



College of Engineering



**Emad Summad**

**MIE, College of Engineering**

**Phone: +(968) 24143751**

**Email: [esummad@squ.edu.om](mailto:esummad@squ.edu.om)**

**Pure:**

<https://squ.elsevierpure.com/en/persons/emad-summad>

**Google Scholar:**

<https://scholar.google.com/citations?user=7cBGjYoAAAAJ&hl=en>

**Scopus:**

<https://www.scopus.com/authid/detail.uri?authorId=57194163539>

**ORCID:**

<https://orcid.org/0000-0003-4766-1829>

**ResearchGate:**

<https://www.researchgate.net/profile/Emad-Summad>

Education:

- **Post Graduate Certificate of Education**  
University of Leicester, 2006
- **PhD in Industrial Engineering**  
Durham University, 2001
- **MSc in Industrial Engineering**  
Garyounis University, 1990
- **BSc in Industrial Engineering**  
Garyounis University, 1987

Honors & Awards:

## PROFILE

---

My research investigates how social networks shape the diffusion of innovations, diseases, and behaviors. I am particularly focused on the dynamics that drive innovation ecosystems, employing computational tools from complexity science—such as agent-based modeling (NetLogo) and social network analysis (SNA)—to explore these systems. A growing area of my work examines AI-augmented innovation, especially the transformative impact of generative AI, which is widely recognized as one of the most disruptive forces in both research and practice today. I am also interested in the often-overlooked dimensions of maintenance and reliability in technological systems, and how these foundational aspects interact with innovation. At its core, my research bridges science and strategy, aiming to empower smarter, more adaptive policy-making through powerful, data-driven insights.

## WORK EXPERIENCE

---

- **2017 - Present**  
Assistant Professor, Department of Mechanical Engineering and Industrial Engineering (SQU)
- **2014 - 2016**  
Training Manager, Quartet Solutions, Muscat
- **2012 - 2014**  
Scientium Solutions, Knowledge-Based Economy Strategist
- **2010 - 2012**  
Occupational Safety and Health Risk Management Consultant

## RESEARCH INTERESTS

---

- **Social Networks & Diffusion**
- **Complexity Methods**
- **AI-Augmented Innovation**
- **System Reliability**

## Professional Credentials, Certifications, or Licensing

---

- None

## Membership in Professional Organization

---

- International Association of Engineers (IAENG) Member

## Professional Development Activities

---

- Building Entrepreneurial Mindsets: The Role of Universities in Fostering Innovation, The Center of Learning Innovations and Customized Knowledge Solutions (CLICKS), 5 May 2025.
- Artificial Intelligence in Education, Center for Excellence in Teaching & Learning (CETL), 28 April 2025.
- Artificial Intelligence in Research, Center for Excellence in Teaching & Learning (CETL), 21 April 2025.
- Teaching Entrepreneurship: Empowering Educators to Instill an Entrepreneurial Mindset in the Next Generation of Graduates, The Center of Learning Innovations and Customized Knowledge Solutions (CLICKS), 22-23 April 2025.
- Entrepreneur Readiness Program for Academics and Administrative Staff in Higher Education Institutions, and Research and Innovation Centers in the Field of Entrepreneurship, Small and Medium Enterprise Development Authority, 13-17 April 2025.
- Engage, Inspire, succeed: Enhancing Teaching with Active Learning, Center for Excellence in Teaching Learning (CETL), 07 April 07 2025.

## Selected Journal Publications

---

1. Alfahdi, K., Gultekin, H., Summad, E. (2024) A Novel Prognostics and Health Management Framework to Extract System Health Requirements in the Oil and Gas Industry, International Journal of Prognostics and Health Management. 15, 2.
2. Summad, E., Al Kindi, M., Al-Hinai, N., Shamsuzzoha, A., Piya, Sujan (2023) The application of agent-based modelling for the diffusion of innovation research: a case study. International Journal of Business Innovation and Research 30(4), 542-564.
3. Summad, E., Appleton, E. (1998) Generic algorithm for sheet metal working tool selection, using curve matching and tree searching. Journal of Materials Processing Technology, 80-81, 501-506.

