

## C.V

**Osama M. Al-Habahbeh**

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Amman, Jordan



### Education:

- Jan. 2007– Jan.2010: Clarkson University, New York, USA. PhD in Mechanical Engineering, Dissertation title: "Integrated approach for physics-based reliability assessment of engineering systems". Courses taken: Monte Carlo simulation, Stochastic processes, Computational fluid dynamics, Seminar, ESL Academic writing III, (GPA: Very Good).
- Aug. 2006- Jan. 2007: University of Toledo, Ohio, USA. Enrolled in the engineering sciences PhD program, Courses taken: Advanced mechanics of materials, Advanced engineering mathematics I, Elasticity, (GPA: A-).
  - Oct. 2002– Feb. 2005: The University of Jordan, Amman, Jordan. M.Sc. in Mechanical Engineering, Thesis title: "Composite LPG vessels as an alternative to steel vessels used in the local market". Courses taken: Optimum design, Computer-aided design and modeling, Mechanical vibrations, Advanced fluid mechanics, Fracture mechanics, Research methodology, Finite element method, Combustion, (GPA: Very Good).
  - Sep.1990– Jan.1995: The University of Jordan, Amman, Jordan. B.Sc. in Mechanical Engineering. Graduation project: Fuel-oil heating by solar energy. Practical training: Automotive maintenance engineering at the General Transportation Corporation, (GPA: Good).
  - Sep.1984- Jun.1990: Al-Shobak Secondary School, Al-Shobak, Ma'an Governorate, Jordan. General Secondary Education Certificate (Tawjihi), Scientific stream (Avg 85.4%, Ranked 2nd).

### Experience:

- Aug. 2022- Present: Professor, Mechatronics Engineering Department, University of Jordan. (Feb.2011–Feb.2016: Assistant Professor), (Feb.2016-Aug.2022: Associate Professor).
- Conducted research that resulted in 57 publications in Scientific Journals and Conference.
- Developed study material for 12 courses.
- Taught Traditional classroom, Blended-Learning, and Online courses.
- Involved in curriculum development and update of study plans.
- Supervised graduation projects for 200 students and won the METS Award, KASIT, 2011 for developing a Delta robot, and the 8th National Technology Parade Award, 2015 for developing a Sumo robot.
- Designed, built, programmed, and tested a smart robotic arm for harvesting olive fruits, in cooperation with the National Agricultural Research Center (NARC). The prototype development was jointly funded by the National Center for Research and Development (NCRD) and the Deanship of Scientific Research. Furthermore, the project involved the development of a Virtual reality model in partnership with ASFAN International Trading Company, and the building of a Holographic display in partnership with HOLOJO for

- advertising. The team involved in the project included 5 engineers, one technician, and 4 students. The time duration of the project was one and a half years. The findings were published in International Journals and Conferences.
- Obtained \$30,000 funding for several projects.
  - As a team coordinator, obtained \$8.5 m funding to establish an advanced practical training center in the fields of Cyber security, IoT, AI, and Green energy.
- Sep. 2021- Sep. 2023: Head of Mechatronics Engineering Department, University of Jordan.
    - Ran a Department of 530 students, 15 full-time faculty, 9 staff, and 8 part time faculty.
    - Obtained ABET Accreditation with no shortcomings.
    - Maintained compliance with National accreditation.
    - Recruited 5 new faculty members and 8 part-time faculty members.
    - Lead the Department within the context of the strategic development of the University.
  - Aug. 2019- May 2020: Associate Professor, Mechanical Engineering Department, American University of the Middle East (AUM), Egaila, Kuwait.
    - Supervised graduation projects (2 teams, 8 students); one was to design an oil rig, and the other was to design and build an atmospheric water generator using Off-the-shelf components.
    - Taught 3 courses (8 sections) in coordination with other faculty members in multi-section courses.
  - Feb. 2015- Sep. 2016: Vice-Dean of Students' Affairs, University of Jordan.
    - Supervised different departments including financial affairs, activities, services, support, housing, health care, initiatives, human resources, etc.
    - Headed appointments, promotions, celebrations, and disciplinary committees.
    - Conducted an Off-campus part-time jobs campaign for students in partnership with McDonald's, Carrefour, and other companies. 600 Students were hired.
  - Nov. 2014- Sep. 2016: Director, Career Guidance and Alumni Office/King Abdullah II Fund for Development, Amman, Jordan.
    - Provided students with internship opportunities, career advising, and training on soft skills and entrepreneurship.
    - Oversaw Alumini relations.
    - Organized two Job Fairs, with 60 local and regional companies from different sectors. Including banking, mining, education, training, automotive, maintenance, aviation, pharmaceuticals, IT, and communications.
  - Sep.2010 – Feb.2011: Assistant Professor, Mechanical Engineering Dept., The Hashemite University, Zarqa, Jordan.
    - Taught Dynamics, Finite elements for Machine Design, Numerical Methods, and Strength of Materials Lab.
  - Jan.2010 – Sep.2010: Research Associate, Centre for Infrastructure Performance and Reliability (CIPAR), University of Newcastle, Australia.

