

National Science Foundation (NSF) Industry/University Collaborative Research Center for Intelligent Maintenance Systems



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Moslem (Cyrus) Azamfar

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EDUCATION

University of Cincinnati, Cincinnati, OH, USA.	
PhD in Mechanical Engineering	
Aug. 2017 - Present	
Supervisor: Professor Jay Lee	
Specialty: Prognostics and Health Management, Industrial Big Data, Artificial Intelligence, D	еер
Learning, Transfer learning, Blockchain.	
Iran University of Science and Technology, Tehran, Iran	
Master of Science in Mechanical Engineering	
Sep 2012 – Nov 2014	
With a Minor in advanced Control Systems (Digital Control Lab)	
Supervisor: Professor Amir H. D. Markazi	
Thesis Title : Industrial Time Delay control and performance improvement through model ba	ised Al
Seminar Title : stability, robustness, and control of time-delay systems	
• Yazd University, Yazd, Iran	
Bachelor of Science in Mechanical Engineering	
Sep 2008 – Jun 2012	
Supervisor: Professor S. Mohammad Bozorg	
Thesis Title: Lateral movement control of high-speed railroad trains	







PROFESSIONAL EXPERIENCES

- Cross domain fault diagnosis of ball screw based on transfer learning; On dataset from **HIWIN** Co, USA. (June. 2019 Present)
- Cross domain fault diagnosis of gearbox based on transfer learning; On dataset from Fundación Tekniker Co, Spain. (Aug. 2019 – Present)
- Perfect Filling system integrated with local edge and cloud computing; Procter & Gamble Co, USA. (May. 2018 Present)
- Real time monitoring and health assessment of DC brushless Motors; **Procter & Gamble** Co, USA. (Apr. 2018 Sep. 2018)
- Real time monitoring and health assessment of Capping Quality; **Procter & Gamble** Co, USA. (Jan. 2018 Sep. 2018)
- Prognostic and health assessment of chambers in Semiconductor Manufacturing; Hitachi, Japan Co., Ltd. (Jan. 2018 – Apr. 2018)
- Prognostic and health assessment of CNC machines; Mazak Corporation, USA (Aug. 2017 Sep. 2018)
- Prognostic and health assessment of wafer Chemical-Mechanical Planarization (CMP) process; **PHM Data Challenge** 2016 (Oct. 2017 Dec. 2017)
- Prognostic and health assessment of Hard Drives; Huawei Technologies Co (Sep. 2017 Dec. 2017)
- Developing **IOS App** for remotely monitoring assets and infrastructures; Prognostic and health management based on Cyber Physical System structure (5C-CPS), (Aug. 2017 Jan 2018)
- Design, prototyping, and testing of **Haptic Interfaces** for visually impaired people (Nov 2014- Aug. 2017)
- Design, prototyping, and testing of a **rotary internal combustion engine** (2009 –2013)
- A member of an innovative team that designed, prototyped, and tested the first **Hybrid Car** in Iran, University of Yazd (2008 –2010)







COMPUTER SKILLS

•	Computer Languages:	Python, Swift, Matlab, Maple, CATIA (Modeling, Assembly, Simulation), C++
•	AI tools:	Deep Leaning/Transfer Learning for image and signal processing, and machine prognostic and health management. Machine learning for variety of applications
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• General Computer Skills: LaTeX, MS Excel, MS Power Point, MS Word, Linux

HONORS AND AWARDS

- Ranked Second at the University of Cincinnati Innovation Quest Elevator Pitch Competition Apr 2018.
- Ranked first at Khwarizmi National Invention Festival Feb 2016.
- Full Financial Aid Award- to Remarkable Inventions- From Iranian National Science Foundation, Jan 2015
- Ranked in the top 2% of the MSc Degree Participants in the National Entrance Exam, Mar 2012
- Selected Inventor of the 8th Regional Inventions Festival, Yazd, Iran, Jan 2012
- Ranked in the top 10 students in the National Physics Olympiads, May 2007

