ESSA ALGHANNAM

Date of birth: 18/07/1987

Nationality: Syrian

Gender: Male

CONTACT

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Lattakia, Syria **(Work)**

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ABOUT ME

- Lecturer in the Mechatronics Engineering Department, Faculty of Mechanical and Electrical Engineering, Tishreen University since February 2020.
- Lecturer in the Department of Mechatronic Engineering and the Department of Robotics and Intelligent Systems at the Faculty of Engineering at Manara University since September 2021.
- Skills in Teaching C++, Matlab, image processing, Robotics, microcontrollers since 02.2020.
- Supervisor of many projects in the field of Mechatronics and Robotics since 02.2020.
- Director of the Robotic Club at Tishreen University since October 2021.

WORK EXPERIENCE

05/02/2020 – CURRENT – Lattakia, Syria

Lecturer

Tishreen University

I have theoretical and practical experience for 3 years in teaching students of **Mechatronics Engineering Program** the following courses:

1. Robotics.
2. Image processing.
3. Mechatronic applications.
4. Power electronics.
5. Digital electronic circuits.
6. Computer basics.

In cooperation with the **Scientific Research Center**, co-supervisor of following projects for bachelor students in the **Program of Mechatronics for Distinguished** between 2020-2022:

1. Design and implementation of a CNC machine for printing electronic circuits with modeling and controlling the sintering system.
2. Design and Implementation of an underwater Glider.
3. Design and Implementation of a computational motion planning algorithm based on fluid dynamics PDE for Robotic Swarms.
4. Design and control of an Induction-based spherical joint.
5. Design of 2-DOF Camera-Stabilization system for object tracking.
6. Designing a Passive Autofocus Feedback Control System.

Supervisor of many Master's students in the filed of mechatronics [All students studies are still in progress except one entitled "Develop a Voice Recognition System Using Convolutional Neural Networks for Robot Control" which has been defended in August 2022].

14/10/2021 – CURRENT – Lattakia, Syria

Robotic Club Director

Tishreen University

As a manager of the robotic club in the Tishreen university, I was the supervisor of executing the following projects:

1. **Design and Implementation of 5DOF Color and Shape Sorting Manipulator:** this project includes mechanical and electronic design, and process design and implementation of

5DOF robotic arm with five rotational joints by SolidWorks and 3D printer. Image processing method and DH method were employed in this project to achieve "Pick and Place" application and sorting objects by color and shape. C#, Matlab and Arduino were used as software environment in this project.

2. **Automatic sorting system using 5DOF Robot Arm Provided by Machine Vision:** this work included the Integrating Motion Control with Machine Vision through ROS environment. This project came in the third place and was granted the bronze prize in 2021 National University Competition for Robotics and Intelligent Systems, Damascus, Syria.

3. **Self-driving car's Autonomous Navigation: Simultaneous Localization and Mapping:** using effectively ROS, RViz and Gazebo to build a map of the surrounding unknown environment, and then simulate the robot motion through it to the target.

4. **Design and Implementation of a Balancing Table:** This project includes the Mechanical and Electrical design, the forward and inverse kinematic model, dynamic model, Kalman filter, control system and simulation and modeling using MATLAB.

5. **Converting a Manual Milling Machine into CNC Milling Machine**

6. **Descriptive Study of the Industrial Automation Platform (IAP)**

01/09/2021 – CURRENT – Lattakia, Syria

Lecturer

Manara University

01/01/2017 – 15/10/2017 – Wuhan, China

Management aide

DongFeng Motor co., Ltd.

I got involved in the Syrian project management of DongFeng Motor co., Ltd. in 2017.

I also had internship about the assembly process in the factory land in Liuzhou.

Address Wuhan, China

EDUCATION AND TRAINING

01/12/2015 – 31/12/2019 – Wuhan, China

Ph.D. Degree in Mechatronic Engineering

Wuhan University of Technology, Wuhan, China

Address LAUSHI LU, Wuhan, China │ **Field of study** Mechatronics Engineering │ **Final grade** 84.6% │ **Thesis** Research on a Vision-Fuzzy System for Surface Quality Estimation of Resistance Spot Welding in the Car Underbody

01/12/2012 – 01/07/2015 – Wuhan, China

Master's Degree in Mechatronic Engineering.

Wuhan University of Technology, Wuhan, China.

Address LAUSHI LU, Wuhan, China │ **Field of study** Mechatronics Engineering │ **Final grade** Excellent 91.2% │ **Thesis** Design and Implementation of Novel Motion Planning for a Wheeled Mobile Robot with the Presence of Obstacles.

01/09/2005 – 01/07/2010 – Lattakia, Syria

Bachelor degree

Department of Mechatronics Engineering, Tishreen University

I was awarded the best-undergraduate student award "Al-Basel Prize" 3 times during my study for the bachelor degree in mechatronics. Al-Basel Prize is given to the top outstanding students in university colleges.

