Tehran University of Medical Sciences (TUMS) – School of Medicine

<u>Curriculum Vitae</u>

<u>Hamidreza Saligheh Rad, PhD</u>

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<u>**Home Address**</u> No. 10, 2nd Baharestan, Bani Hashem Sq., Pasdaran, Tehan, Iran
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<u>**Education**</u>

2000 – 2005	Ph.D.	**Queen's University**, Kingston, Canada, *Department of Electrical and Computer Engineering*
1997 – 1999	M.Sc.	**Isfahan University of Technology**, Isfahan, Iran, *Department of Electrical and Computer Engineering*
1993 – 1997	B.Sc.	**Sharif University of Technology**, Tehran, Iran, *Electrical Engineering Department*

<u>**Postgraduate Training and Fellowship Appointments**</u>

2006 – 2008	Postdoctoral Research Scholar	**Harvard University**, Cambridge, USA, *School of Engineering and Applied Sciences (SEAS)* and *Harvard Medical School (HMS)*
2008 – 2010	Postdoctoral Fellow	**University of Pennsylvania**, Philadelphia, USA, *Laboratory for Structural NMR Imaging (LSNI)*
2021 – 2023	Marie Currie Fellowship (Horizon 2020)	**University of Leeds**, Leeds, UK

<u>**Citizenship**</u>

Canadian since 2005, Iranian born

<u>**Faculty Appointments**</u>

2011 – 2024	Associate Professor	**Department of Medical Physics and Biomedical Engineering, School of Medicine, Tehran University of Medical Sciences**, Tehran, Iran
2014 – 2024	Adjunct Professor	**Department of Radiology, School of Medicine, Tehran University of Medical Sciences**, Tehran, Iran

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Hospital and Administrative Appointments

2011 – 2024   Director, Quantitative MR Imaging and Spectroscopy Group (QMISG; https://qmisg.com/)
2011 – 2024   Clinical MR Imaging Physicist, Department of Radiology, Medical Imaging Center (MIC), Imam Khomeini Hospital, TUMS, Tehran, Iran
2011 – 2022   Deputy for Research and Founder, Research Center for Molecular and Cellular Imaging (RCMCI), Advanced Medical Technologies and Equipment Institute (AMTEI), Imam Khomeini Hospital, TUMS, Tehran, Iran
2011 – 2022   Vice-Chairman for International Affairs, AMTEI, Imam Khomeini Hospital, TUMS, Tehran, Iran
2012 – 2016   Director, QMISG Education for Professional Courses in MRI
2014 – 2024   Chairman, ISMRM Iranian Chapter (https://ismrm.ir/)
2014 – 2024   Consultant, National Brain Mapping Laboratory
2014 – 2024   Chairman, Medical Imaging Physics Committee, Iranian Society of Radiology
2021 – 2024   President, KIO Medical Limited (https://kiomedical.com/)

Awards, Honors and Memberships in Honorary Societies

2006 – 2008   Natural Sciences and Engineering Research Council of Canada

Membership in Professional and Scientific Societies

2008 – 2024   International Society for Magnetic Resonance in Medicine
2014 – 2024   Iranian Society of Radiology
2023 – 2024   European Society of Radiology

Editorial Positions

Associate Editor, Journal of Magnetic Resonance Imaging
Editorial Board, Frontiers in Biomedical Technologies

Manuscript Reviewing

Journal of Magnetic Resonance Imaging **(Associate Editor)**
Journal of Magnetic Resonance in Medicine
Neuroimaging Journal
NMR in Biomedicine
Magnetic Resonance Materials in Physics, Biology and Medicine
European Journal of Radiology
IEEE Transactions on Signal Processing
IEEE Transactions on Wireless Communications
IEEE Transactions on Communications

Study Section Activities

2011 – 2024   Osteoporosis Research Center, Endocrinology and Metabolism Research Institute

Institutional and Departmental Committees

2011 – 2024   Deputy for International Affairs, Department of Medical Physics and Biomedical Engineering, TUMS
2012 – 2024   Committee for Appointments and Promotions, Department of Medical Physics and Biomedical Engineering