- Conducted reliability assessment of structures subjected to blast loading.
- Taught Computational Fluid Dynamics (CFD).
- Advised student's theses and projects.
- Jan.2007 – Jan.2010: Research Assistant, Clarkson University jointly with GE Energy, Texas, USA.
- Developed a reliability simulation tool for a gas turbine intercooler, including heat exchanger, pump skid, expansion joints, and bleed valves.
- Aug.2006 – Jan.2007: Teaching Assistant, Mechanical, Industrial, and Manufacturing Engineering Department, University of Toledo, Ohio, USA.
- Tutored undergraduate engineering students in Engineering drawing and Machinery.
- Nov.1998 – Jul.2006: Senior Engineer and Instructor, Aircraft Performance and Flight Operations Engineering, Royal Jordanian Airlines, Amman, Jordan.
- Supervised a team of performance engineers
- Member of RJ Fuel Committee (\$200 m annual purchases)
- Developed and implemented an innovative fuel savings program.
- Trained pilots, engineers, and dispatchers for a number of Arab and foreign carriers
- Conducted more than 500 flight hours of aircraft auditing especially after maintenance.
- Provided technical support and planning in coordination with maintenance department according to IATA Operational Safety Audit (IOSA) program.
- Participated in many technical and managerial courses locally and internationally.
- Aug.1998 – Oct.1998: Quality Assurance Supervisor, Century Investment Group, Irbid QIZ, Jordan.
- Responsible for Quality Assurance of the Men's suits factory which has 800 workers; That includes compliance with standards and procedures for supervisors, workers and machinery.
- Apr.1998 – Jul.1998: Design Engineer, Nasser Investment Group, Amman, Jordan.
- Designed Steel Containers to DIN and ISO 9001 standards.
- Oct.1996 – Nov.1997: Mechanical Engineer, Inmech (M) Sdn. Bhd., Selangor, Malaysia.
- Designed Pressure Vessels such as water softener and sterilizer using ASME Standards.
- Designed boiler house, pumps, chimney, piping, ducts, valves, and other ancillaries.
- Mar.1995 – Aug.1996: Freelance national tour leader, Jordan.
- Guided incoming tourist groups across the country.

