MOHAMAD DHAYBI

Electrical Engineer/ Research Assistant

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EDUCATION

Master of Engineering: Control Systems and Machine Intelligence (Electrical and Computer Engineering)
GPA: 90.16/100

American University of Beirut

📅 09/2017 — 08/2019

Bachelor of Engineering: Electrical and Electronics Engineering
GPA: 4/4

Lebanese university (Université Libanaise)

📅 09/2012 – 07/2017

EXPERIENCE

Research Assistant on Quadcopter Robot

American University of Beirut

📅 02/2018 – Present   ⚲ Beirut,Lebanon

- Working on a project entitled: "Real-time estimation of Mass and Inertia tensor of Quadcopters for Controller Mapping".
- Applied real-time estimation of Quadcopter's parameters using Recursive Least Squares with adaptive controller Design.
- Simulation on Matlab/Simulink.
- Implementation on Quanser quadcopter Hover and Qball2 quadcopter.

Teaching Assistant

American University of Beirut

📅 09/2017 – 06/2019   ⚲ Beirut,Lebanon

- Electronic circuits laboratory
- System integration laboratory
- Electric Machines and Power Fundamentals course

Electronic Design, Manufacturing and Programming of Robots

Laboratoire d'Ingénierie des Systèmes de Versailles (LISV), Université Paris-Saclay

📅 02/2017 – 07/2017   ⚲ Paris,France

- Designed electronic Printed Circuits Boards (PCBs) containing micro-controllers such as STM32, Atmega328p on EagleCAD software to control the motors of a humanoid robot head.
- Chosen electronic components with specific dimensions, communicated with European suppliers for electronic components purchase, and integrated the adequate sensors used for motors position control.
- Designed a daisy chain for communication between the robot's nodes (sensors, actuators) using I2C.
- Applied high level control of the robot using Arduino IDE and Robot Operating System (ROS) installed on a Raspberry Pi.

PROJECTS

Mobile Robot Design and Control by Tele-operation

- Designed and built a mobile robot with a 3D printed robotic manipulator putted on its front.
- Sending orders to the robot via WIFI after detection of human hands specific movements by a Kinect camera.

Quanser quadcopter Hover System Analysis and Design

- Used state space analysis to model the Hover system and to design an adequate Linear Quadratic Regulator (LQR) controller.

Hydrogen Filling Station

- Designed a Hydrogen Filling Station powered by solar energy on Matlab/Simulink.

Arabic Image Captioning

- Use machine Learning and Computer vision to perform Arabic image captioning.

Robust Seizure Prediction

- Used Deep Learning to predict seizures for Epilepsy patients.

Servo Motor Control

- Applied the control of an LS-Mecaption servo motor in speed and position mode using a PLC programmed by XG5000 software.

Database Project

- Airlines Reservation System: Developed a C# & SQL application that manages the flights, the costumers reservations and the traveling trips departure and arrival timing of an airlines company.

Programming Project

- Optimum University Schedule Generator: Developed a C# Application developed with Visual Studio that uses Genetic Algorithm (GA) to find the optimum schedule for the faculty members of a university based on timing and availability constraints.

PUBLICATIONS

Real-time Estimation of the Inertia Tensor Elements of a Quadcopter Hover Platform

– Published and presented in IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM 2019 - Hong Kong, China).

Arabic Image Captioning Using Deep Learning

– Submitted to International Conference on Computer Vision (ICCV 2019).