pmaze to evaluate the performance of DFS, BFS, and A* search algorithms in path planning for a maze. The main objective of the project was to compare the efficiency of these algorithms in terms of path cost and algorithmic complexity. No physical robot was used in this study as it focused solely on the analysis of search algorithms. This study contributes to the advancement of knowledge in the field of path planning by exploring different approaches for mazes using Python and Pmaze.

Link to publication: http://www.iapress.org/index.php/soic/article/view/1939

PROJECTS

Safe Box using LabVIEW MyRIO.

PepperChat: Integration of ChatGPT for intelligent conversations with the Pepper robot.

OpenCV and OCR for parking management.

Comparative Study: Path planning using search algorithms: DFS, BFS, and A*.

RoverBot: A mobile robot designed with mecanum wheels.

COVID-19 detection using support vectors, KNN, and perceptron.

EXPERIENCE

On-site Final Internship
Generation Robots

📅 March 1 to August 30, 2024

- The internship focuses on the development, implementation, and testing of algorithms that enable the GR100 robot to verify the integrity of an outdoor fence.
- Conduct a state-of-the-art review.
- Test and select the perception modalities for extracting the fence from the environment.
- Develop algorithms to verify the regularity of the fence pattern.
- Compress and optimize the model, then integrate it into the robot.
- Establish a testing framework and conduct regular tests in short loops to collect data and experience to adjust the choices of techniques implemented

On-site Research Internship
Laboratory of Systems Engineering of Versailles (LISV) at Paris-Saclay University

📅 June 19 to July 26, 2023

- The internship focuses on the interpretation and analysis of EMG signals, as well as the calculation and estimation of the elbow angle using MATLAB. This involves data collection for the triceps and biceps muscles, both with and without a 2 kg load, as well as MVC.

Remote Application Internship
CHU, Fez

📅 August 1 to August 31, 2022

- Development of a mobile application to solve the problem of prescription validation.

Summer Internship in China
Global Summer School at Zhejiang University

📅 August 1 to August 15, 2022

- Intelligent transport and smart mobility.
- IoT and intelligent service robots.

On-site Observation Internship
Floquet Monopole, Fez

📅 July 1 to July 31

Differential drive control using a fuzzy logic controller.

Design and simulation in VHDL of an electronic lock.

Real-time object detection with MATLAB.

- Familiarized with the vehicle disc production line through various operations.

SKILLS

Programming Languages: C/C++, Java, Python, and MATLAB

GUI in C++ with QT   Operations Research   Fuzzy Logic

Ubuntu   Arduino, Raspberry Pi   VHDL   LabVIEW

Simplify3D   Automation: Ladder, Grafcet, GEMMA

Docker   Sensor Technology   OpenCV and Computer Vision

Blender   Knowledge in ROS   Innovation Management

Project Management   strategic Management

Localization and Navigation Methodology (Kalman Filter, SLAM)

Design and Modeling of Robotic Systems   3DExperience

ML, DL   Signal and Image Processing   Drone Modeling

COMPETITIONS

- OpenAI Stack Hackathon.
- African Robotics Brains22 Competition.
- The 5th edition of the National Robotics Competition (NRC) featuring Spider Robot.
- ALTEN AMSA 5 Robotic Arm Project.
- HultPrise Entrepreneurship Competition.

CERTIFICATIONS

Introduction to ML and DL
Kaggle

Specialization in Embedding Sensors and Motors
Coursera

Introduction to AI
IBM

Image Processing and Signal Processing
MathWorks

VOLUNTEERING

Head of Robotics Workshops, Treasurer, and Trainer.
DIGICLUB

Head of External Relations
CYBERCLUB

LANGUAGES

English   French   Arabic   Spanish