Major Teaching Responsibilities at Tehran University of Medical Sciences

Principles of MRI

Hamidreza Saligheh Rad, PhD

Advanced Topics in MRI
Quantitative MRI
MRI Techniques I-II
Digital Signal Processing
English Scientific Writing

MS Students Mentored

Student	Program	Year of Thesis Defense
Sikiru Afolaba	Biomedical Engineering	2017
Bahareh Siahlou	Biomedical Engineering	2017
Nahid Abyari	Biomedical Engineering	2018
Nazanin Mobini	Biomedical Engineering	2018
Mahsa Talebi	Medical Imaging	2019
Soheila Kopaei	Medical Imaging	2019
Elmira Yazdani	Medical Physics	2020
Forogh Sodaei	Medical Imaging	2020
Salman Rezaei	Biomedical Engineering	2021
Farzad Alizadeh	Medical Physics	2021
Fatemeh Mohammadian	Medical Imaging	2021
Farzin Mobayen	Medical Imaging	2022
Mahmoud Morafegh	Medical Physics	2022
Sina Zeinaly	Medical Imaging	2024
Milad Tehrani	Biomedical Engineering	2024

PhD Students Supervised

Student	Graduate Group	Year of Thesis Defense
Anahita Fathi Kazerooni	PhD in Biomedical Engineering	2017
Manijeh Beigi	PhD in Medical Physics	2020
Malakeh Malek Zadeh	PhD in Medical Physics	2020
Sima Ahmadian	PhD in Biomedical Radiation	2020
Sam Sharifzadeh	PhD in Biomedical Engineering	2021
Alireza Shirazi	PhD in Biomedical Engineering	2021
Ghazaleh Jamshidi	PhD in Biomedical Engineering	2022

Post-Doctoral Fellows Trained

Trainee	Degree	Years of Training
Nima Gilani	PhD in Biomedical Engineering	2015 – 2016
Ali Abbasian Ardakani	PhD in Medical Physics	2019 – 2020
Hasan Homayon	PhD in Artificial Intelligence	2019 – 2020
Esmaeil Alibakhshi	PhD in Pulmonary Rehabilitation	2020-2022

Current Post-Doctoral Trainees

Trainee	Degree	Years of Training
Gelareh Valizadeh	PhD in Medical Radiation	2022 – 2024
Farzan Moodi	MD	2021 – 2024
Fereshteh Khodadai	PhD in Biomedical Engineering	2022 – 2024

Research Interests

My major research interests fall in the area of advanced image acquisition and analysis techniques for magnetic resonance imaging (MRI) and spectroscopy (MRS) in medicine. Looking into robust, reproducible and low-complexity quantitative methods in MRI, I focus on *multi-physics quantification in clinical (MR)imaging* where I develop the new generation of AI-based analysis methods to facilitate *disease characterization in the clinical applications*. These include:

- Cortical Bone Quality Assessment
- Brain Tumor Contouring and Diagnosis
- Prostate Cancer Screening and Classification
- Breast Lesion Detection and Diagnosis
- Alzheimer's disease Classification, Screening and Prediction
- Ovarian Masses Screening and Classification
- Epilepsy Foci Detection
- Liver Disease Quantification

Bibliography

Research Publications, Peer-Reviewed (non-ISI marked by *)

