

Dr. Farin Khanehshenas

Assistant Professor of Ergonomics

Iran university of medical
sciences, Tehran

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Education

2017-2022 [Ph.D. in Ergonomics](#)

Tehran University of Medical Sciences, Tehran, Iran.

Thesis Title: “Presentation and evaluation of driver drowsy recognition dynamic model with an approach of contextual and practical multiple variable fusion based on Bayesian Network and Hidden Markov Model”.

2011-2014 [M.Sc. in Ergonomics](#)

Urmia University of Medical Sciences, Urmia, Iran.

Thesis Title: “Investigation of the relationship between psychosocial stressors and job performance among bank employees”.

2007-2009 [B.Sc. in Occupational Health](#)

Urmia University of Medical Sciences, Urmia, Iran.

Honors and Awards

Ranked in the national university entrance exam for a Ph.D. degree in ergonomics in 2018.

Selected as the best thesis for “Presentation and evaluation of driver drowsy recognition dynamic model with an approach of contextual and practical multiple variable fusion based on Bayesian Network and Hidden Markov Model.” 6th International Reliability and Safety Engineering Conference, Tehran, Iran, 2023.

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Ranked 1st in the knowledge translation festival, focusing on traffic accidents. Tehran, Iran, 2023.

Research interests

- Cognitive Ergonomics
- Macro Ergonomics
- Environmental Ergonomics
- Automotive Ergonomics
- Physical Ergonomics
- Work physiology

Work experiences

2024-Present Iran University of Medical Sciences, Tehran, Iran

Assistance

2024-Present Iran University of Medical Sciences, Tehran, Iran

Director of Educational and Postgraduate Affairs

2024-Present Iran University of Medical Sciences, Tehran, Iran

Member of the Health Promotion Research Center

2015-2017 Urmia University of Medical Sciences, Urmia, Iran

Lecturer & Lab expert

2021-Present Prana Occupational Medicine Center. Tehran, Iran.

Ergonomics specialist

2013-2019 Rama Electric Company. Urmia, Iran.

Ergonomics and occupational health expert

2019-present

Reviewer

- Work (indexed in ISI, Scopus, and PubMed, Tehran, Iran)
- International Journal of Occupational Hygiene (indexed in DOAJ)
- Journal of Health and Safety at Work (indexed in DOAJ and Web of Sciences)
- Medical Journal of the Islamic Republic of Iran (indexed in PubMed and Scopus)

Language

- Turkish
- Persian
- English

Skills

- ✓ **Virtual Reality (VR) and Simulation:** Designing VR-based studies, integrating machine learning for experimental analysis.
- ✓ **Data Mining & Programming:** Skilled in extracting insights from large datasets; proficient in multiple programming languages.
- ✓ **Biometric Signal Processing:** Expertise in respiratory rate (RR), respiratory rate variability (RRV), and thermal imaging analysis.
- ✓ **Workload and Situational Awareness Assessment:** Applying physical, physiological, cognitive, and mental workload evaluation techniques.
- ✓ **Biomechanical Modeling & Motion Analysis:** Experience with 3DSSPP, OpenSim, and motion analysis tools (KINOVEA, MOKKA, Skill Spector).
- ✓ **Risk Assessment:** Evaluating psychosocial stressors, musculoskeletal disorders, fatigue, and drowsiness in occupational settings.
- ✓ **Study Design:** Conducting literature reviews, qualitative research, and experimental studies.
- ✓ **Programming Languages:** Proficient in Python and MATLAB for scientific computing and modeling.
- ✓ **Statistical Analysis:** Skilled in SPSS for quantitative data analysis and interpretation.

Articles

- 1) Driver drowsiness is associated with altered facial thermal patterns: Machine learning insights from a thermal imaging approach. Aghamalizadeh, A., Mazloumi, A., Nikabadi, A., Nahvi, A., [Khanehshenas, F.](#), & Ebrahimian, S. (2024). *Physiology & Behavior* 283 (2024): 114619.
- 2) Design and Development of an Ergonomics Discipline Strategic Plan in Iran. Mazloumi, A., Mosadeghrad, A. M., Kazemi, Z., Khosravi Danesh, M., Khanehshenas, F., Ghasemi, M. S., ... & Gharasi Manshadi, M. (2024). *Iran Occupational Health*, 20(2), 1-16.
- 3) Evaluation of driver drowsiness based on respiratory metrics. [F. Khanehshenas](#), A. Mazloumi, A. Nahvi, A. Nickabadi, A. Aghamalizadeh and A. Keihani. Work 2024 Issue Preprint Pages 1-14.

