

Ali Barenji, Ph.D.

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Overview

My research sits at the intersection of data-driven and model-based systems, Industry 4.0, AI-Metaverse, and data-driven decision-making. I design, simulate, emulate, analyze and evaluate intelligent systems for manufacturing and logistic domains.

Work Experience

2019 Dec- present	Sr. Research Scientist. <i>School of Industrial and Systems Engineering,</i> Georgia Institute of Technology , Atlanta, GA.
2018 Aug-2019 May	Lecturer Dept. of Mechatronics Engineering Kennesaw state university . Atlanta, GA.
2017 Jan- 2018Jan	Post-Doctoral Research Associate. Computer Integrated Manufacturing Systems, Massachusetts Institute of Technology , Boston, MA.
2011 Sep- 2016 Dec	Graduate Teaching Assistant Mechanical department of Eastern Mediterranean University .
2009 Sep- 2011March	Tooling/Machine Design Engineer Iran Tractor Industrial Group.
2007 Dec-2009Sep	CNC Programmer Technician Iran Tractor Industrial Group.

Education

2013 Sep- 2016 Dec	Ph.D. in Mechanical Engineering. Mechanical Department of Eastern Mediterranean University, Famagusta, Cyprus.
2011Sep- 2013 June	Master's in Mechanical engineering. Mechanical Department of Eastern Mediterranean University, Famagusta, Cyprus.
2004 Sep- 2009 June	Bachelor of Engineering in Manufacturing Technology. University of Tabriz, Iran. Major: Machine design

Training and Certificate

- Lean Six Sigma Green Belt Certification (2021)
- The Complete Python Pro Bootcamp (2020)
- Modeling, Simulation and Control using Python (2021).
- Data Visualization with Tableau Specialization (2018).
- Create Interactive Dashboards in Python by Plotly Dash
- CCI: CNC (computer numeric controlled) Production Specialist certification, 2008, ITM.
- CSWE - Mechanical Design, 2009,
- SMSCP: Siemens Mechatronic Systems Certification Program, 2016, level1.
- Virtual Reality (VR) Development with Unity3D (2020)

Teaching Experiences

Kennesaw State University	<ol style="list-style-type: none">1. Robotics Analysis and Synthesis2. Mechatronics Engineering Fundamentals3. Modeling & Feedback Control4. Lab of Robotics Analysis and Synthesis5. Feedback Control Laboratory6. Intro to Mechatronics Engineering Laboratory
Eastern Mediterranean University	<ol style="list-style-type: none">1. Computer-aided engineering.2. Material science.3. Engineering graphics.4. Machine design.
Teaching assistant	<ol style="list-style-type: none">1. SolidWorks Laboratory3. Computer integrated manufacturing Laboratory4. Engineering graphics.

Students Mentored

Capstone supervisor:

- Design and developed Robot control system based on web application and RFID technology (5 students)
- DC Motor Simulation in MATLAB (3 students).

Co-Supervisor of master's and Ph.D. students

- Industrial blockchain-based framework for product lifecycle management in industry 4.0.
- Toward blockchain and fog computing collaborative design and manufacturing platform.

Technical Proficiencies

- **CAD software:** SolidWorks, AutoCAD, and Sketchup.
- **Simulation Software:** AnyLogic, Flexsim and MATLAB.
- **Data Analytics:** Power BI, Tableau, Dash Plotly.
- **Programming language:** VBA, PLC, PHP, Python and Java.
- **IoT devices:** Raspberry pi, Arduino and Particle's Electron board.
- **VR and AR platforms:** Unity 3D, Emulated3D, Demo3D
- **Modeling language:** UML, SysML

Professional Memberships

- Institute of Electrical and Electronics Engineers (IEEE), Professional Member/ 2019
- American Society of Mechanical Engineers (ASME)/Member/2017
- Institute for Operations Research and Management Sciences (INFORMS)
- ISyE Member

Services

Service to profession:

- Responsible to organize faculty and student seminars (GT)
- Responsible for Accreditation Criteria and Supporting Documents (KSU)
- Serving on internal committees; and curriculum and program development (EMU)

Reviewer for the following journals:

- Robotics and Computer-Integrated Manufacturing.
- International Journal of Computer Integrated Manufacturing.

- International Journal of Production Research
- Computers & Industrial Engineering
- IEEE Internet of Things Journal
- International Journal of Production Research
- IEEE Transactions on Engineering Management
- Transportation Research Part E: Logistics and Transportation Review

Talks and Program committee:

- 6th IEOM 2016 Production Planning and Management, Session Chair
- Topic organization IEEE2019CASE
- CSM 2017 Technical Program Committee, Committee Member
- 2020 International Conference on Blockchain and Trustworthy Systems

Awards and Honors

- **Awarded for the best researcher** in the system engineering, GaTech, 2021.
- **Travel Grant for Future Engineering Faculty and Professionals-** EMU university, 2015 and 2016
- **Selected for Who's Who in the World Publication.** 2016
- **Full-time Scholarship for Master and Ph.D.**
- **Best Paper by Young Researcher-** International Conference on Industrial Engineering and Operations Management 2015.
- **B.S. Entrance Exam:** Ranked 42nd of over 45,000 participants.

