Mohammad A. Shbool
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EDUCATION

- **Ph.D. Industrial Engineering (May 2016).** University of Arkansas, Fayetteville, Arkansas, USA.
- **M.Sc. Industrial Engineering (March 2009).** Jordan University of Science & Technology, Irbid, Jordan.
- **B.Sc. Systems Engineering (June 2004).** Jordan University of Science and Technology, Irbid, Jordan.

RESEARCH and TEACHING INTERESTS

- **Research**: Modeling and developing tools to solve problems in healthcare and logistics by applying methodologies like: Simulation modeling and analysis (Agent, discrete, system dynamics), Machine Learning, Multi-criteria decision making, and Six-Sigma Statistical quality.
- **Teaching:** Discrete-event simulation, Logistics & Supply Chain Management, Engineering Statistics I & II, Operations Research, Production Planning & control.

ACADEMIC EXPERIENCE

- **Associate Professor** – Department of Industrial Engineering, The University of Jordan, Amman, Jordan. Feb 2022 – Current.
- **Assistant Professor** – Department of Industrial Engineering, The University of Jordan, Amman, Jordan. May 2016 – Feb 2022.
- **Instructor –** undergraduate level courses "**Applied Statistics for Engineers**" INEG 2313 and "**Engineering Economic Analysis**" INEG 2413 - Department of industrial engineering. University of Arkansas – Fayetteville. Summer and Fall of 2013. The entire responsibility of lecturing, as well as supervising two teaching assistants. I received an excellent evaluation.
- **Teaching Assistant** – Undergraduate course level "Engineering Economic Analysis" INEG2413. Department of industrial engineering, University of Arkansas – Fayetteville.

PUBLICATIONS
Journal Articles

- **Shbool, M. A.**, et. al., "*A dynamic nonlinear autoregressive exogenous model to analyze the impact of COVID-19 pandemic on the electricity consumption: a case study for Jordan",* Under Review
- **Shbool, M. A.**, et. al., "*Machine Learning Approaches to Predict Patient's Length of Stay in Emergency Department During Covid-19*", Under Work.
- **Shbool, M. A.**, et. al., "*A Proposed Lean Six Sigma-Based Approach for Prioritizing the Impactful Improvement Areas: The Packaging Industry as a Case Study*", Under Review
- **Shbool, M. A.**, Al-Bazi, A., Kokash, A., AlAlaween, W. H., Albashabsheh, N. T., "*The Economy of Motion for Laparoscopic Ball Clamping Surgery: A Feedback Educational Tool"* Accepted (Journal of Healthcare Engineering)
- **Shbool, M. A.**, Al-Bazi, A., Al-Hadeethi, R., "*The Effect of Customer Satisfaction on Parcel Delivery Operations Using Autonomous Vehicles: An Agent-Based*

Simulation Study." Heliyon (2022), 8(5), e09409. https://doi.org/10.1080/21693277.2022.2064359

- Alaween, et. al. **Shbool, M. A.**, "*An Interpretable Predictive Modelling Framework for the Turning Process by the use of a Compensated Fuzzy Logic System.*" Production & Manufacturing Research (2022), 10(1), p89-107. https://doi.org/10.1080/21693277.2022.2064359
- **Shbool, M. A.**, Arabeyyat, O., Al-Bazi, A., AlAlaween,W., "*An Integrated Multi-Criteria Decision-Making Framework for a Medical Device Selection in the Healthcare Industry.*" Cogent Engineering (2021), 8(1), 1968741, ISSN: 2331-1916. https://doi.org/10.1080/23311916.2021.1968741
- AlAlaween, W., AlAlaween, A., Mahfouf, M., Abdallah, O., **Shbool, M.**, Mustafa, M., "*A new framework for warehouse assessment using a Genetic-Algorithm driven analytic network process.*" PLOS ONE (2021), 16(9), e0256999, eISSN: 1932-6203. https://doi.org/10.1371/journal.pone.0256999
- **Shbool, M. A.**, Abdallat, Y., Abdul Jawwad, A., Alsharairi, S., Abu-Ghannam, L., Abu-Khajil, E., Badwan, A., "*Examining the effect of Nano-additions of rare earth elements on the Hardness of body armor ceramic*." Indian Journal of Engineering & Materials Sciences (2021), 28(1), 64-72, ISSN: 0975-1017.
- **Shbool, M. A.**, Rossetti, M. D., "*Decision Making Framework for Evaluating Physicians Preference Items Using Multi-Objective Decision Analysis Principles.*" Sustainability (2020), 12(16), 6415, ISSN: 2071-1050, https://doi.org/10.3390/su12166415
- Parsa, P., **Shbool, M. A.**, Sattar, T., Rossetti, M. D., Pohl, E., "*A Collaborative Planning Forecasting and replenishment (CPFR) Maturity Model.*" Int. J. Sup. Chain Mgt., Vol 9, No 6, (2020) 49-71.
- Saidan, M.N., **Shbool, M.A.**, Arabeyyat, O., Al-Shihabi, S., AlAbdallat, Y., Barghash, M., Saidan, H., "Estimation of the probable outbreak size of novel coronavirus (COVID-19) in social gathering events and industrial activities." International Journal of Infectious Diseases (2020), 98, 321-327, ISSN: 1201-9712, doi: https://doi.org/10.1016/j.ijid.2020.06.105
- Alrashdan, A., Bataineh, O., **Shbool, M.** "*Multi-criteria end milling parameters optimization of AISI D2 steel using genetic algorithm*." Int. J Adv. Manuf. Tech., 73 (2014) 1201-1212
- A list of current underwork research is available upon request