- **Cortical Bone**

1. Talebi, Mahsa, Shahrokh Abbasi-Rad, Malakeh Malekzadeh, Mohamad Shahgholi, Ali A. Ardakani, Kimia Foudeh, and Hamidreza S. Rad. "Cortical bone mechanical assessment via free water relaxometry at 3 T." *Journal of Magnetic Resonance Imaging* 54, no. 6 (2021).
2. Alavijeh, Shaghayegh Karimi, Fakhereh Pashaei, Mahrooz Malek, and Hamidreza Saligheh Rad. "Accurate Quantification of Choline-to-Creatine Ratio as a Biomarker to Distinguish Osteosarcoma Patients from Normal Subjects Employing Proton Magnetic Resonance Spectroscopy Imaging at 3 Tesla." *Frontiers in Biomedical Technologies* (2021)*.
3. Abbasi-Rad, Shahrokh, Atena Akbari, Malakeh Malekzadeh, Mohamad Shahgholi, Hossein Arabalibeik, and Hamidreza Saligheh Rad. "Quantifying cortical bone free water using short echo time (STE-MRI) at 1.5 T." *Magnetic resonance imaging* 71 (2020).
4. Fathi Kazerooni, Anahita, Jose M. Pozo, Eugene Vincent McCloskey, Hamidreza Saligheh Rad, and Alejandro F. Frangi. "Diffusion MRI for assessment of bone quality; a review of findings in healthy aging and osteoporosis." *Journal of Magnetic Resonance Imaging* 51, no. 4 (2020).
5. Malekzadeh, Malakeh, Shahrokh Abbasi-Rad, Joyce H. Keyak, Mahnaz Nabil, Mojgan Asadi, Nazanin Mobini, Parisa Naghdi, Hamid Emadi, Hamidreza Saligheh Rad, and Mohammad Bagher Shiran. "Liquid calibration phantoms in ultra-low-dose QCT for the assessment of bone mineral density." *Journal of Clinical Densitometry* 23, no. 1 (2020).
6. Malekzadeh, Malakeh, Mojgan Asadi, Shahrokh Abbasi-Rad, Jamileh Abolghasemi, Zohreh Hamidi, Mahsa Talebi, Mohammad Bagher Shiran, and Hamidreza Saligheh Rad. "MDCT-QCT, QUS, and DXA in healthy adults: An intermodality comparison." *Medical Journal of the Islamic Republic of Iran* 33 (2019)*.
7. Abbasi-Rad, Shahrokh, and Hamidreza Saligheh Rad. "Quantification of human cortical bone bound and free water in vivo with ultrashort echo time MR imaging: a model-based approach." *Radiology* 283, no. 3 (2017).
8. Akbari, Atena, Shahrokh Abbasi-Rad, Amirali Kazeminejad, and Hamidreza Saligheh Rad. "A Feasibility Study on Quantifying Cortical Bone Free Water Longitudinal Relaxation Time Employing Short-TE MRI Technique at 3T." *Frontiers in Biomedical Technologies* 3, no. 1-2 (2016)*.
9. Akbari, Atena, Shahrokh Abbasi-Rad, and Hamidreza Saligheh Rad. "T1 correlates age: a short-TE MR relaxometry study in vivo on human cortical bone free water at 1.5 T." *Bone* 83 (2016).
10. Akbari, Atena, Shahrokh Abbasi-Rad, Niloofar Tondro, Mohsen Shojaee-Moghaddam, and Hamidreza Saligheh Rad. "Can MRI Estimate the Cortical Bone Quality? A Feasibility Study Employing Short-TE MRI." *age* 10 (2015).
11. Li, Cheng, Alan C. Seifert, Hamidreza Saligheh Rad, Yusuf A. Bhagat, Chamith S. Rajapakse, Wenli Sun, Shing Chun Benny Lam, and Felix W. Wehrli. "Cortical bone water concentration: dependence of MR imaging measures on age and

pore volume fraction." *Radiology* 272, no. 3 (2014).

12. Li, Cheng, Jeremy F. Magland, Hamidreza Saligheh Rad, Hee Kwon Song, and Felix W. Wehrli. "Comparison of optimized soft-tissue suppression schemes for ultrashort echo time MRI." Magnetic resonance in medicine 68, no. 3 (2012).

13. Rad, Hamidreza Saligheh, Shing Chun Benny Lam, Jeremy F. Magland, Henry Ong, Cheng Li, Hee Kwon Song, James Love, and Felix W. Wehrli. "Quantifying cortical bone water in vivo by three-dimensional ultra-short echo-time MRI." *NMR in Biomedicine* 24, no. 7 (2011).