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- 4) Effectiveness of Exercise Program Interventions in Reducing Musculoskeletal Disorders Among Operating Room Technicians. Abbaszadeh, Maryam, Mohammad Akbari, Ehsan Garosi, Farin Khanehshenas, and Mohammad Sadegh Ghasemi. *International Journal of Occupational Hygiene* 15, no. 4 (2023): 44-53.
- 5) A hybrid approach for driver drowsiness detection utilizing practical data to improve performance system and applicability. **F. Khanehshenas**, A. Mazloumi, A. Nahvi, A. Nickabadi, K. Sadeghniaat, A. Rahimiforoushani, et al. *Work* 2023 Issue Preprint Pages 1-13.
- 6) Fatigue in transportation operations: a contextual factors survey among Iranian suburban drivers. **F. Khanehshenas**, A. Mazloumi, R. Dabiri and S. N. Adinevand. *Work* 2023 Vol. 75 Issue 4 Pages 1439-1454.
- 7) Drivers' subjective perceptions of the contextual factors influencing fatigue: A qualitative study of suburban bus drivers in Iran. **F. Khanehshenas**, A. Mazloumi, P. A. Jalaldehi and M. Kaveh. *Work* 2022 Vol. 72 Issue 4 Pages 1481-1491.
- 8) The effect of auditory stimulation using delta binaural beat for a better sleep and post-sleep mood: A pilot study. R. Dabiri, M. R. Monazzam Esmailpour, M. Salmani Nodoushan, **F. Khanehshenas** and S. A. Zakerian. *Digital Health* 2022 Vol. 8 Pages 20552076221102243.
- 9) Psychological effects of COVID-19 on mental health and related factors among workers of a beverage industry in Tehran, Iran. **F. Khanehshenas** and B. Kouhnavard. *International Journal of Occupational Hygiene* 2020 Vol. 12 Issue 1 Pages 10-23. (In Persian).
- 10) Ergonomics in Laparoscopic Surgery: A Case Study in Hospitals of Tehran University of Medical Sciences, Iran. S. A. Zakerian, S. Tarzi Moghaddam, K. Toulabi, A. Mortezapour Soufiani, **F. Khanehshenas** and S. Mosaferchi. *Journal of Occupational Hygiene Engineering* 2019 Vol. 5 Issue 4 Pages 17-25. (In Persian).
- 11) The Effect of Biophilic Design Patterns on Employee's Health and Well-being: A Systematic Review. **F. Khanehshenas** and P. Habibi. *Iranian Journal of Ergonomics* 2020 Vol. 7 Issue 4 Pages 1-11. (In Persian).
- 12) Psychosocial Stressors and Job Performance among Bank Employees: An Integrated Model. T. ALLAHYARI, **F. KHANEHSHENAS** and H. KHALKHALI. *International Journal of Occupational Hygiene* 2017 Vol. 9 Issue 1 Pages 46-51.
- 13) An investigation of the impact of using latex and nitrile gloves on hand dexterity. T. ALLAHYARI, **F. KHANEHSHENAS** and H. KHALKHALI. *International Journal of Occupational Hygiene* 2015 Vol. 7 Issue 1 Pages 22-26.
- 14) Comparison of the effect of using latex and nitrile gloves hand dexterity among Iranian population. T. Allahyari, H. Khalkhali and **F. Khanehshenas**. *Journal of safety and health at work*. 2014. (In Persian).
- 15) Explaining the relationship between psychosocial stress and job performance in banking industry based on an integrated model. T. ALLAHYARI, **F. KHANEHSHENAS** and H. Khalkhali. 2017.
- 16) Investigation of the relationship between psychosocial stressors and job performance among bank employees. **F. Khanehshenas** and T. Allahyari. *Iranian Journal of Ergonomics* 2014 Vol. 1 Issue 3 Pages 1-10. (In Persian).

