

## **Khaled Saleem Hatamleh, Ph.D.**

**Associate Professor.**

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### **SHORT BIO**

As a faculty member at Jordan University of Science & Technology (JUST), I always strive to do my best to fulfill my duties and responsibilities, divided into **teaching at 80%** and **research at 20%**. To date, I have successfully supervised and co-supervised 60 undergraduate students for their senior Design project at JUST. In addition, I have supervised or co-supervised the research projects of more than 16 master's students. Many of my graduates and master's students are currently employed at reputable institutions as lab engineers, instructors, researchers, or in other leading positions or are currently pursuing their Ph.D. degrees. I have taught more than 1100 students during my service at JUST (2011-2016) & (2021-current time) from different Engineering departments such as Aerospace Engineering, Civil Engineering, Industrial Engineering, and mainly Mechanical Engineering. Most instructed courses were in the undergrad and graduate levels of the mechatronics field, plus Statics and Dynamics and control courses for the mechanical engineering students. I love engaging in class discussions and dynamically administering courses involving problem-solving activities and critical thinking. Based on feedback from my students and official student evaluations, I feel that I've impacted my students and inspired them always to give their best and aim high.

### **Research interests**

- Robotics and UAVs; Modeling, online parameter/state estimation methodologies.
- Guidance Navigation and Control: Trajectory tracking of Mobile Robots and UAVs.
- Robotic systems control.
- Design of special Inertial Measurement Units (IMU).
- Embedded Systems.
- Dynamics & Control
- Automation.
- Mechatronics.

### **Education**

- **Ph.D. in Mechanical Engineering** from **New Mexico State University (NMSU)**, Las Cruces, **NM, USA** (2006-2010). **GPA** of **(4.0/4.0)**, **Dissertation title:** "Development of a UAV Model Parameters Estimation Methodology, with a Unique Inertial Measurement Unit IMU." (Ranked 1<sup>st</sup> among a group of 20)
- **M.Sc. in Industrial Automation Engineering** from **Yarmouk University**, JORDAN, (2004-2006). **GPA** of **(91.3/100)**, **Thesis Title:** "System Identification and Control of a Radial Gas Turbine Driving a High-Speed Alternator." (Ranked 1<sup>st</sup> among a group of 15)
- **B.Sc. in Mechanical Engineering (Mechatronics)** from **Jordan University of Science & Technology (JUST)**, JORDAN, (1997-2002). **GPA** of **(76.0/100)**, **Project title:** "Cars Cruise Control System." (Ranked 11<sup>th</sup> among a group of 100)

### **Personal Information**

- Nationality: Jordanian.
- Gender: Male.
- Marital status: Married.

### **Scholarship, Fellowships, Funding, and Awards**

- Teaching fellowship, Mechanical & Aerospace Engineering Department, New Mexico State University, Las Cruces, NM, USA, 2010.
- Research assistantship for the Ph.D. program, funded by Physical Science Laboratory (PSL), supervised by Professor Ou Ma (2008-2010)
- Honored academic excellence from New Mexico State University for the Ph.D. program.
- Honored for academic excellence at Yarmouk University for the M.Sc. program.
- 2017-Deanship of Research Fund 100,000 USD at Jordan University of Science & Technology.
- 2014-Gulf Grant of 1,250,000 USD for the engineering faculty at Jordan University of Science & Technology.
- 2012-KADDB Fund of 15,000 USD.
- 2013-Deanship of research Fund 8,000 USD at Jordan University of Science & Technology.

### **Professional experience**

- **(Current since Feb 2021):** Associate Professor at the Mechanical Engineering Department of *Jordan University of Science & Technology*, Irbid, **Jordan**, where I serve the mechanical engineering department in several aspects:
  - **Mechatronics focus group coordinator:** I hold regular meetings with the departments' mechatronics faculty to discuss next semester course scheduling for the undergrad and graduate tracks, follow up Mechatronics LABs needs, develop new mechatronics course offering, assign mechatronics faculty for promotion committees, and discuss track contemporary issues.
  - **Teaching** several mechatronics, dynamics and control courses including:
    - **ME 784** Introduction to Robotics.
    - **ME 425** Microcontroller Applications
    - **ME 774** Programming Tools and Methods for Mechatronics Engineers.
    - **ME 773** Modeling and Simulation of Dynamics systems.
    - **ME 446** Control Systems lab
    - **ME 215** Engineering mechanics.
  - **Member** of the JUST DeCAIR committee (a European-funded project to develop the mechatronics master program at JUST several MENA region co-universities). JUST committee is responsible of representing JUST university in the DeCAIR project. JUST received a fund to develop the Artificial Intelligence advanced course and the advanced mobile course; JUST members will participate in several related workshops to update their skills and knowledge in the field. In addition, JUST is granted simple robotics arms, drones, and mobile robots to facilitate teaching the newly developed courses for the mechatronics graduate students. The platforms are also perfect for future experimental research.
  - **Supervise** undergraduate Senior Design Projects. Below is a list of the latest supervised SDPs
    - **(2022-2023) Simple NXT-mind storm-based mobile robot trajectory control.** Four undergraduate students are working to build a mobile robot using LEGO NXT-EV3 kit. The Robot is intended to have a wireless communication with a main PC station. The station can perform closed loop mobile robot trajectory tracking using onboard mobile robot sensor feedback. Project aims to develop the controller under MATLAB.
    - **(2021-2022) Coaxial UAV design and prototype.** four undergraduate students involved. The project aims to prototype an initial model for a coaxial UAV for surveillance applications.
    - **(2021-2022) recycling plastic into 3D printer filament phase I.** Three undergraduate students were involved. The project aims to design and build a prototype machine that can domestically recycle plastic waste into a filament that can be used for 3D printers. Project phase I finished successfully with minor adjustments.