14. Malekzadeh, Malakeh, Shahrokh Abbasi-Rad, Mohamad Shahgholi, Parisa Naghdi, Marzieh Sadat Hoseini, Niloofar Ayoobi Yazdi, Mohammad Bagher Shiran, and Hamidreza Saligheh Rad. "Design and validation of synchronous QCT calibration phantom: practical methodology." *Journal of medical imaging and radiation sciences* 50, no. 1 (2019).

- **Brain Tumor**

15. Farzan Moodi, Fereshteh khodadadi shoushtari, Gelareh Valizadeh, Dornaz Mazinani, Hanieh Mobarak Salari, Hamidreza Saligheh Rad, "Atention Xception UNet (AXUNet): A novel combination of CNN and self-attention for brain tumor segmentation," Physica Medica (2024), (Under Review)

16. "Application of Additional Effective Modules to Improve the Performance of Deep-Learning Based Brain Tumor Segmentation; A Technical Review," Physica Medica (2024), (Under Review)

17. Delaram J. Ghadimi, Amir Vahdani, Hanie Karimi, Pouya Ebrahimi, Mobina Fathi, Farzan Moodi, Adrina Habibzadeh, Fereshteh Khodadadi Shoushtari, Gelareh Valizadeh, Hanieh Mobarak Salari, Hamidreza Saligheh Rad, "Deep Learning-Based Techniques in Glioma Brain Tumor Segmentation using Multi-Parametric MRI: A Review on Clinical Applications and Future Outlooks."; Journal of Magnetic Resonance Imaging (2024).

18. Mehrnahad, Mersad, Morteza Sanei Taheri, Farnaz Kimia, Hamidreza Saligheh Rad, and Robabeh Ghodssi Ghassem Abadi. "Evaluation of apparent diffusion coefficient values in discriminating concurrent differential diagnosis of Glioblastoma, lymphoma, and metastatic tumors." International Journal of Travel Medicine and Global Health 12, no. 2 (2024).

19. Moodi, Farzan, Fereshteh Khodadadi Shoushtari, Delaram J. Ghadimi, Gelareh Valizadeh, Ehsan Khormali, Hanieh Mobarak Salari, Mohammad Amin Dabbagh Ohadi, Yalda Nilipour, Amin Jahanbakhshi, and Hamidreza Saligheh Rad. "Glioma Tumor Grading Using Radiomics on Conventional MRI: A Comparative Study of WHO 2021 and WHO 2016 Classification of Central Nervous Tumors." Journal of Magnetic Resonance Imaging (2023).

20. Mehrnahad, Mersad, Morteza Sanei Taheri, Farnaz Kimia, Hamidreza Saligheh Rad, and Robabeh Ghodssi GhassemAbadi. "Diagnostic Value of Apparent Diffusion Coefficient Statistics in Differentiating the Glioblastoma Tumors with an Oligodendroglioma and Glioblastomas Without Such Moiety." International Journal of Cancer Management In Press (2023).

21. Mehrnahad, Mehrsad, Sara Rostami, Farnaz Kimia, Reza Kord, Morteza Sanei Taheri, Hamidreza Saligheh Rad, Hamidreza Haghighatkhah, Afshin Moradi, and Ali Kord. "Differentiating glioblastoma multiforme from cerebral lymphoma: application of advanced texture analysis of quantitative apparent diffusion coefficients." The Neuroradiology Journal 33, no. 5 (2020).

22. Fathi Kazerooni, Anahita, Spyridon Bakas, Hamidreza Saligheh Rad, and Christos Davatzikos. "Imaging signatures of glioblastoma molecular characteristics: a radiogenomics review." Journal of Magnetic Resonance Imaging 52, no. 1 (2020).

23. Sanei Taheri, Morteza, Farnaz Kimia, Mersad Mehrnahad, Hamidreza Saligheh Rad, Hamidreza Haghighatkhah, Afshin Moradi, Anahita Fathi Kazerooni, Mohammadreza Alviri, and Abdorrahim Absalan. "Accuracy of diffusion-weighted imaging-magnetic resonance in differentiating functional from non-functional pituitary macro-adenoma and classification of tumor consistency." *The Neuroradiology Journal* 32, no. 2 (2019).