Address Lattakia, Syria │ **Field of study** Mechatronics │ **Final grade** Excellent 83.24%

LANGUAGE SKILLS

MOTHER TONGUE(S): Arabic

OTHER LANGUAGE(S):

English

Listening	Reading	Spoken production	Spoken interaction	Writing
C1	C2	C1	C1	C1

Chinese

Listening	Reading	Spoken production	Spoken interaction	Writing
A1	A1	A1	A1	A1

PUBLICATIONS

15/01/2015 – CURRENT

Publication

1. E. Alghannam, L. Hong*, M. Ma, Q. Cheng, A. Gonzalez, Y. Zang and S. Li, "A Novel Method of Using Vision System and Fuzzy Logic for Quality Estimation of Resistance Spot Welding," Symmetry (Basel)., vol. 11, no. 8, p. 990, Aug. 2019. [SCI Online] [Web of Science (SCI Journal Paper)]

2. L. Hong, W. Fan, Y. Zhang, He Ling, S. Wang, E. Alghannam, M. Duan, "Cross-coupled fuzzy logic sliding mode control of dual-driving feed system," Adv. Mech. Eng., vol. 10, no. 2, 2018. [SCI Online] [Web of Science (SCI Journal Paper)]

3. E. Alghannam, H. Lu, Y. Zhen, and O. Esmail, "Design and Implementation of Novel Motion Planning for a WMR with the Presence of Obstacles," J. Autom. Control Eng., pp. 31–39, 2017. [Online] [Conference Paper]

4. D. Younes, Y. Tan, C. Xin, E. Alghannam, and A. Altazah, "Design of Control System for 3D Printer Based On DSP and FPGA," J. Autom. Control Eng., vol. 6, no. 1, pp. 40-46, 2017. [Online] [Conference Paper]

5. Cheng, Q., Lu, H., Alghannam, E., Ling, Z., Xue, J., Wang, D., & Dou, H, "Adaptive Dual-Drive Synchronization Control Strategy," 2019 6th International Conference on Systems and Informatics (ICSAI), Shanghai, China, 2019, pp. 63-69, doi: 10.1109/ICSAI48974.2019.9010136. [IEEE online] [Engineering Village (EI Conference Paper)]

6. Zang, Y., Lu, H., Zhang, Y., Alghannam, E., Guo, Z., & Li, L. (2019). A Straightness Control System for Motor Shaft Straightening with the Stroke Prediction Algorithm. 2019 6th International Conference on Systems and Informatics (ICSAI), Shanghai, China, 2019, pp. 57-62. [IEEE online] [Engineering Village (EI Conference Paper)]

7. Li, S., Lu, H., Ma, M., Zhou, W., Lit, B., & Alghannam, E. (2019). Laser Strip Center Extraction Methodology for the Detection of Weld Seam. 2019 6th International Conference on Systems and Informatics (ICSAI), Shanghai, China, 2019, pp. 1308-1313. [IEEE online] [Engineering Village (EI Conference Paper)]

8. Lu, H.; Ma, M.; Liu, S.; Alghannam, E.; Zang, Y.; Li, S.; Zhang, W. Visual-Based Multi-Section Welding Path Generation Algorithm. Processes 2020, 8, 821. [SCI Online] [Web of Science (SCI Journal Paper)]

9. Younes, D.; Alghannam, E.; Tan, Y.; Lu, H. Enhancement in Quality Estimation of Resistance Spot Welding Using Vision System and Fuzzy Support Vector Machine. Symmetry 2020, 12, 1380. [SCI Online] [Web of Science (SCI Journal Paper)]

10. Aswad, A.; Alghannam, E.; Qingying, Z. Developing MFCC-CNN based Voice Recognition System with Data Augmentation and Overfitting Solving Techniques. 2022. (Conference Paper-Accepted)

SKILLS

- **C++, Matlab, Robot Control, Image Processing, Microcontrollers, Mechatronics Applications.**

CERTIFICATES & AWARDS

02/2011

Al-Basel Prize

Al-Basel Award for Academic Excellence and the first graduate three times during the undergraduate studies at Tishreen University, Department of Engineering Certificates and Awards

Mechatronics.

Competition Award

An award for participating in an engineering science competition between three Australian and Chinese universities, which was held in Wuhan in 2014.

Training Certificate

A training certificate from the Chinese Dongfong Automobile Company in 2017.

Conference Certificate

Certificate of participation with a scientific paper in the ICMDE 2018 conference in Beijing, China.

Forum Certificate

Certificate of participation in the ISMSS Forum 2019 held in Wuhan.

Conference Certificate

Certificate of acceptance with a scientific paper at the AIMEE 2022 conference in Wuhan, China

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Essa Alghannam

30/09/2022

ESSA ALGHANNAM