- (2022-2022) **recycling plastic into 3D printer filament phase II**. Four undergraduate students are involved to adjust the performance of phase I prototype. Focus is paid into the cooling system of the produced filament & wrapping of the cooled filament. In addition, phase I prototype needs minor mechanical enhancements and the addition of some control units to monitor the process.
- (2021-2022) **Wall drawing Robot Phase I**. Three undergraduate students were involved. The project aims to design and build a prototype Robot that can access a specific workspace on a wall to draw any desired sketch and paint it. Phase-I is finished. I am currently recruiting a team of three students to carry on phase II which will mainly increase the mobility of the Phase-I prototype.

- **Supervise** Mechatronics Master Programs student thesis: Below is a list of my current/previous supervised students.

Student Name	Topic	Supervise era
Hamzeh Alothman	Adaptive SMC for UAV Trajectory Tracking Using Fuzzy Logic & PSO	Main-Advisor FEB 2022- current
Anas Abu Shaker	Intelligent Adaptive Fractional Order Full State Feedback Controller for Mobile Robot trajectory tracking using Gray Wolf Optimization.	Main-Advisor FEB 2022- current
Mohammad Alzoum	Higher DOF Robotic Arms Inverse Kinematics & Inverse Dynamics using Deep Learning Techniques	Main-Advisor FEB 2022- current
Mutaz Almomani	A Hybrid Intelligent Adaptive IOSFL Controller for Mobile Robot Trajectory Tracking Using PSO and Fuzzy Logic	Main-Advisor 2021-2022
Baker Shehadeh	UAV parameter Estimation using Hybrid Iterative Bisection Shooting Method and PSO technique.	Main-Advisor Oct 2021- current

- **(Aug-2018 to Dec 2020)**: Chair of the Engineering Technology & Science department at Ras Al-Khaimah Men's College of the Higher Colleges of Technology in UAE. Taught several courses, including **ELE 2613** PLCs, **MTE 3623** Microcontrollers systems, **EGN 2712** Applied Programming for Engineers, **Industrial Automation course** & **MTE 4603** Robotics Technology. In addition, I carried out below responsibilities:
  - Chair of the ETS division biweekly meeting at Ras Al-Khaimah campus. I gained excellent management skills through this position as I led a group of 23 faculty members for two years and serviced more than 750 undergraduate students.
  - Representative of the ETS divisions at Ras Al-Khaimah Campus Council meeting and the Ras Al-Khaimah Academic Council biweekly meetings.
  - PAC Chair of the Mechanical Engineering Program Academic Committee. I represent the Mechanical Engineering Program at the Executive Dean's Council for all HCT colleges (7 campuses). The PAC Chair holds a biweekly meeting with the Mechanical Engineering Program Team Leaders (PTLs) at all campuses and reports the Mechanical engineering program updates and recommendations to the biweekly Engineering Dean's council.
  - Plan Course Schedule for the Mechanical Engineering & Mechatronics Engineering Programs.
  - Hold group advising meetings between advisors and regular and academically struggling students.
  - Follow up Add/drop issues with Academic services and resolve all registration issues.
  - Plan and hold several extracurricular activities during each semester. Build and update the Mechanical Engineering study plan. In addition, I developed two graphical tree study plans for the mechanical and mechatronics engineering programs to enhance the advising process and help the students.
  - Plan and head the Industrial Advisory Committee (IAC) Meeting for all engineering Divisions at RAS-Al-Khaimah College. In addition, I planned and ran a system-wide IAC meeting for the Mechanical, Mechatronics, and Electrical Engineering divisions across all HCT colleges.
  - Recruit Mechanical and Mechatronics Engineering faculty and LAB Assistants. The Process includes filtering many applications and holding several interviews to conclude suitable candidates following campus needs.
  - Perform Class observations for Ras Al-Khaimah campus ETS division faculty.
  - Communicate lists of engineering students eligible for engineering training for the Career office at the beginning of each semester.
  - Follow up on LAB and equipment maintenance monthly with all LAB instructors to report any issue in advance.
  - Member of the HCT Tender committee system-wide for the Mechanical Engineering Program.

