

Azra Rasouli Kenari

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Ph.D of Biomedical Engineering

School of Advanced Technologies in Medicine, Isfahan University of Medical Science, Isfahan, Iran.

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RG: <https://www.researchgate.net/profile/Azra-Rasouli-Kenari>

Education:

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| 2015 - 2021 | Ph.D. in Biomedical Engineering - School of Advanced Technologies in Medicine, Isfahan University of Medical Science, Isfahan, Iran. (Ranked first)
Advisor : Prof. Hossein Rabbani
Dissertation: Extraction of Gastroesophageal Reflux Disease Pattern From MII-PH Signal Based on Atomic Representation Modeling. |
| 2010 – 2012 | M.Sc. in Biomedical Engineering - Tarbiat Modares University, Faculty of Electrical & Computer Engineering, Tehran, Iran.
Advisor : Prof. Hassan Ghassemian
Dissertation: Fusion of Pediatric Cardiac Disorder diagnosis using Heart Sound Signal. |
| 2006 - 2010 | B.Sc. in Electrical Engineering - Babol Noshirvani University of Technology, Faculty of Electrical & Computer Engineering, Babol, Iran.
Advisor : Prof. Hossein Miar Naimi
Dissertation: Linear Motion Deblurring from Natural Images. |

Positions and Employments:

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| 2023- Present | Researcher in Medical Images and Signals Processing Center, Isfahan University of Medical Sciences. |
| 2021-2023 | Assistant Professor at Sepahan Institute of Higher Education
Lecturer at Ragheb Isfahani Institute of Higher Education
Supervising research of a Ms.c. student at Sepahan Institute of Higher Education
Researcher at R&D part of Behyaar Sanaat Sepahan Medical Equipment Company |

PROFFESIONAL SERVICES:

1. Enrolled as a Scientific Committee of the 1st and 2nd Artificial Intelligence competitions in Isfahan,
 - Specialized Judge in the Reflux (2023) and Apnea (2024) Challenge
 - Data Provider for Reflux Challenge
 - Delivered a presentation to a large audience
2. Peer Reviewer in
 - Journal of Medical Signals and Sensors (JMSS), 2016-2022.
 - Masters Thesis in biomedical engineering field and proposals from Sepahan Institute of higher education
 - Appointed as the reviewer of Journal of Biomedical Sciences (*IF: 12.77*).
 - The 9th International Conference on Fuzzy Systems and Data Mining (FSDM 2023).
 - Communications Medicine (*Commun Med*) ISSN 2730-664X (online) (IF: 5.4).

Awards and Honors:

1. Approved proposal for NIMAD Institute titled "Event Detection from 24-Hr Multichannel Intraluminal Impedance pH Monitoring". (Granted Project 4002280)
2. Ranked 1st among students in Biomedical Engineering of Department of Advanced Technologies in Medicine, 2016
3. One of my papers from PhD has become a featured article. Available at: <https://www.embs.org/jbhi/articles/medical-informatics-21/>
4. Ranked 2nd (grade 19.32/20 at 7th term) among 160 students in Electrical Engineering of Department of Electrical & Computer Engineering, Babol Noshirvani University of Technology, 2010.

Publications:

- 1 **A. Rasouli** and H. Rabbani, "Segmentation of gastroesophageal reflux events using a semi-U-Net architecture with 1D/2D CNNs," *IEEE Trans. Neural Netw. Learn. Syst.*, 2025, Art. no. 21031, doi: 10.1038/s41598-025-21031-4.
- 2 **A. Rasouli**, N. Esmacili, M. Tajmiriahi, M. Khashei, M. Ebrahimpour, P. Alinezhad, *et al.*, "Isfahan artificial intelligence event 2024, challenge I: Respiratory depression detection," *J. Med. Signals Sens.*, to be published, 2025.
- 3 **A. Rasouli**, A. Montazerolghaem, Z. Zojaji, M. Ghatee, B. Yousefimehr, A. Rahmani, *et al.*, "Isfahan artificial intelligence event 2023: Reflux detection competition," *J. Med. Signals Sens.*, vol. 15, no. 2, pp. 6–6, 2025.

- 4 **A. Rasouli**, M. Soheilipour, M. Raisi, H. Rabbani, N. Eghbalifard, and P. Adibi, "Reflux definitions in esophageal multi-channel intraluminal impedance," *Gastroenterol. Hepatol. Bed Bench*, 2023.
- 5 **A. Rasouli**, H. Rabbani, S. Kermani, M. Raisi, M. Soheilipour, and P. Adibi, "A multichannel intraluminal impedance gastroesophageal reflux characterization algorithm based on sparse representation," *IEEE J. Biomed. Health Inform.*, vol. 25, no. 4, pp. 1017–1025, Apr. 2021, doi: 10.1109/JBHI.2021.3076987.
- 6 **A. Rasouli**, H. Rabbani, M. Raisi, M. Soheilipour, and P. Adibi, "Liquid gastroesophageal reflux characterization by investigating multichannel intraluminal impedance-pH monitoring data," in *Proc. 41st Annu. Int. Conf. IEEE Eng. Med. Biol. Soc. (EMBC)*, Berlin, Germany, Jul. 2019, pp. 4636–4639, doi: 10.1109/EMBC.2019.8856732.
- 7 **A. Rasouli** and M. H. Ghassemian, "Automated spectral analysis for pediatric cardiac auscultation," in *Proc. 21st Iranian Conf. Electr. Eng. (ICEE)*, Mashhad, Iran, May 2013, pp. 1–5, doi: 10.1109/IranianCEE.2013.6599627.
- 8 H. Ghassemian and **A. Rasouli**, "Early detection of pediatric heart disease by automated spectral analysis of phonocardiogram," *J. Inf. Syst. Telecommun.*, vol. 3, no. 2, pp. 66–74, Apr. 2015.
- 9 D. Ganji, H. Nateghi, M. Abaspour, and **A. Rasouli**, "The application of the Adomian decomposition method to nonlinear equations arising in heat transfer and boundary layer," *Heat Transfer Res.*, vol. 40, no. 8, pp. 791–805, 2009, doi: 10.1615/HeatTransRes.v40.i8.30.

Skills:

Programming Languages:

- Python: Experienced in implementing projects using PyTorch, with applications in GANs, YOLO, VGG16, U-Net, and CNNs; proficient with libraries such as NumPy, OpenCV, Pandas, etc.
- MATLAB: Conducted projects using toolboxes for Digital Signal Processing, Neural Networks, Image Processing, and Control Systems.
- C: Completed a 40-hour AVR course at Tehran Institute of Technologies.

Software Proficiency:

- Circuit Analysis Tools: PSPICE, Proteus.
- MS Office Suite: Word, PowerPoint, Excel, Visio.

Operating Systems:

- Windows.

Teaching

In Isfahan University of Medical sciences (teaching assistant), Advanced Biomedical Signal Processing and Advanced Digital signal Processing.

In Babol Noshirvani University of Technology (teaching assistant), Electrical Circuits.

In Sepahan Institute of Higher Education, Pattern Recognition, Biological signal Modeling and Medical Image Processing.

In Ragheb Institute of Higher Education, Pattern Recognition and Medical Image Processing.