### **Publications:**

Full updated list available at:

<https://scholar.google.com/citations?user=gQ7qNl4AAAAJ&hl=en>  
<https://www.researchgate.net/profile/Osama-Al-Habahbeh/research>

### Sample Journal papers:

- 1- Osama M. Al-Habahbeh, "Sustainable design of an artificial lake in Jafer Basin based on gravity flow", Mathematical modelling of engineering problems, Vol.9, No.1, 2022, pp.101-110. <https://doi.org/10.18280/mmep.090113>.
- 2- Osama M. Al-Habahbeh, "Configuration of hybrid fuel-electric aircraft model based on full flight path performance", Jurnal Teknologi, Vol.84, No.3, 2022, pp.59-67. <https://doi.org/10.11113/jurnalteknologi.v84.16828>.
- 3- Osama M. Al-Habahbeh and Romil S. Al-Adwan, "Dynamic modelling of docking autonomous PODs in tandem configuration", Mathematical modelling of engineering problems, Vol. 9, No. 4, 2022, pp.955-963. <https://doi.org/10.18280/mmep.090412>.
- 4- Osama M. Al-Habahbeh, Anas E. Yamin, Haitham Y. Naji, Mohamed F. Qasem, "Assessment of the Local Levels of Exposure to Electromagnetic Field and Radio Frequency", Jordan J. Electrical Engineering (JEE), Vol. 4, No. 3, 2018, pp.143-150.
- 5- O. M. Al-Habahbeh, A. Mohammad, A. Al-khalidi, M. Khanfer, M. Obeid, "Design optimization of a large-scale thermoelectric generator", J. King Saud University – Engineering Sciences, Vol.30, 2018, pp.177-182.
- 6- O. M. Al-Habahbeh, M. Al-Saqqa, M. Safi, T. Abo Khater, "Review of magnetohydrodynamic pump applications", Alexandria Engineering J. (AEJ), Vol.55, 2016, pp. 1347–1358.
- 7- Osama M. Al-Habahbeh, Rawan A. Alomosh, Dana K. Aldebie, "Reliability Simulation of Solar Concentrator Receiver", Int'l J. Sustainable Energy, Vol.35, No.8, 2016, pp.793-801.
- 8- O. M. Al-Habahbeh, H. J. Al-Hamad, L. S. Al-Sakka, H. M. Al-Sahori, "Viable Design of an Arm Prosthesis System", Int'l J. Advanced Science and Technology (IJAST), Vol.17, 2014.
- 9- O. M. Al-Habahbeh, D. K. Aidun, P. Marzocca, H. Lee, "Integrated Physics-Based Approach for the Reliability Prediction of Thermal Systems", Int'l J. Reliability & Safety, Vol.5, No.2, 2011, pp.110-139.

### Sample Conference papers:

- 1- Osama M. Al-Habahbeh, Salam Ayoub, Musa Al Yaman, Mohammad Matahen, Mais Sarayra, A Smart robotic arm for harvesting olive fruits, Proceedings of the 23rd Annual RAPDASA-RobMech-PRASA-CoSAAMI International Conference and Exhibition, 09-11 Nov 2022, Somerset West, CapeTown, South Africa.
- 2- O. M. Al-Habahbeh, B. A. Al-Hrout, E. M. Al-Hiary, S. A. Al-Fraihat, Reliability investigation of photovoltaic cell using finite element modeling, Proceedings of the 9<sup>th</sup> International Symposium on Mechatronics and its Applications (ISMA13), Amman, Jordan, April 9-11, 2013, pp. 1-5.
- 3- Osama M Al-Habahbeh, Daryush Aidun, Pier Marzocca, Stochastic Simulation of a Power Generation Air Joint, Proceedings of IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT), Amman, Jordan, 6-8 Dec. 2011.
- 4- Osama Al-Habahbeh, Mark G. Stewart, Structural Reliability Analysis of Unreinforced Brick Masonry Walls Subject to Explosive Blast Loading, Proceedings of the First International Conference of Protective Structures (ICPS), Manchester, UK, Sep. – Oct. 2010.
- 5- O. M. Al-Habahbeh, D. K. Aidun, P. Marzocca, H. Lee, Integrated Physics-Based Approach for the Reliability Prediction of Thermal Systems, IMECE2009-13342, Proceedings of ASME International Mechanical Engineering Congress and Exposition, Florida, Nov. 2009, pp. 283-295.