- Judge for the senior design Project competition (campus-wide and system-wide).
- Evaluate and approve all Senior Design Project offering for Ras Al-Khaimah faculty each semester.
- Approve all purchase requests for Senior Design Projects, Lab maintenance/equipment, and other expenses of the ETS division.
- Moderate Final Exams for all courses of the mechanical engineering program.
- Write Final exam material for courses I taught and follow up submission of Final exam material for all faculty of the Mechanical Engineering Program System-Wide.

During my service at HCT. I went through many professional development workshops to elevate my capabilities using the **Blackboard** system to teach online, develop question banks, exams, breakout rooms, Kahoot, online teaching tools, collaborate ultra, etc.

- **(Aug-2016 to Aug 2018)**: Visiting Assistant professor at the Mechanical Engineering Department of the *American University of Sharjah* AUS, Sharjah, UAE. Teaching **MCE\_311** (engineering Measurements), **MCE\_464** (introduction to robotics), **MCE\_331** (Manufacturing Processes), **MCE\_343** (Mechanical Vibrations), **MCE\_220** (Statics), **MCE\_224** (statics & Dynamics), and **MCE\_222** (dynamics). I also prepared the *ABET* portfolio for all courses, supervised several senior design projects, and served as a member of a few committees at the department and member of the **ISMA 18** conference organizing committee.
- **(Sep-2011 to Aug-2016)**: Assistant Professor at the Mechanical Engineering Department of *Jordan University of Science & Technology*, Irbid, Jordan. I served the mechanical engineering department in several aspects:
  - 1- **Developing** and **directing** the “**AI and Robotics Center**” at Jordan University of Science & Technology with the help of my colleagues and university workshops (funded by a Gulf grant of JUST 1,250,000 USD). Establishing the lab took over three years; funds were obtained based on a budget we applied for in 2013. The lab holds a **6x6x8** space equipped with a **VICON** motion tracking system with 8 Bonita cameras fully operational and used mainly for ongoing research on mobile robots’ trajectory tracking controllers using AI techniques. In addition, the LAB has the **KUKA KR6-L2** industrial robotic arm deployed as a research tool to verify previously developed control, state estimation, and parameter estimation algorithms mainly for trajectory following with obstacle avoidance under uncertain model parameters disturbances and noisy feedback signals. Moreover, the LAB has several **robotic kits**, **mobile robots**, and **UAVs** planned to be used for future research. LAB operation started during Summer of 2016 by verifying some developed robot tracking.
 

The UAV LAB team submitted a proposal to the European Union Erasmus Mundus to turn the LAB into a leading AI/Robotics center in the region. The center aims to conduct state-of-the-art research work in collaboration with regional and international centers of the same interest. In addition, the center is proposed to serve as an incubator for future scientists in robotics and Artificial Intelligence. The Proposal was approved in 2020. The support is ongoing to enhance the AI and Mobile Robots courses regarding theoretical training and equipment updates.
  - 2- **Member** of the **ABET** accreditation committee at the mechanical engineering department. Committee met every other week, discussed the timely procedure of filling course portfolios, and prepared student assessment surveys, advisory board surveys, graduate student surveys, and alumni surveys. In addition, the committee prepared general guidelines files for other faculty and teaching staff. The policies contain detailed information on filling the course portfolios and designing the course assessment report. We have also trained engineers in the department to help other faculty members prepare ABET course portfolios. The committee has finalized and submitted the Self Study Report **SSR**. the ABET accreditation was granted to Jordan University of Science & Technology's mechanical engineering department.
  - 3- **Director** of Jordan University of Science & Technology student Formula team 2015-2016. By the summer of 2016, the car was ready to participate in the Student Formula competition at Silverstone circuit UK. The formula student team consists of more than 24 students who worked on developing a formula car from scratch. Students designed and implemented car frame, suspension system, cooling system, intake and exhaust systems, differential, electrical wiring and engine tuning, brake system, formula car shell, and many other detailed components.
  - 4- Department **representative** at the engineering faculty council.
  - 5- Member of tender assessment committees.
  - 6- I also taught many courses:
    - **ME 425** Microcontroller Applications.
    - **ME 770** Embedded Systems in Mechatronics.
    - **ME 547** Robotics
    - **ME 784** Introduction to Robotics.
    - **ME 462** Automatic Control (1).

- **ME 547** Mechatronics System Integration (Automation & PLCs)
- **ME 703** Computational Techniques in Mechanical Engineering (Adv. Numerical).
- **ME 774** Programming Tools and Methods for Mechatronics Engineers.
- **ME 446** Mechatronics Lab 1.
- **ME 454** Mechatronics Lab 2.
- **ME 472** Instrumentation and Dynamic Systems Lab.
- **ME 215** Engineering Mechanics: Statics
- **ME 212** Dynamics.
- **ME 222** statics and dynamics for non-ME students.

