Fatemeh (Negin) Heiran

www.neginheiran.com

Summary

Fatemeh (Negin) Heiran received her MSc (2021) and BSc (2018) in Mechanical Engineering from Shiraz University in Iran. Her research interests include the development of novel mechanical mechanisms and robotic systems, controller design, and data analysis. She served as the head of the Robotics team at Medis Studio in Iran, primarily working on the Painverse tele-robotic system and Estella humanoid robot.

Educations

2018 - 2021 **Master of Science in System Dynamics, Control and Vibration, Shiraz University, Shiraz, Iran,** "Thesis: The effect of geometric and environmental parameters on scanning earth horizon sensor modeling and error analysis in satellite attitude determination"
(Thesis Grade: Excellent)

2014 - 2018 **Bachelor of Science in Mechanical Engineering, Shiraz University, Shiraz, Iran,** "Final Project: Kinematics and workspace analysis of a novel parallel mechanism with kinematic redundancy".

Experiences

01/2019-12/2024 **Senior Robotics Engineer and Project Manager - Medis Studio (Iran):**

- Project manager of more than 10 products such as Painverse telerobotics system, Pandora compute case.
- Developing mechanical design by considering the feasibility of production
- Designing and analyzing of mechanical systems
- Trajectory and path planning algorithms by considering obstacle avoidance
- Design, prototyping and manufacturing products

07/2019-07/2021 **Robotics Teacher – Saran Academy (Iran):**

- Teaching robotics to kids and teenagers in 3 levels of Saran Academy

08/2018-12/2024 **Research & Development Member** - **Medis Studio (Iran):**

- R&D process for more than 30 projects
- Business model, feasibility study and business plan
- Financial analysis of projects
- Designing company administration systems

Contact

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Research Interests

- Robotics and mechanical design
- Controller design
- Kinematics and dynamics analysis
- Optimization and bio-inspired learning models
- Data analysis

Languages

English: B2
Persian: Native

Technical Skills

Software: MATLAB, Simulink, C, SolidWorks

Hardware: Modular Electronics Circuiting, 3D Printing (FDM, SLS), Sheet Metal, Laser Cutting, Lathe & Drilling Machines

Robotics: Mechanical Design, Humanoid Robot Design, Kinematics, Dynamics, Motion Control, Prototyping, Robot Manipulation Systems

Other: Product Prototyping, Arduino Programming, Satellite Toolkit (STK), NASA PSG, Office Suite, Excel VBA

Soft Skills

- Collaborative in interdisciplinary teams
- Strategic problem-solving & innovative thinking
- Project management experience
- Adaptability to emerging technologies

06/2017-01/2019 **Junior Robotics Engineer** - **Medis Studio (Iran):**

- Mechanical design with Solidworks
- Involve with the manufacturing process
- Prototyping robotics parts especially 3d printing

10/2015-06/2017 **Robotics Intern** - **Medis Studio (Iran):**

- Learning mechanical design and prototyping
- Learning electronics, programming and robotics
- Part-time internship

Patent

B. Rahnama and F. Heiran, Multi-purpose expandable computing case with detachable enclosure, National Patent (ipm.ssaa.ir), Application No. 140150140003005180, Apr. 5, 2023.

Publications

[1] B. Rahnama, F. Heiran, "Estella: a humanoid robot for enhanced human-robot interaction.", 6th Shiraz International Congress on Mobile Health, 2025. (Abstract Paper)

[2] B. Rahnama, F. Heiran, A. Karimi, M. Radmehr, H. Zakeri, “Revolutionizing telemedicine with Painverse: the role of telerobotics in addressing the physician shortage”, 6th Shiraz International Congress on Mobile Health, 2025. (Abstract Paper)

[3] A. Khakpour Komarsofla, F. Heiran, J. Kodaei-Mehr, R. Vatankhah, "Hybrid control of immune response and hcmv infection of renal transplant recipient.", IEEE Transactions on Systems, Man, and Cybernetics: Systems, 53 (4), 2399 – 2409, 2022.

[4] A. Mirahmadizadeh, A. Heiran, K.B. Lankarani, M. Serati, M. Habibi, O. Eilami, F. Heiran, M. Moghadami, “Effectiveness of covid-19 vaccines in preventing infectiousness, hospitalization and mortality: a historical cohort study using iranian registration data during vaccination program”, Open Forum Infectious Diseases, 9(6), 2022.

[5] F. Heiran, B. Raeisy, R. Vatankhah, S. Taghvaei, “Investigating the effects of geometric and environmental parameters on the governing equations of scanning earth horizon sensor and attitude determination error analysis”, Journal of Solid and Fluid Mechanics of Shahroud University, 12(5), 73-91, 2022. Doi: 10.22044/jsfm.2022.11309.3487. (In Persian)

[6] F. Heiran, B. Raeisy, R. Vatankhah, S. Taghvaei, “Earth oblateness effect on satellite attitude determination with dual cone scanning earth horizon sensor modeling”, 6th National Conference on Mechanical and Aerospace Engineering”, 2022, Iran.

[7] F. Heiran, J. Khodaei-Mehr, R. Vatankhah and M. Sharifi, “Nonlinear adaptive control of immune response of renal transplant recipients in the presence of uncertainties”, Biomedical Signal Processing and Control Journal, Volume 63, January 2021.

[8] B. Rahnama, F. Heiran, L. Rahnama, “Estella humanoid robot: an anatomical replicant”, 2nd World Congress on Rheumatology and Orthopedics, Paris, France, pp 48, September 2019.

[9] F. Heiran, B. Nouri Rahmat Abadi, S. Taghvaei, R. Vatankhah, “Kinematics and workspace analysis of a novel parallel mechanism with kinematic redundancy”, 5th International Conference on Control, Instrumentation, and Automation (ICCIA), Shiraz, Iran, November 2017.

Main Projects

2023-Present **Painverse Tele-robotics System**
www.painverse.org
Painverse is revolutionizing telemedicine system by combining AI, robotics, and XR to enable real-time remote medical examinations across the globe.

2018-Present **Estella Humanoid Robot**
www.estellahumanoids.com
Estella is a highly realistic humanoid robot that have flexible spine and can simulate human facial expressions.

Certificates

[1] The non-degree program DBA (Business Administration) (2022 – 2023), University of Tehran, Iran.

[2] Artificial Intelligence Fundamentals (2025), IBM.

[3] CS50: Introduction to Computer Sciences, 2025, Harvard university edx.

[4] An Intuitive Introduction to Probability, 2025, University of Zurich, coursera.