## Selected Conference Participations

---

1. Alfahdi, K., Gultekin, H., Summad, E. (2025) Human Reliability Role in Manufacturing Reliability Management: A Case Study from Oil and Gas Industry in Oman, Proceedings of the ICSDI 2024 - Proceedings of the 2nd International Conference on Sustainability: Developments and Innovations. Mansour, Y., Abdelhadi, A., Subramaniam, U., Mustaffa, Z., Al-Atroush, M. & Abowardah, E. (eds.). Springer Science and Business Media Deutschland GmbH, p. 212-219 8 p. (Lecture Notes in Civil Engineering; vol. 557 LNCE).
2. Alfahdi, K., Gultekin, H., Summad, E. (2025) Monitoring Manufacturing Plant Emissions based on Equipment Health Index: A Case Study from Oman Oil and Gas Industry, Proceedings of the ICSDI 2024 - Proceedings of the 2nd International Conference on Sustainability: Developments and Innovations. Mansour, Y., Subramaniam, U., Mustaffa, Z., Abdelhadi, A., Ezzat, M. & Abowardah, E. (eds.). Springer Science and Business Media Deutschland GmbH, p. 155-162 8 p. (Lecture Notes in Civil Engineering; vol. 556 LNCE).

3. Alfahdi, K., Gultekin, H., Summad, E. (2024) Effective Maintenance Management Framework Through a Health Index: A Case Study in the Oil and Gas Industry, Proceedings of 2nd GCC International Conference on Industrial Engineering and Operations Management. Muscat, Oman, December 1-3, 2024.
4. Summad, E., Al Kindi, M., Ouhmidou, I. M., Al Kindi, A. (2024) Agent-Based Modeling for Effective Innovation Ecosystem Management, Proceedings of 2nd GCC International Conference on Industrial Engineering and Operations Management. Muscat, Oman, December 1-3, 2024.
5. Ouhmidou, I. M., Alzebedeh, K. I., Summad, E. (2024) Reimagining Economic Opportunity: Preliminary Agent-based Model of Economic Stratification, Proceedings of 2nd GCC International Conference on Industrial Engineering and Operations Management. Muscat, Oman, December 1-3, 2024.
6. Summad, E., Al Kindi, M., Ouhmidou, I. M., Al Kindi, A. (2023) The Orchestration of Innovation Ecosystem: An Agent-Based Modelling Approach, The 30th IPDMC: Innovation and Product Development Management Conference, Lecco, Italy, June 7-9, 2023At: Lecco, Italy, 7-9 June, 2023.
7. Al Riyami, A., Gultekin, H., Summad, E. (2023) Integrated Team Planning and Maintenance Scheduling for Geographically Distributed Assets, Proceedings of the 13th Annual International Conference on Industrial Engineering and Operations Management - Manila, Philippines, 6-9 March 2023.
8. Summad, E., Al-Kindi M., Ouhmidou, I. M., Al-Kindi A. (2023) An Agent-based Modeling Approach for Effective Innovation Ecosystem Orchestration Proceedings of the 13th Annual International Conference on Industrial Engineering and Operations Management - Manila, Philippines, 6-9 March 2023.
9. Alfahdi, K., Gultekin, H., Summad, E. (2022) Enhancing Unplanned Maintenance Priorities Using Artificial Neural Networks: Case Study From Oman Oil & Gas Industry, Proceedings of the 12th Annual International Conference on Industrial Engineering and Operations Management. Istanbul, Türkiye, 7-10 Mar 2022.
10. Ouhmidou, I. M., Bait Kulaib, G., Summad, E. (2020) Modelling and Optimizing Hospital Emergency Department Workflow, Proceedings of the 5th NA International Conference on Industrial Engineering and Operations Management, IOEM 2020, Detroit, Michigan, USA, August 10-14, 2020, Virtual via Zoom.
11. Al-Hinai, N., Abusharkh, E., Al-Shamli, A., Summad, E. (2020) An Innovative Framework To Measure The Maturity Level of Core Soft Skills and Competencies (SSCM) Needed by Project Managers in Oil and Gas Industry, Proceedings of the 10th Annual International IEOM Conference, IEOM 2020 - Dubai, United Arab Emirates, 10-12 March 2020.
12. Al Kindi, M., Summad, E., Shamsuzzoha, A. (2019) On the Product Development Times in various Market Properties, Proceedings of the 8th International Conference on Modeling Simulation and Applied Optimization, ICMSAO 2019 - Manama, Bahrain, 15-17 April 2019.
13. Summad, E., Al Kindi, M., Piya, S. (2018) Towards a Knowledge-Based Economy: Realizing Innovation and Human Capital Potential, Proceedings of the 28th Arab Engineering Conference, Muscat, Sultanate of Oman, December 11 – 13, 2018.
14. Summad, E., Al Kindi, M., Shamsuzzoha, A., Piya, S., Ibrahim, M. K. (2018) A Framework to Assess a Knowledge-Based Economy: Special Focus to Higher Educational Institutions, Proceedings of 2nd European Conference on Industrial Engineering and Operations, Management, Paris, France, July 26 – 27, 2018.
15. Summad, E., Al Kindi, M., Shamsuzzoha, A. (2018) Innovation Diffusion: Application of Agent-Based Modelling and Simulation in a Case Company in Sultanate of Oman, Proceedings of the 8th International Conference on Industrial Engineering and Operations Management, Bandung, Indonesia, March 6 – 8, 2018.
16. Shamsuzzoha, A., Al Kindi, M., Summad, E. (2018) Measurement of Innovation Performance in Selected industries in Sultanate of Oman, Proceedings of the 8th International Conference on Industrial Engineering and Operations Management, Bandung, Indonesia, March 6 – 8, 2018.