#### 7- List of supervised theses for previous Mechatronics M.Sc. program students

Yusra AL-Tamimi	Omni Wheel directional control robot fuzzy logic trajectory planning.	Main-Advisor 2016-2017
Emad Yagmour	Grasp Planning of Radom Objects Using Artificial Intelligence	Main-Advisor 2015-2017
Ahmad Al-Ali	Modeling and Simulation of a Moving Robotic Arm Mounted on a Wheelchair.	Main-Advisor 2015-2017
Oraib Bataineh	Simultaneous Localization and Mapping for Indoor Dynamic Environments using a mobile robot	Main Advisor 2015-2016
Ahmad Abu-Qumsan	Modeling and Sliding Mode Control of KUKA KR6-L2 Robotic Arm.	Main-Advisor 2014-2015
Asad Ahmad	Application and Assessment of Several Dynamics Model Parameters Estimation Techniques for Unmanned Aerial Vehicles	Main-Advisor 2013-2014
Ebtihal Bani-Younis	Design enhancement, implementation, and calibration of a special inertial measurement unit for unmanned aerial vehicle	Main-Advisor 2012-2014
Enas Rababeh	Trajectory tracking of mobile robot in a dynamic environment using the fuzzy logic	Co-Advisor 2015-2016
Firas Shatnawi	Optimization of Thermal photovoltaic systems for maximum conversion efficiency	Co-Advisor 2014-2016

- **June 2011 to Aug-2011**: Part-time Assistant Professor at the Mechatronics Engineering Department of the German Jordanian University, Amman, Jordan. Taught the following courses:
  - **Linear systems.**
  - **Programmable Logic controllers (PLCs)**
- **Aug-2010 to May 2011**: Faculty Assistant Professor at the Mechanical and Aerospace Engineering Department, **New Mexico State University**, Las Cruces, NM, USA. Teaching the courses of **ME 234** (Dynamics), **ME 329** (Engineering Analysis II) for the undergrad level, and **ME 580** (Engineering Analysis II) for the graduate level.
- **May 2007 – December 2010**: Team Lead and Research Assistant of the Unmanned Aerial Vehicles (**UAV**) system identification research project at the Mechanical and Aerospace Engineering Department of **NMSU** supervised by Professor Ou Ma. The team consisted of three graduate and three undergraduate students.
- **Fall 2008**: Mechatronics course Instructor/TA (**ME 487**). Tutored and designed the course Lab experiments and supervised the course project; at the end of the course, all the students created a line follower car robot using LEGO sets and low-cost off-the-shelf sensors/interfaces circuits.
- **August 2006 – August 2007**: Teaching Assistant at the Mechanical and Aerospace Engineering Department of New Mexico State University (**NMSU**) for the following courses:
  - Engineering Problems Solving Using MATLAB (**ME 260**).

- Introduction to Automation Design (**ME 452 controls**).
- Engineering Analysis II (**ME 329** numerical methods).
- **April 2003 – July 2006**: Mechatronics LAB engineer at the Mechanical Engineering Department of Jordan University of Science and Technology (J.U.S.T); Taught and designed the LAB experiments for 7 semesters. The experiments included pneumatic/electro-pneumatic circuits design and implementation, electro-hydraulic circuits, implementation; practical Microcontroller board, a programming/control/interface with several sensors and actuators, Fuzzy control, and Programmable Logical Controllers (PLCs). I also helped supervise several mechatronics-related graduation projects of the undergrad students, like the unmanned submarine project, the minesweeper project, and the robotic arm project.
- **December 2002 – March 2003**: lecturer engineer in Al-Buthainah car training center; I was the chief engineer who trained 30 students on modern automotive technologies and maintenance procedures.
- **June-August 2001**: Engineer under training (**Arab Industrial Engineering Company**, Al-Hassan industrial city, AL-Ramtha, Jordan).

**Related course work:** *Dynamics, Statics, Engineering Analysis II (Numerical Methods) for both the undergrad and grad levels, Advanced Linear, controls, Robotics, PLCs, Industrial Automation, Image Processing, fuzzy control, Mechatronics, System Modeling & simulation, Programming Tools and Methods for graduate level, Digital circuit Design, Microcontrollers application, Mechatronics System Design, Embedded Microcomputer Systems (grad level), CAD/CAM, Industrial Electronics, Applied Mathematics (applied ODEs and PDEs) grad and undergrad levels, mechanical vibrations, manufacturing processes, engineering measurement, introduction to engineering, and sensors and actuators.*