SELECTED PUBLICATIONS

• Journal Papers

- Jay Lee, Jaskaran Singh, Moslem Azamfar. Industrial AI: Is It Manufacturing's Guiding Light? Manufacturing leadership Journal. 2019:26–36. doi:10.7945/tt9s-gz25.
- Lee, Jay, Moslem Azamfar, and Jaskaran Singh. "A blockchain enabled Cyber-Physical System architecture for Industry 4.0 manufacturing systems." Manufacturing Letters 20 (2019): 34-39.
- Jaskaran Singh, Moslem Azamfar, Fei Li, Jay Lee, (Jan, 2019). Review of Artificial Intelligence techniques and their applications in diagnostics and prognostics of rolling element bearings, MSSP, Submitted Paper.







- Moslem Azamfar, Jaskaran Singh, Jay Lee, (Sep, 2019). Cross domain fault diagnosis method for gearbox under significantly different operational speed. International journal of advanced manufacturing technology, Submitted Paper.
- Moslem Azamfar, Jaskaran Singh, Jay Lee, (Feb, 2019). Multi-sensor data fusion for gearbox fault diagnosis based on motor current signature analysis., Submitted Paper.
- AZAMFAR, M., & MARKAZI, A. H. (2016). Simple Formulae for Control of Industrial Time Delay Systems. Latin American Journal of Solids and Structures, an ABCM Journal, 13
- Azamfar, M., & Moshrefifar, M. (2014). Moshrefifar and Azamfar method, a new cycle counting method for evaluating fatigue life. International Journal of Fatigue, 69, 2-15

• Conference Papers

- Moslem Azamfara , Xiaodong Jiaa, Vibhor Pandharea, Jaskaran Singha, Hoseein Davaria, Jay Lee (Oct, 2018). Detection and diagnosis of bottle capping failures based on motor current. 47th North American Manufacturing Research Conference (NAMRC 47). Submitted.
- Azamfar, M., Amiri, A., & Olilo, D. A. (OCT, 2014). Development of the tuning formula for unstable first order processes with time delay. In 2014 Second RSI/ISM International Conference on Robotics and Mechatronics (ICRoM)
- Zakizadeh, M., Bozorg S. M., Azamfar, M., & Jalili M. M. (May, 2013). Lateral movement control in a railroad vehicle. In 2013 Third International Conference on Recent Advances in Railway Engineering (ICRARE), http://www.civilica.com/Paper-ICRARE03-ICRARE03_121.html







• Inventions

- Azamfar, M. (2017). "Refreshable Braille Display", United States Patent Number: US20170193856 A1
- Azamfar, M. (2017). "Device and methods for continuously refreshing a tactile display ", United States Patent Number: US20170287359A1
- Azamfar, M, Moshrefifar, M. (2014). "A mouse designed for blind people". United States Patent and Trademark Office, Provisional patent, Application Number: 61/929,077
- Azamfar, M. (2014). "Valveless Rotating Multi-Cylinder-Internal Combustion Engine". United States Patent and Trademark Office, Provisional patent, Application Number: 61/990,731
- Azamfar, M. Moshrefifar, M. (2014). "Alternative Motion Mechanism". United States Patent and Trademark Office, Provisional patent, Application Number: 61/839,889
- Azamfar, M. Moshrefifar, M. (2014). "An efficient structure for electrodynamics machines". United States Patent and Trademark Office, Provisional patent, Application Number: 61/929,075
- Azamfar, M (2014). "Two internal combustion engines embedded in one block". United States Patent and Trademark Office, Provisional patent, Application Number: 61/926,462
- Azamfar, M. (2013). "Six stroke rotary internal combustion engine". United States Patent and Trademark Office, Provisional patent, Application Number: 61/878,647
- Azamfar, M. (2013). "Axial 4-stroke Internal Combustion Engine". United States Patent and Trademark Office, Provisional patent, Application Number: 61/926,986

