PERSONAL INFORMATION

Hassan Umari

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Google Scholar profile

Date of birth 25 March 1991 | Nationality Jordan

WORK EXPERIENCE

APril 2021 – Present

Robotics Software Engineering

Agile Robots AG | Munich, Germany

Duties:
- Work on the back-end side for a web-application that allows robot operator to program robot tasks.
- Mainly using Python web-frameworks like: Django, Starlette, Ariadne, Graphene.
- Create Web-APIs, mainly Graph-QL.
- Use DDS as a middleware for communication, create different nodes using this middleware.
- Create unit and intgeration tests.
- Create CI piplelines.
- Program robot tasks.

December 2019 – April 2021

Python Developer

Bonn-Rhein-Sieg University of Applied Sciences | Bonn, Germany

Duties:
- Part-time student job
- Develop Web apps using Python/Django
- Use Wagtail CMS

April 2017 – February 2019

Research Assistant - Robotics

IRI Robotics Laboratory, United Arab Emirates University | Al-Ain, UAE

Duties:
- Mechanical design, and prototyping using 3D printing
- Design electronic circuits and PCBs
- Embedded programming (Arduino, ESP8266, Raspberry Pi)
- Robotics: navigation, pick and place, use of computer vision tools
- Documentation (writing reports, BOM, scientific papers)

Projects: *(link to my projects)*
- 3D printed wearable hand assistive device for stroke patients
- Designing a large cartesian 3D printer

Seminars and workshops:
- Introduction to the Robot Operating System (ROS)
- Introduction to Arduino

February 2015 – December 2016

Teaching Assistant

Mechanical Engineering Department, American University of Sharjah | Sharjah, UAE

Duties:
- I was a working student (during my master's, assistantship program)
- Course grading, Preparing laboratory manuals (happened once)
- Research focused mainly on my thesis

Projects: *(link to my projects)*
- Adjustable speed-controlled (PID) four-bar mechanism
- Position control of linear voice coil motor with online friction compensation (estimated using a partial-state observer)
- Multi-Robot Map Exploration Based on Multiple Rapidly-exploring Randomized Trees (thesis)

Seminars and workshops:
- Tutorial on the Robot Operating System (ROS)

August 2014 – December 2014

Junior Automation Engineer

Al-Wefaq Control Systems | Amman, Jordan

Duties:
- PLC programming: Siemens Simatic S7-1200, TIA portal, HMI
- Testing panel boards
- Documentation (SAT, FAT, BOM)
- Prepare CAD drawings for panel boards (AutoCAD)

June 2013 – August 2013

Mechanical Engineer Intern

King Abdullah II Design and Development Bureau (KADDB) | Amman, Jordan

Projects:
- PI controlled self-balancing robot using complementary filter for angle estimation
- Build a setup for identifying quadrotor's propeller thrust and torque coefficients

EDUCATION

February 2015 – May 2017

M.Sc. in Mechatronics Engineering

American University of Sharjah | Sharjah, UAE

CGPA 3.7/4.0 (Excellent)

Major Subjects:
- Advanced Control Systems
- Adaptive Control Systems
- Modeling and Simulation of Dynamical Systems
- Embedded Systems
- Automated Manufacturing Systems

Thesis topic: Multi-Robot Map Exploration Based on Multiple Rapidly-exploring Randomized Trees

September 2009 – June 2014

B.Sc. in Mechanical Engineering

Jordan University of Science and Technology | Irbid, Jordan

CGPA 80.8/100.0 (Very Good | Twice on semester's honor list)

Major Subjects:
- Machine Design
- Mechanical Vibrations
- Automatic Control
- Microcontrollers
- Robotics
- Circuit Analysis and Electronics
- Automation

Senior design project: System Modeling of a Variable Pitch Quadrotor

2008 – 2009

High School Certificate, Science Stream

Irbid Secondary School | Irbid, Jordan

CGPA 92.6/100.0 (Excellent)

PROFESSIONAL SKILLS

Engineering

- MATLAB/Simulink and Octave
- Eagle (PCB design)
- LabView

CAD

- Autodesk Fusion360
- PTC Creo
- Autodesk AutoCAD
- Autodesk Inventor

Software Development

Programming languages:

- Python
- Embedded C
- Javascript
- C++
- MATLAB
- Assembly (Motorola 68HC11 instruction set)

Robotics:

- Robot Operating System (ROS)

  Developed several packages, one of which is documented on ROS Wiki, Package name: rrt_exploration, it was written in C++ and Python.

- OpenCV
- Numpy

Marking-up languages:

- Markdown
- CSS
- HTML
- Latex

Web frameworks:

- Django
- Wagtail CMS

Tools:

- Git
- Docker
- CI/CD
- Vagrant

Hardware

Computers:

- Arduino
- Raspberry Pi
- PIC Microcontrollers
- dSPACE (Data acquisition with MATLAB)
- Motorolar 68HC11 (Assembly)
- National Instruments MyRIO

PLC:

- Siemens S7-1200
- Allen-Bradly

Interfacing:

- Serial communication: UART, SPI, I2C
- Interfacing with different types of actuators
- Analog/digital sensors

ADDITIONAL INFORMATION

Publications

1. Hassan Umari and Shayok Mukhopadhyay, "**Autonomous Robotic Exploration Based on Multiple Rapidly-exploring Randomized Trees**, " in Proceedings of the **IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)**, Vancouver, BC, Canada, 2017, pp. 1396-1402. doi: 10.1109/IROS.2017.8202319
2. Hassan Umari, "**Multi-robot Map Exploration Based on Multiple Rapidly-Exploring Randomized Trees**," M.S. thesis, Dept. Mech. Eng., American Univ. of Sharjah, Sharjah, UAE, 2017

Awards

- A member of a 2nd place winner- team, at URC 2013 robotics competition, in the ball collection theme. Amman, Jordan

LANGUAGES

Arabic	Native
English	Proficient (97 TOEFL IBT , 2017)
German	Basic (A2)