Conference Papers
- **Shbool, M. A.**, et. al. (2022). "*Developing Modern Agent Technologies in Combating Covid-19 Exposure: An Application in a Healthcare Facility.*" Intenrational Conference on Innovation and Intelligence for Informatics, computing and Technologies, Univerisyt of Bahrain, Bahrain (Virtual).
- **Shbool, M. A.** (2020). "*Effect of Nano-Additives on The Hardness of A Body Armor Ceramic.*" In: Digital Proceedings of TMCE 2020, TMCE 2020 Repository, 607-611, at *tmce.io.tudelft.nl/proceedings*. ISBN/EAN: 978-94-6384-131-3
- **Shbool, M**., and Rossetti, M., "*Physician Preference Items – A Decision Making Framework.*" IIE Annual Conference Proceedings. pp. 91-96. Pittsburgh, 2017. https://search.proquest.com/docview/1951123239?accountid=27719
- Parsa, P., **Shbool, M.**, Rossetti, M. D., Zhang, S. & Pohl, E. A., "*A Multi-Objective Decision Analysis for Supply Chain Collaboration Programs*" Proceedings of the Decision Sciences Institute, Austin, Texas, November 2016.
- Rossetti, M., **Shbool, M.**, Varghese, V., and Pohl, E., "*Investigating the Effect of Demand Aggregation on the Performance of an (R, Q) Inventory Control Policy.*"

The Proceedings of the 2013 Winter Simulation Conference (WSC `13). IEEE Press, 3318-3329. ISSN:0891-7736

HONORS and AWARDS
- IISE Students Chapter Academic Advisor.
- *Jordanian Engineering Association contest* for engineering graduation projects for 2021 for all universities on the country's level
  - Projects performed in the industrial sector, **2nd place**, Project entitled "*Production Line Improvement using DMAIC Approach: A case study of Cardboard Food containers Manufacturing,*" carried out at a local Food Packaging Company.
- *Jordanian Engineering Association contest* for engineering graduation projects for 2019 for all universities on the country's level
  - Projects performed in the industrial sector, **1st place**, Project entitled "*Improvements of a pharmaceutical production line using Lean Six Sigma Approach,*" carried out in a local pharmaceutical company.
  - Industrial and Mechanical Engineering Category, **2nd place**, Project entitled "*Investigating blood bank supply chain complexity using system dynamics simulation.*" Carried out at a local hospital.
- *Hamdi Mango award* for **1st place** on graduation projects on the country level, April 2019. The project entitled "*Enhancing Body Armor Materials Efficiency Through Nano-Additions of Rare Earth Elements.*"
- *ARAMEX award* for *1st place* for graduation projects on the department's level, December 2019. Project entitled "*Enhancing Body Armor Materials Efficiency Through Nano-Additions of Rare Earth Elements.*"

NON-ACADEMIC EXPERIENCE
- The **Team Leader** at The University of Jordan during the preparation and application toward the first cycle of the *King Abdullah II Award for Distinguished Public University Award*, 2021.
- **EFQM Assessor** for the 1st Cycle of King Abdullah II Award for Distinguished Municipal Award, March-June 2021
- **EFQM Assessor** for the 9th Cycle of King Abdullah II Award for *Government* Performance and Transparency, March-June 2017
- **EFQM Assessor** for the 9th Cycle of King Abdullah II Award for *Private* Performance and Transparency, March-June 2017
- **Production Planning Manager** – SWAROVSKI group. The factory at Jordan. Oct. 2008 - Sep. 2009
- **Production Planning Supervisor** – NutriDar, Amman, Jordan. June 2007 – Oct 2008.

VOLUNTEER SERVICES
- **Reviewer:** Cogent Engineering; Journal of Manufacturing Systems; Arabian Journal for Science and Engineering; Supply chain forum: an international journal; Sustainability; Jordan Jordan of Mechanical and Industrial Engineering
- **Reviewer:** WileyPLUS course (Fundamentals of engineering economic analysis 1e WileyPlus) by White, Grasman, Case, Needy, & Pratt's.
- **Judge**: First Lego League (FLL) – Jordan, Feb 25-26th, 2017. Jubilee Center for Excellence in Education, King Hussein Foundation, Amman, Jordan
- **Organizer**: First Lego League (FLL) Arkansas Championship, Jan 22-23, 2016, Fayetteville, Arkansas.

CERTIFICATIONS and SKILLS
- **Innovation Management Level1: Innovation Associate**, Training three days (26-28 February 2022), King Abdullah II Center for Excellence.
- **EFQM European Certified Assessor**, Accredited by the EFQM - July 2017
- **MATLAB and Artificial Intelligence,** Programming and Modeling

PROFESSIONAL ORGANIZATIONS
- IISE (Institute of Industrial and Systems Engineers)
- Alpha Pi Mu (American honor society for Industrial and Systems Engineering students)
- JEA (Jordanian Engineers Association)

MISCELLANEOUS
- **Funded:** Superconducting ceramics manufacturing to be used in body armor using Nanotechnology, KADDB, Jordan, 2017-2018.
- **Key Projects:** A list of key projects I have worked (or currently working on) might be provided upon request
- **More information:**
  - ORCiD: https://orcid.org/0000-0002-9413-7985
  - Scopus Author ID: 56038823900
  - Web of Science ResearcherID: AAQ-8236-2020
  - Google Scholar: https://scholar.google.com/citations?user=SCRJz5EAAAAJ&hl=en

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