Peer-Reviewed Publications (Selected)

<https://scholar.google.com/citations?user=vZP0N3oAAAAJ&hl=en>

Journal Publications (Selected)

- 1) **Barenji, Ali V.**, and Benoit Montreuil. "Open Logistics: Blockchain-Enabled Trusted Hyperconnected Logistics Platform." *Sensors* 22.13 (2022): 4699.
- 2) Liu X, **Barenji Ali V**, Li Z, Montreuil B, Huang GQ. Blockchain-based smart tracking and tracing platform for drug supply chain. *Computers & Industrial Engineering*. 2021 Sep 8:107669.
- 3) Li, Z., Zhong, R.Y., Tian, Z.G., Dai, H.N., **Barenji, A.V.** and Huang, G.Q., 2021. Industrial Blockchain: A state-of-the-art Survey. *Robotics and Computer-Integrated Manufacturing*, 70, p.102124.
- 4) **Barenji, Ali V.**, Guo, H., Wang, Y., Li, Z., & Rong, Y. Toward blockchain and fog computing collaborative design and manufacturing platform: Support customer view. *Robotics and Computer-Integrated Manufacturing*, 67, 102043.
- 5) **Barenji, Ali V**, Liu, X., Guo, H. and Li, Z., 2020. A digital twin-driven approach towards smart manufacturing: reduced energy consumption for a robotic cellular. *International Journal of Computer Integrated Manufacturing*, pp.1-16.
- 6) **Barenji, Ali V**, Li, Z., Wang, W.M., Huang, G.Q. and Guerra-Zubiaga, D.A., 2019. Blockchain-based ubiquitous manufacturing: a secure and reliable cyber-physical system. *International Journal of Production Research*, pp.1-22.
- 7) **Barenji, Ali V**, W. M. Wang, Zhi Li, and David A. Guerra-Zubiaga. "Intelligent E-commerce logistics platform using hybrid agent-based approach." *Transportation Research Part E: Logistics and Transportation Review* 126 (2019): 15-31.
- 8) Liu, X.L., Wang, W.M., **Barenji Ali V.**, Li, Z. and Huang, G.Q., 2020. Industrial blockchain based framework for product lifecycle management in industry 4.0. *Robotics and Computer-Integrated Manufacturing*, 63, p.101897.
- 9) Wang, W. M., Z. G. Tian, Z. Li, **Barenji Ali V** and M. N. Cheng. "Supporting the construction of affective product taxonomies from online customer reviews: an affective-semantic approach." *Journal of Engineering Design* (2019): 1-32

- 10) Zhi Li, **Barenji Ali V**, Ray Y. Zhong, George Q. Huang. "Bi-Objective Hybrid Flow Shop Scheduling with Common Due Date". *Operational Research* (2019).
- 11) Li, Zhi, **Barenji Ali V**, and George Q. Huang. "Toward a blockchain cloud manufacturing system as a peer to peer distributed network platform." *Robotics and Computer-Integrated Manufacturing* 54 (2018): 133-144.
- 12) **Barenji Ali V**, and Reza Vatankhah Barenji. "Improving multi-agent manufacturing control system by indirect communication based on ant agents." *Proceedings of the Institution of Mechanical Engineers, Part I: Journal of Systems and Control Engineering* 231, no. 6 (2017): 447-458.
- 13) **Barenji, Ali V**, Reza Vatankhah Barenji, Danial Roudi, and Majid Hashemipour. "A dynamic multi-agent-based scheduling approach for SMEs." *The International Journal of Advanced Manufacturing Technology* 89, no. 9-12 (2017): 3123-3137.
- 14) **Barenji Ali V**, Reza Vatankhah Barenji, and Majid Hashemipour. "Flexible testing platform for employment of RFID-enabled multi-agent system on flexible assembly line." *Advances in Engineering Software* 91 (2016): 1-11.

Conference Papers and Presentation

- 1) **Barenji, A. V**, Moradkhani, N., Benaben, F., Montreuil, B., & Nazzal, D. (2021, June). Physics of decision for polling place management: a case study from the 2020 USA presidential election. In *ICMS 2021-15th International Conference on Modeling and Simulation (Vol. 15, No. 9, pp. 440-448)*.
- 2) **Barenji A.**, Leon McGinnis, Shannon Buckley. (2021, Dec). Designing and implementing operational controllers for a robotic tote consolidation cell simulation; Winter Simulation Conference 2021
- 3) **Barenji, A. V.**, Li, Z., & Wang, W. M. (2018, June). Blockchain Cloud Manufacturing: Shop Floor and Machine Level. In *Smart SysTech 2018; European Conference on Smart Objects, Systems and Technologies* (pp. 1-6). VDE.
- 4) Li, Zhi, Layne Liu, **Barenji A V**, and Waiming Wang. "Cloud-based Manufacturing Blockchain: Secure Knowledge Sharing for Injection Mould Redesign." *Procedia CIRP* 72 (2018): 961-966.
- 5) Roudi, D., **Barenji Ali V**, & Hashemipour, M. (2016). A Dynamic Multi Agent based scheduling for flexible flow line manufacturing system accompanied by dynamic customer demand. *International Conference on Industrial Engineering and Operations Management*.
- 6) **Barenji Ali.**, & Degirmenci, C. (2015, January). Robot control system based on web application and RFID technology. In *MATEC Web of Conferences (Vol. 28). EDP Sciences*.
- 7) **Barenji Ali.**, Barenji, R. V., & Sefidgari, B. L. (2013, August). An RFID-enabled distributed control and monitoring system for a manufacturing system. In *Innovative Computing Technology (INTECH), 2013 Third International Conference on* (pp. 498-503). IEEE.
- 8) **Barenji, Ali**, R. V., & Hashemipour, M. (2013, June). Structural modeling of a RFID-enabled reconfigurable architecture for a flexible manufacturing system. In *Smart Objects, Systems and Technologies (SmartSysTech), Proceedings of 2013 European Conference on* (pp. 1-10). VDE.

References

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5. **Prof. Dr. Benoit Montreuil**

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Systems Engineering at Georgia Tech.
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