### **Projects:** *(details are available upon request)*

- **(2017-2018) Design and Implementation of an automation system for inserts of precast thermal insulated blocks.** Four undergraduate students are involved. The project aims to expedite the manufacturing rate of thermal insulated precast building blocks for an existing factory in Abu-Dhabi. The proposed automation system's production rate will increase by 450 blocks/hour. The project is a prototype for possible actual implantation at HiTech group in Abu-Dhabi.
- **(2017-2018) Motorized exoskeleton rehabilitation walker.** Four undergraduate students are involved. The project aims to design a starting phase for a motorized rehabilitation walker to assess people needing a walker that can walk straight and climb stairs using a unique 3-wheeled front rolling mechanism. The walker synchronizes the patient leg motion with the walker rolling motion.
- **(2016-2017) Design and Implementation of a palm tree Omni wheel-based climbing robot;** 5 undergraduate students are involved. Project nominated among the best three projects for the year at the Mechanical Engineering department of AUS.
- **(2016-2017) Design and Implementation of mobile streetlight cleaning system,** five undergraduate students are involved.
- **(2015-2016) Design and Implementation of a low-power solar panel tracking system (new concept; accelerometer-based tracking),** two undergraduate students are involved.
- **(2015-2016) Three undergraduate students are designing and implementing solar panel cable-based cleaning robots.**
- **(2015-2016) Design and Implementation of a small-scale solar refrigeration system without a compressor,** two undergraduate students are involved.
- **(2015-2016) Three undergraduate students are involved in designing and implementing the wheelchair stair climbing mechanism.**
- **(2015-2016) Design and Implementation of a Kinect-based visual remote-control system of a 5 DOF robotic arm,** two undergraduate students are involved.
- **(2015-2016) Design and Implementation of a motorized stair climbing cart.** Three students were involved.
- **(2014-2015) Design and Implementation of a visual laser-shooting practice system,** a laser gun shoots a laser into a target observed by a standalone vision capture system (LabView programmed and operated). The vision system counts the number of laser shots inside and outside the shooting target. In addition, it gives precise feedback of the laser shot position concerning the center of the shooting target regardless of the camera orientation concerning the shooting target. 2 undergraduate students were involved, and they produced a conference paper that will be presented soon in ISMA 2015, Sharjah UAE
- **Design and Implementation of a Smart Home automation System,** two students involved.
- **Design and Implementation of a remote system to control a wheelchair via smartphone Bluetooth connection.** Bachelor's degree project at Jordan University of Science & Technology, 1 student was involved. A rear DC motor drives the wheelchair

forward and backward. Another DC motor runs the steering mechanism. All motors are operated remotely using a smartphone touch screen connected to the controller through Bluetooth.

- **Design and Implementation of a remote system to control a wheelchair Via smartphone through Wi-Fi.** Bachelor's degree project at Jordan University of Science & Technology, two students were involved. This is phase II of the previous project; A CC3000 Wi-Fi shield for Arduino replaced the Bluetooth module to grant a more comprehensive communication range between the user and the wheelchair.
- **Design Enhancement, implementation, and calibration of a special Inertial Measurement Unit for Unmanned Aerial vehicle applications.** Master's degree project at Jordan University of Science & Technology, one graduate student was involved. **Funded by the faculty of scientific research of Jordan University of Science & Technology (8000 \$).**
- **Rate Gyro Calibration platform design and implementation Phase I and II.** Bachelor's degree project at Jordan University of Science & Technology, six students were involved. The platform has **fuzzy** or **PID** control options for a DC motor that drives a rotating disk at several set speeds fed by the user through an interactive touch screen. The platform serves as a calibration device for rate gyro sensors. **Funded by King Abdullah II Fund for Development – KAFD & King Abdullah II Design & Development Bureau – KADDB (15,000 \$).**
- **Design and implementation of a zero-gravity test stand for Unmanned Aerial Vehicles.** Bachelor's degree project at Jordan University of Science & Technology, three students were involved.
- **Design and implementation of a variable pitch Quadrotor.** Bachelor's degree project at Jordan University of Science & Technology, two students were involved. **Funded by King Abdullah II Design & Development Bureau – KADDB (5,000 \$).**
- **Design and implementation of a simple 4 DOF robotic arm to be controlled by a mouse/keyboard interface.** Bachelor's degree project at Jordan University of Science & Technology, two students were involved. A USB mouse is used to move a 4-DOF robotic arm as a prototype where the robotics arm can be used to replace human hands in hazardous environments
- **Supervised two undergraduate teams for the national university robotics competition 2013 in Jordan.** Won 2<sup>nd</sup> place in the ball collection theme.