17. Appleton, E., Summad, E. (2001) Tool selection for sheet metal punching operations – Searching techniques, ISI'2001 International NAISO Congress on Information Science Innovations, 17-21 March, 2001, the American University in Dubai, U.A.E.
18. Appleton, E., Jing, L., Summad, E. (2001) Shape Rolling Pass Design, ISI'2001 International NAISO Congress on Information Science Innovations, 17-21 March, 2001, the American University in Dubai, U.A.E.
19. Appleton, E., Summad, E. (2000) Roll Pass Design: A “Design for Manufacture” View, Proceedings of the 2nd European Rolling Conference, Västerås, Sweden 24 – 26 May 2000, AROS Congress Center, Västerås, Sweden.
20. Appleton, E., Summad, E. (1999) Roll pass design: Review and future speculations, Proceedings of the second world manufacturing congress (WMC' 99), 27-30 September, 1999, Durham University, England.
21. Summad, E., Appleton, E. (1998) Applications of the Monte Carlo simulation method in tool selection for punching operations in the sheet metal industry, Proceedings of the International Conference on Simulation '98, 30 September -2 October 1998, University of York, UK.
22. Summad, E., Appleton, E. (1997) The use of the Monte Carlo method for tool selection in the sheet metal industry, Proceedings of the 7th International Flexible Automation and Intelligent Manufacturing (FAIM) Conference, University of Teesside, Middlesbrough, 25-27 June, UK, 1997.

## Selected Service Activities

---

- **Chair**, Department Peer Review of Teaching Management Committee, 2024–present
- **Coordinator**, Final Year Project (FYP) Committee, Industrial Engineering Program, 2021–present
- **Advisor**, Student Societies, Industrial Engineering Program, 2021–present
- **Member**, Continuous Assessment and Evaluation Committee (CAEC-IE), Industrial Engineering Program, 2024–present
- **Member**, Department Academic Programs Modernization Committee (DAPMC), 2024–present
- **Member**, Self-Study Report Committee for Industrial and Mechanical Engineering Postgraduate Programs, 2024–present
- **Member**, Department Industrial Training and Alumni Committee, 2022–present