- 6- O. M. Al-Hababbeh, D. K. Aidun, P. Marzocca, H. Lee, Reliability Prediction for a Thermal System Using CFD and FEM Simulations, IMECE2008-68365, Proceedings of ASME International Mechanical Engineering Congress and Exposition, Boston, MA, 2008, pp. 195-204.
- 7- Naser Al-Huniti, Osama Al-Hababbeh, Composite LPG Cylinders as an Alternative to Steel Cylinders: Finite Element Approach, Proceedings of International Conference on Manufacturing and Materials Processing (ICMM 2006), Kuala Lumpur, Malaysia, 2006, pp. 363-368.
- 8- Osama Al-Hababbeh, Naser Al-Huniti, Composite Pressure Vessels in Petroleum Industry: Status and Outlook, Proceedings of International Conference on Composite Science and Technology (ICCST/5), American University of Sharjah, UAE, 2005, pp. 401-406.

#### **Books:**

- "Advanced Manufacturing", STC Publications, 2019, Deposit No.: 2019/8/4001, The National Library, ISBN 978-9957-67-320-8 (Paperback), ISBN 978-9957-67-321-5 (E-book).
- "Introduction to Aviation Engineering", STC Publications, 2017, Deposit No.: 2017/8/4291, The National Library, ISBN 978-9957-67-044-3 (Print), ISBN 978-9957-67-045-0 (E-Book).

#### **Patents:**

[http://ippublish.mit.gov.jo/wiposearch/public/patents;jsessionid=DCC77AD6D1769FAD3CA6F8C908CEFB79?1&query=\\*.\\*](http://ippublish.mit.gov.jo/wiposearch/public/patents;jsessionid=DCC77AD6D1769FAD3CA6F8C908CEFB79?1&query=*.*)

- "Smart transportation system based on reconfigurable POD vehicles", Filing ID: JO/P/2021/238, Directorate of Industrial Property Protection, 24/08/2021.

<http://ippublish.mit.gov.jo/wiposearch/public/detail/patents;jsessionid=80A65788B70EB7EFB4663AE0B9376B9F?id=JOP20210238>

- "Robotic kit for fruits harvesting under variable conditions", Filing ID: JO/P/2021/321, Directorate of Industrial Property Protection, 12/09/2021.

<http://ippublish.mit.gov.jo/wiposearch/public/detail/patents;jsessionid=80A65788B70EB7EFB4663AE0B9376B9F?id=JOP20210321>

#### **University courses taught:**

1. Automation
2. Autotronics
3. Basic Mechanics
4. Computational Fluid Dynamics (CFD)
5. Dynamics
6. Engineering Materials
7. Fluid Mechanics
8. Heat Transfer
9. Integrated Systems Design
10. Introduction to Aeronautical Engineering
11. Introduction to Design, Entrepreneurship, and Innovation
12. Machine Design using Finite Element Method
13. Manufacturing Technology

14. Modeling and Simulation
15. Numerical Methods
16. Robotic Systems
17. Statics
18. Statistics and Probability
19. Strength of Materials
20. System Modelling
21. Thermal Sciences
22. Thermodynamics
23. Vibrations

**Professional consultant and trainer in the following areas:**

- 1- Water Equipment for buildings
- 2- Water Instrumentation
- 3- Water networks
- 4- SCADA Systems
- 5- Tunnel boring machine (TBM), resulted in \$7 m saving by adjusting the specifications of TBM for a regional client.
- 6- Hybrid vehicles maintenance engineering
- 7- Electric vehicles maintenance engineering
- 8- Negotiation skills
- 9- Engineering contracting
- 10- Industrial studies
- 11- Pumps and compressors
- 12- Supply chain management
- 13- Inventory management
- 14- Procurement
- 15- Aircraft performance
- 16- Aircraft weight & balance
- 17- Dispatcher refresher course