### Journal Publications ([Google Scholar account](#))

- 1- [Khaled S Hatamleh](#), M A Jaradat, et al., “**A Hybrid Intelligent Adaptive IOSFL Controller for Mobile Robot Trajectory Tracking Using PSO and Fuzzy Logic.**” **Submitted** to the journal of *Applied Soft Computing* Sep **2022**
- 2- Ahmad Alshorman, [Khaled S Hatamleh](#), M A Jaradat, et al., “**Robotic Grasp Planning of Random Objects Using Genetic Algorithms and Fuzzy Logic.**” **Submitted** to *Neural Computing and Applications* Sep **2022**.
- 3- [Khaled S Hatamleh](#), M A Jaradat, et al., “**Quasi-Continuous second order SMC for SCARA under noisy feedback and modeling uncertainties.**” *Journal of Intelligent and Robotic Systems (JINT)*. 103(35). **2021**. DOI: <https://doi.org/10.1007/s10846-021-01464-5>.
- 4- Mohammad Al-Shabi, [Khaled S. Hatamleh](#), Stephen A. Gadsden, Bassel Soudan, and A. Elnady, “**Robust Nonlinear Control and Estimation of PRRR Robot System**” *International Journal of Robotics and Automation*.34(6). **2019**. DOI: 10.2316/J.2019.206-0160
- 5- [Khaled S. Hatamleh](#), Qais Khasawneh, Adnan Al-Ghasem, M. A. Jaradat, Laith Sawaqed, and Mohammad Al-Shabi., “**Scanning Electron Microscope Fine Tuning Using Four-Bar Piezoelectric Actuated Mechanism.**” *Journal of Electrical Engineering* 69(1), pp 24-3. **2018**. [http://iris.elf.stuba.sk/JEEEC/data/pdf/1\\_118-03.pdf](http://iris.elf.stuba.sk/JEEEC/data/pdf/1_118-03.pdf)
- 6- Laith Sawaqed, [Khaled S. Hatamleh](#), Qais Khasawneh, and M. A. Jaradat., “**Synthesis optimization of Piezo Driven Four-Bar Mechanism using Genetic Algorithm.**” *INTELLIGENT AUTOMATION AND SOFT COMPUTING*, 24(3), pp.507-515. **2018**.

- 7- Ayah A Al-Asmar, [Khaled S Hatamleh](#), Muhanad Hatamleh, Mohammad Al-Rabab'ah “**Evaluating Various Preparation Protocols on the Shear Bond Strength of Repaired Composite (Bond Strength of Repaired Composite)**” *The Journal of Contemporary Dental Practice*, **18**(1), pp. 1-6, March **2017**.
- 8- [Khaled S. Hatamleh](#), Mohammad Al-Shabi, Adnan Al-Ghasem, and Asad A Asad, “**Unmanned Aerial Vehicles Parameter Estimation Using Artificial Neural Networks and Iterative Bi-Section Shooting Method.**” *Applied Soft Computing*. **36**(C), November **2015**. pp. 457-467. [doi:10.1016/j.asoc.2015.06.031](https://doi.org/10.1016/j.asoc.2015.06.031).  
<http://www.sciencedirect.com/science/article/pii/S1568494615003804>
- 9- [Khaled S. Hatamleh](#), Ou Ma, Angel Flores-Abad, and Pu Xie. “**Development of a Special Inertial Measurement Unit for UAV Applications.**” *ASME Journal of Dynamic Systems Measurement and Control*, **135**(1), pp. 1-10, Oct. **2012**.
- 10- [Khaled S. Hatamleh](#), Angel Flores-Abad, Pu Xie, Gerardo Martinez, Brandi Herrera and Ou Ma. “**Development of an Inertial Measurement Unit for Unmanned Aerial Vehicles.**” *Jordan Journal of Mechanical and Industrial Engineering (JJMIE)*, **5**(1): pp. 53-60, FEB, **2011**. ISSN 1995-6665. <http://www.jjmie.hu.edu.jo/files/v5n1/JJMIE-9.pdf>.
- 11- [Khaled S. Hatamleh](#), Ou Ma, and Robert Paz. “**A UAV parameters identification method: A simulation study.**” *International Journal of Information Acquisition*, **6**(4): pp.225-238, **2009**. DOI: 10.1142/S0219878909001977.  
<http://www.worldscinet.com/ijia/06/0604/S0219878909001977.html>.

### Journal Publications underrun:

- 1- [Khaled S. Hatamleh](#), Mohammad A. Jaradat, and Baker Shehadeh. “**UAV parameter Estimation using Hybrid Iterative Bisection Shooting Method and PSO technique.**”. **Underrun**
- 2- Mohammad A. Jaradat, [Khaled S. Hatamleh](#), and Mohammad Al-Zoum. “**Higher DOF Robotic Arms Inverse Kinematics & Inverse Dynamics using Deep Learning Techniques: A Review Paper**”. **Underrun**.
- 3- [Khaled S. Hatamleh](#), Mohammad A. Jaradat, and Anas Abu-Shaker. “**Intelligent Hybrid Adaptive Fractional Order Full State Feedback Controller for Mobile Robot trajectory tracking using Gray Wolf Optimization**”. **Underrun**
- 4- Mohammad A. Jaradat, [Khaled S. Hatamleh](#), and Mohammad Al-Zoum. “**Intelligent Hybrid Adaptive SMC for UAV Trajectory Tracking Using Fuzzy Logic & PSO**”. **Underrun**