Conference Papers

- 1) Driver drowsiness detection based on facial thermal pattern analysis. 7th International Conference on Traffic Management and Safety, Tehran, Iran, 2024 (Oral, in Persian).
- 2) Identification and Classification of Driver Fatigue Detection Technologies Using Contextual Data. 7th International Conference on Traffic Management and Safety, Tehran, Iran, 2024 (Poster, in Persian)
- 3) Studying the effects of ergonomic interventions aimed at reducing thermal stress and infrared radiation to enhance employee performance in a foundry unit. 13th National Conference on Occupational Safety and Health, Tehran, Iran, 2024 (Poster, in Persian)
- 4) A Hybrid Approach for Driver Drowsiness Detection Utilizing Practical Data to Improve Performance System and Applicability. The 4th International Iranian Ergonomics Congress and the 5th Biennial Iranian Congress on Ergonomics. Tehran, Iran, 2024. (Poster, in Persian).
- 5) Investigating the relationship between contextual factors and fatigue among Iranian suburban bus drivers. The 4th International Iranian Ergonomics Congress and the 5th Biennial Iranian Congress on Ergonomics. Tehran, Iran, 2024. (Poster, in Persian).
- 6) Drivers perceptions and experiences of factors affecting drowsiness: a qualitative study among Iranian suburban bus drivers. The 4th International Iranian Ergonomics Congress and the 5th Biennial Iranian Congress on Ergonomics. Tehran, Iran, 2024. (Poster, in Persian).
- 7) Evaluation of driver drowsiness based on respiratory metrics. The 4th International Iranian Ergonomics Congress and the 5th Biennial Iranian Congress on Ergonomics. Tehran, Iran, 2024. (Oral, in Persian).
- 8) Brainwave entrainment for better sleep and post-sleep state: A pilot study. The 4th International Iranian Ergonomics Congress and the 5th Biennial Iranian Congress on Ergonomics, Tehran, Iran, 2024. (Poster, in Persian).
- 9) Detection driver drowsiness with the approach of combining contextual and practical data based on Bayesian networks 6th International Reliability and Safety Engineering Conference, Tehran, Iran. 2023. (Oral, in Persian).
- 10) Calibration of the driver distraction parameter in traffic microsimulation software based on the visual scanning pattern. 2nd International Traffic Safety Conference 2022. Doha, Qatar, March 21–22, 2022. (Oral, in Persian).
- 11) Examining the psychological effects of the COVID-19 disease among the personnel of a soft drink industry. The 15th Annual Research Conference of medical sciences universities in the east of the country, Tehran, Iran, 2022. (Oral, in Persian).
- 12) Biophilic design in ergonomics and its effects on the health and well-being of employees, The third Biennial Conference on Ergonomics, Tehran, Iran, 2019 (Poster, in Persian).
- 13) Examining the relationship between psychosocial stressors and job performance among bank employees. The first Biennial National Conference on Ergonomics, Hamedan, Iran. 2012. (Poster, in Persian).
- 14) Comparison of the effects of using latex and nitrile gloves on the hand skills of the Iranian population. The first Biennial National Conference on Ergonomics, Hamedan, Iran, in 2012. (Oral, in Persian).

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Research Projects

- 1) Investigating challenges and opportunities in autonomous vehicles development from the perspective of cognitive risk factors: A scoping review. *Approval No.34679.*
- 2) Investigating the effects of ergonomic interventions to limit thermal stress and infrared radiation for enhancing employee performance in the Hormozgan Steel Casting Unit. *Approval No.26286.*
- 3) Identification and evaluation of risk factors contributing to musculoskeletal disorders for Ergonomic training interventions among hospital sonographers in the healthcare networks of Iran university of medical sciences. *Approval No.33221.*
- 4) Predicting mental fatigue in air traffic controllers using electroencephalography and machine learning algorithms. *Approval No.32000.*
- 5) Identification and classification contextual factors influencing driver fatigue diagnosing *Approval No.31714.*
- 6) Design and ergonomic evaluation of an ultrasound probe to reduce physical stress in the hand and wrist. *Approval No.30291.*
- 7) Localization and software development of the Key Indicator Method (KIM) set for assessing physical workload in manufacturing and service industries. *Approval No.30177.*
- 8) Experimental study on diagnosing male driver drowsiness using physiological data (facial temperature changes and respiratory indices) with machine learning techniques.
- 9) Presentation and evaluation of a dynamic model for diagnosing driver drowsiness Using a Practical Multi-Data Fusion Approach Based on Bayesian Networks and Hidden Markov Models. *Approval No.46044.*
- 10) Development and validation of an Ergonomic assessment checklist for office chairs with ranking via fuzzy analytic hierarchy process. *Approval No.67409.*
- 11) Evaluation of a smart sitting posture monitoring system (made by Nilpar Company) in order to issue an Ergonomic approval. *Approval No.62242.*

National collaboration

Development of a Strategic Plan for the Ergonomics Discipline in Iran Based on Social Accountability with an Innovation and Entrepreneurship Approach, *Development grant, National Center for Strategic Research in Medical Education (NASR), No. 993769.*

Thesis Advisor

- 1) Investigating the relationship between isometric muscle strength and anthropometric and demographic characteristics of employees at Iran Khodro company. *Approval No.3373.*
- 2) Predicting the risk level of manual lifting using surface electromyography (sEMG) data in symmetrical and asymmetrical lifting tasks with machine learning algorithms. *Approval No. 33512.*
- 3) Localization and software development of the Key Indicator Method (KIM) set for assessing physical workload in manufacturing and service industries. *Approval No. 30177.*

- 4) Experimental study presenting a driver drowsiness detection model based on analyzing data related to facial temperature based on a machine learning approach. *Approval No. 55162.*
- 5) Development and validation of an ergonomic assessment checklist for office chairs and their ranking via the fuzzy analytic hierarchy process. *Approval No. 67409.*

Books

- Assessment methods in ergonomics 2024.
- Driver Fatigue and Drowsiness: Detection System and Countermeasure.2023.
- Ergonomics in the automotive design. 2019.

Patent

- Iran Patent; NO; 100044. Declaration number: 13970140003008254.