**Training and consulting clients:**

- Qatar General Electricity & Water Corporation (Kahramaa)
- Dubai Municipality, UAE
- UJ Center for Consultation, Technical Services & Studies
- Kuwait Municipality
- Public Authority for Industry, Kuwait
- Kuwait Gulf Oil Company
- Saudi Arabian Chevron Inc.
- Saline Water Conversion Corporation, Saudi Arabia
- Philippine Airlines
- Iraqi Airways
- Royal Jordanian Airlines
- Jordan Airline Training and Simulation (JATS)

**Software skills:**

Moodle, LaTeX, ANSYS Workbench, CFX, MATLAB, Simulink, ISight, SpaceClaim, LS-Dyna, AutoCAD, MS-Word/Excel/PowerPoint/Project.

## **Honors and awards:**

- Recognition Award, Arab Council for Training Students of Arab Universities, 2016.
- Honor Shield, Benevolent Fund for Outstanding Students, 2016.
- Honor Shield, Fayoum University, 2016.
- Project Award, 8<sup>th</sup> National Technology Parade, 2015.
- Volunteer Award, Jubilee Center for Excellence in Education, King Hussein Foundation, 2012.
- Instructor Award, UJ Student Union, 2012.
- URC Medal of Honor, National Educational Center for Robotics, 2011.
- Medal of Honor, Arab Open Robotics Championship, 2011.
- METS Award, King Abdulla II School for IT, 2011.
- Post-Doctoral Fellowship, University of Newcastle, 2010.
- GE Energy PhD Scholarship, Clarkson University, 2007-2010.
- Excellence in Service Award, Royal Jordanian Airline, 2004.
- BSc Scholarship, Jordan Armed Forces, 1990-1995.
- Ranked 2<sup>nd</sup> top student in Al-Shobak Secondary School Class of 1990, and was one of the top five students in the two Governorates of Ma'an and Aqaba.

## **Professional Services:**

- Member of many university committees including: Student's Elections, Library, Standards & Specifications, Study plans & Curriculum, Academic advising, Investment, Candidate selection, Accreditation, Research, Capstone projects, Graduate studies, Disciplinary committee.
- Teaching "Campus life and ethics" to School of Engineering students, 2016-2019.
- Editorial Board Member of Journal of Aeronautics & Aerospace Engineering, Madridge Publishers, 2018.
- Reviewed and evaluated multiple MS theses for University of Jordan and Al-Balqa Applied University.
- Editorial Board Member of Journal of Materials Science: Advanced Composite Materials, Whioce Publishing PTE. LTD., 2018.
- Delivered a lecture about Career planning to University students, Deanship of Student Affairs, 2016.
- Member of capacity raising committee, Accreditation and Quality Assurance Commission for Higher Education Institutions, Sep 2017.
- Member of Technical Program Committee (TPC), International Conference on Energy Development and Environmental Protection (EDEP), Guilin, China, Aug. 2017.
- Chair of the specifications committee for automotive lab and training center at the University of Jordan, with focus on hybrid and electric vehicles, Mar.2017.
- Supervisor of the Annual UJ Hajj Mission, 2016.
- Provided career advice for Secondary school top graduates, Zara Expo & Auditorium, 2016.
- Chairperson and member of several candidate screening committees.
- Member of the Editorial Board of the International Journal of Mechanical Engineering (IJME).
- Member of Technical Program Committee, 9<sup>th</sup> International Symposium on Mechatronics and its Applications (IEEE ISMA'13), Amman, Jordan, Apr.2013.
- Judge at the 6<sup>th</sup> and 7<sup>th</sup> National Robot Competitions, Jubilee Center for Excellence in Education, Feb. 2011, 2012.
- Advisor of a delta robot project that won 3<sup>rd</sup> place out of 18 competitors at METS 2011.

- Advisor of a maze robot project that won best program award at the Annual Robot Competition for Universities, Philadelphia University, Feb. 2011.
- Reviewed articles for multiple Journals such as: Journal of Aerospace Engineering, Journal of Electronic Materials (JEMS), Jordan Journal of Mechanical and Industrial Engineering, Journal of the Brazilian Society of Mechanical Sciences and Engineering (BMSE), International Journal of Power Electronics and Drive Systems (IJPEDS) and Journal of Ships and Offshore Structures.
- Contributed to the development of new designs for a number of major car manufacturers.