### Conference Publications:

- 1- Batayneh, Wafa M., Khaled S. Hatamleh, Amjad A. Nusayr, Rama Alquraan, Aseel Al-Khaleel, and Ahmad Batainah. "Low-Cost Wi-Fi Navigation of Smart Wheelchairs." *In ASME 2018 International Mechanical Engineering Congress and Exposition. American Society of Mechanical Engineers Digital Collection*, **2018**.
- 2- Abdul Hafez, Osama, Mohammad Jaradat, and [Khaled Hatamleh](#). "Stable Under-Actuated Manipulator's Design for Mobile Manipulating Unmanned Aerial Vehicle (MM-UAV)." *In Proceedings of the 7th International Conference on Modeling, Simulation and Applied Optimization (ICMSAO'17)*, Sharjah, UAE, **April 4-6, 2017**.
- 3- Sawaqed, Laith, Ahmad Al-Ali, Khaled Hatamleh, and Mohammad Jaradat. "Modeling and Simulation of a Moving Robotic Arm Mounted on Wheelchair." *In Proceedings of the 7th International Conference on Modeling, Simulation and Applied Optimization (ICMSAO'17)*, Sharjah, UAE, **April 4-6, 2017**.
- 4- AL-Hamaydeh, Mohammad, Mohammad Jaradat, Serry, Mohamed, Sawaqed, Laith, and [Khaled Hatamleh](#). "Structural Control of MR-Dampers with Genetic Algorithm-Optimized Quasi-Bang-Bang Controller." *In Proceedings of the 7th International Conference on Modeling, Simulation and Applied Optimization (ICMSAO'17)*, Sharjah, UAE, **April 4-6, 2017**.
- 5- Al Shabi, Mohammad, Khaled Hatamleh, Samer Al Shaer, Iyad Salameh, and S. Andrew Gadsden. "A comprehensive comparison of sigma-point Kalman filters applied on a complex maneuvering road." *Signal Processing, Sensor/Information Fusion, and Target Recognition XXV*, vol. 9842, p. 98421I. International Society for Optics and Photonics, **2016**.



- 6- Kajkouj, Majdeddin, Samer Al Shaer, Khaled Hatamleh, Iyad Salameh, Mohammad Al-Shabi, S. Andrew Gadsden, and Andrew Lee. "SURF and image processing techniques applied to an autonomous overhead crane." In 2016 24th Mediterranean Conference on Control and Automation (MED), pp. 914-918. IEEE, **2016**.
- 7- Khaled S. Hatamleh, Qais Khasawneh, Laith Sawaqed, Mohammad Alhaj Hassan, Sarah Yafawi, and Mohammad Al-Shabi, "Low-Cost Visual Shooting Practice System," *10<sup>th</sup> International Symposium on Mechatronics and its Applications (ISMA 2015)*. 8-10 December **2015**. Sharjah, UAE.
- 8- Al-Shabi, Mohammad, Mohammed Bani-Yonis, and Khaled S. Hatamleh. "The sigma-point central difference smooth variable structure filter application into a robotic arm." In 2015 IEEE 12th International Multi-Conference on Systems, Signals & Devices (SSD15), pp. 1-6. IEEE, **2015**.
- 9- Khaled S. Hatamleh, Mohammad Al-Shabi, Qais Khasawneh, and Mohammad Abo Al-Asal, "Application of SMC into a PRRR Robotic," ASME 2014 International Mechanical Engineering Congress & Exposition, 14-20 November **2014**, Montreal, CANADA.
- 10- Mohammad Al-Shabi, Khaled S. Hatamleh, "The Unscented Smooth Variable Structure Filter Application into a Robotic Arm," ASME 2014 International Mechanical Engineering Congress & Exposition, 14-20 November **2014**, Montreal, CANADA.
- 11- Mohammad A Al-Shabi, KS Hatamleh, AA Asad. "UAV dynamics model parameters estimation techniques: A comparison study," 2013 IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT), pp.1-6, December **2013**. Amman, Jordan.
- 12- Khaled S. Hatamleh, Angel Flores-Abad, Pu Xie, Gerardo Martinez, Brandi Herrera and Ou Ma. Development of an Inertial Measurement Unit for Unmanned Aerial Vehicles. In Proceedings of the 7th Jordanian International Mechanical Engineering Conference (JIMEC'7), 27-29 September **2010**, Amman, Jordan.
- 13- Khaled S. Hatamleh, Ou Ma, and Robert Paz. A UAV Model Parameters Identification Method, AIAA Guidance Navigation and Control Conference, 2-5 August **2010**, Toronto, Ontario, Canada. [http://pdf.aiaa.org/preview/2010/CDReadyMGNC10\\_2109/PV2010\\_7649.pdf](http://pdf.aiaa.org/preview/2010/CDReadyMGNC10_2109/PV2010_7649.pdf).
- 14- Khaled S. Hatamleh, Ou Ma, and Robert Paz. In-flight UAV parameters identification: A simulation study. AIAA Atmospheric Flight Mechanics Conference and Exhibit, 10-13 August **2009**. [http://pdf.aiaa.org/preview/CDReadyMAFM09\\_2000/PV2009\\_5936.pdf](http://pdf.aiaa.org/preview/CDReadyMAFM09_2000/PV2009_5936.pdf).
- 15- Khaled S. Hatamleh, Pu Xie, Gerardo Martinez, Jesse McAvoy, and Ou Ma. A UAV parameters identification method. AIAA Modeling & Simulation Technologies Conference and Exhibit, 10-13 August **2009**. [http://pdf.aiaa.org/preview/CDReadyMMST09\\_1999/PV2009\\_6136.pdf](http://pdf.aiaa.org/preview/CDReadyMMST09_1999/PV2009_6136.pdf)