### **Presentations & Workshops:**

- Workshop on Industrial innovation program, Amman Chamber of Industry, Oct. 2017.
- Represented University of Jordan at the annual meeting of the Arab Council for Training Students of Arab Universities (ACTSAU), May, 2016, Fayoum University, Egypt.
- Injaz Career Guidance Workshop, Dead Sea, Feb. 2016.
- Represented the University of Jordan at the annual meeting of the National Democratic Institute (NDI), 2015, PSUT, Amman.
- Represented University of Jordan at the annual meeting of the Arab Council for Training Students of Arab Universities (ACTSAU), May, 2015, JUST, Jordan.
- Poster: "Reliability Assessment Model for a Gas Turbine Intercooler Circuit Using CFD and FEM", presented at The 8<sup>th</sup> Annual Symposium on Environmental & Energy Systems, Syracuse, New York, Sep 2008.
- Presentation: "Thermal Model for Intercooler System Components, Presented to General Electric, Houston, Texas, May 2008.
- Poster: "Use of Reliability and Life Assessment Techniques to Analyze Corrosion & Fatigue in Intercooler Systems", presented at CAMP Annual Technical Meeting, Canandaigua, New York, May 2007.
- Presentation: "Thermal Model for Gas Turbine System Components", presented to General Electric, Houston, Texas, Mar 2007.
- Workshop: Cost Index Optimization, Airbus, Toulouse, France, May 2004.
- Presentation: "Less Paper Cockpit (LPC) Feasibility Study", Presented to CEO of Royal Jordanian Airlines, Amman, Jordan, Feb 2003.
- Workshop: "Fuel Monitoring System", SITA, London, UK, Dec 2000.
- Workshop: "Less Paper Cockpit Integration", Airbus, Toulouse, France, Sep 1999.

### **Short Courses taken:**

- Training workshop on E-Learning and Blended Learning, UJ Accreditation and Quality Assurance Center, Mar, 2018.
- Smart research using big data, UJ Accreditation and Quality Assurance Center, Mar, 2018.
- Training workshops on Instructional design strategies, Effective teaching skills, Evaluation, & testing, Rules & regulations and Academic work ethics, University of Jordan, Sep – Oct 2011.
- Faculty Development Workshop, Clarkson University, May 2007.
- Teaching Assistants Training, University of Toledo, Ohio, Aug 2006.
- Instructional Techniques, Royal Jordanian Training Center, Amman, Jordan, Feb 2000.
- Human Factors, Royal Jordanian Training Center, Amman, Jordan, Feb - Mar 1999.
- Internal quality auditing, Abu- Ghazaleh Quality Assurance, Amman, Jordan, Jun 1998.
- Customer care workshop, JATS, Amman, Jordan, Oct 2005.
- Flight operations management, AACO regional training center, Amman, Jordan, Feb 2005.
- Aviation security awareness Jun 2003.
- Performance Engineer, Airbus, Toulouse, France, 1998, 2000, 2002.



- Weight & balance engineer, Airbus, Amman, Jordan, Jun 2002.
- Performance Engineering Fundamentals, Boeing, Washington, June 2000.
- Performance Engineering Operations, Boeing, Washington, May 2000.
- Tourist guide course, Center for Consultation, Technical Services & Studies, Amman, Jordan, Jun – Jul 1995.

**Professional Associations Membership:**

- Jordan Engineers Association (JEA)
- American Society of Mechanical Engineers (ASME)
- Engineering Society for Advancing Mobility (SAE International)
- Institute of Electrical and Electronics Engineers (IEEE)
- The American Institute of Aeronautics and Astronautics (AIAA)

Updated 9 Aug 2024