### Oral/Poster Presentation & Scientific/Social Outreach Activities:

1. Hatamleh, K. Mechatronics graduate course development committee member at DeCAIR European funded project. (2021-current)
2. Hatamleh, K. Mechanical, Mechatronics, and Electrical Engineering Industrial Board meeting organizer at Ras Al Khaimah college of Higher Colleges of Technology in UAE for 2018 and 2019.
3. Hatamleh, K. Mechanical, Mechatronics, and Electrical Engineering systems-wide Industrial Board meeting organizer at Higher Colleges of Technology in Dubai/UAE 2019.
4. Hatamleh, K. "member of the [ISMA 18](#) conference organizing committee", 2017.
5. Hatamleh, K. "Development & Calibration of an Inertial Measurement Unit for UAV Applications," presentation at the Southwest Regional Technology Symposium, Las Cruces, NM. 15th April 2010.
6. Hatamleh, K. "Identification of UAV Dynamics Model Parameters," presentation at the Southwest Regional Technology Symposium, Las Cruces, NM. 16th April 2009.
7. Southwest Regional Technology Symposium, Las Cruces, NM, 2008 & 2009. Display Booth for the ongoing UAV research at NMSU.
8. New Mexico State University UAS Technical Analysis and Applications Center (TAAC) 10th annual UAS conference, Tamaya Hyatt Regency Resort, Santa Ana Pueblo, NM, Dec. 9-11, 2008. Display Booth.
9. Participant at the AUVSI's Unmanned Systems North America symposium, San Diego, CA, June 2008.
10. AIAA Modeling & Simulation Technologies Conference, Chicago, IL. Aug 2009.

11. AIAA Atmospheric Flight Mechanics Conference, Chicago, IL. Aug 2009.
12. Mentor for LEGO robot design and testing at Sierra Middle School MESA, Las Cruces, NM, since Oct 2009.
13. Hatamleh, K. “Unmanned Aerial Vehicles Dynamics Modeling & Parameter Estimation.” Poster presentation at the Graduate Research & Arts Symposium (GRAS), March 2010. Las Cruces, NM.

## Professional Societies

- American Institute of Aeronautics and Astronautics (**AIAA**).
- American Society of Mechanical Engineers (**ASME**)
- Reviewer for the *ASME Journal of Dynamic Systems Measurement and Control*.
- Reviewer for the *Journal of Franklin Institute*.
- Reviewer of *Energy Conversion and Management* journal.
- Reviewer of *Journal of Intelligent and Fuzzy Systems*

## Technical Skills:

- Excellent practical research experience. Preparing and conducting several experiments and tests in multiple areas, including but not limited to robotic systems, mobile robots, vision-based motion tracking systems, rate gyro calibration, accelerometer calibration, sensor fusion, Inertial Measurement Unit (**IMU**) design/build/verification, image processing, camera calibration.
- Excellent programming skills in (**MATLAB, assembly, Arduino, C, & C++**).
- Capable of designing **electronically controlled mechanical systems by a microcontroller, PLCs, and classical digital control circuits**, including interfacing circuits.
- Excellent skills in programming and running **PLCs**.
- Excellent knowledge in both **pneumatic & hydraulic systems, also electro-hydraulic and electro-pneumatic ones**.
- Excellent mechanical drawing skills using **AutoCAD & Mechanical Desktop**.
- Familiar with PC parallel port programming using C language.
- Excellent knowledge of sensor calibration and applications.
- Excellent communication skills: I also prefer teamwork atmospheres.
- Wide knowledge of modern automotive technologies and control.

I am a professional using the following engineering programs:

- 1- **MathWorks MATLAB** program, Control toolbox, Image Processing Toolbox, signal processing block set, Fuzzy control toolbox, Robotics toolbox, simscape block set, and MATLAB Simulink.
- 2- **Automation Studio**, used to draw and simulate pneumatic, electro-pneumatic, hydraulic, and electro-hydraulic circuits.
- 3- **Arduino IDE**.
- 4- Arduino based control circuit simulations using **TinkerCAD**.
- 5- **FluidSim**.
- 6- **Python**. (Beginner)
- 7- **ROS**. (Moderate)
- 8- *Simechanics* robotics subset of MATLAB.
- 9- **RSlogix 500 starter English** program, used to draw, simulate, and download the Allen Bradley PLC ladder logic programs.
- 10- **Siemens logo 7** program, used to program Siemens PLCs.
- 11- **The Thrisim program was used to write, simulate, and assemble the assembly language programs for the Motorola 68HC11 microcontroller.**
- 12- **AxIDE** program, used to communicate with Motorola 68HC11-based microcontroller boards.
- 13- **Electrical work bench EWB** program, used to draw and simulate designed digital electrical circuits.
- 14- **LaTex**.

## Activities:

- Reading, jogging, basketball, soccer, racquetball & swimming.