24. Rahimzadeh, Hossein, A. Fathi Kazerooni, M. R. Deevband, and H. Saligheh Rad. "An efficient framework for accurate arterial input selection in DSC-MRI of glioma brain tumors." *Journal of biomedical physics & engineering* 9, no. 1 (2019)*.

25. Rad, Hamidreza Saligheh, Mojtaba Safari, Anahita Fathi Kazerooni, Yashar Moharamzad, and Morteza Sanei Taheri. "Apparent diffusion coefficient (ADC) and first-order histogram statistics in differentiating malignant versus benign meningioma in adults." *Iranian Journal of Radiology* 16, no. 1 (2019)*.

26. Beigi, Manijeh, Mojtaba Safari, Ahmad Ameri, Mohsen Shojaee Moghadam, Azim Arbabi, Morteza Tabatabaeefar, and Hamidreza SalighehRad. " Findings of DTI-p maps in comparison with T 2/T 2-FLAIR to assess postoperative hyper-signal abnormal regions in patients with glioblastoma." Cancer Imaging 18 (2018).

27. Fathi Kazerooni, Anahita, Mahnaz Nabil, Mehdi Zeinali Zadeh, Kavous Firouznia, Farid Azmoudeh-Ardalan, Alejandro F. Frangi, Christos Davatzikos, and Hamidreza Saligheh Rad. "Characterization of active and infiltrative tumorous subregions from normal tissue in brain gliomas using multiparametric MRI." Journal of Magnetic Resonance Imaging 48, no. 4 (2018).

28. Beigi, Manijeh, Kevan Ghasemi, Parvin Mirzaghavami, Mohammadreza Khanmohammadi, and Hamidreza SalighehRad. "Malignancy probability map as a novel imaging biomarker to predict malignancy distribution: employing MRS in GBM patients." Journal of Neuro-Oncology 138 (2018).

29. Adebileje, Sikiru Afolabi, Keyvan Ghasemi, Hammed Tanimowo Aiyelabegan, and Hamidreza Saligheh Rad. "Accurate classification of brain gliomas by discriminate dictionary learning based on projective dictionary pair learning of proton magnetic resonance spectra." *Magnetic Resonance in Chemistry* 55, no. 4 (2017).

30. Miri, Mojtaba, Meysam Mohseni, Alireza Madadi, Kavous Firouznia, Hamidreza Saligheh Rad, Farid Azmoudeh Ardalan, Anahita Fathi Kazerooni, Ali Haidari, Reza Taslimi, and Hossein Ghanaati. "Efficacy of 1H-MRSI and DWI for Non-invasive Grading of Brain Gliomas." *Iranian Journal of Radiology* 14, no. 2 (2017)*.

31. Safari, Mojtaba, Anahita Fathi Kazerooni, and Hamidreza Saligheh Rad. "Multi-Parametric MR Image Registration in Glioma Brain Tumors Using Multi-Similarity (RC and NMI) Measures Based on Wavelet Transform." *Frontiers in Biomedical Technologies* 4, no. 3-4 (2017)*.

32. Fathi Kazerooni, Anahita, Meysam Mohseni, Sahar Rezaei, Gholamreza Bakhshandehpour, and Hamidreza Saligheh Rad. "Multi-parametric (ADC/PWI/T2-w) image fusion approach for accurate semi-automatic segmentation of tumorous regions in glioblastoma multiforme." *Magnetic Resonance Materials in Physics, Biology and Medicine* 28 (2015).

33. Fathi-Kazerooni, Anahita, Meysam Mohseni, and Hamid Reza Saligheh-Rad. "Accurate segmentation of tumorous regions in high-grade glioma employing a multi-parametric (adc/pwi/t2-w) image fusion approach." *Frontiers in Biomedical Technologies* 1, no. 1 (2014)*.

34. Rezvanizadeh, Alireza, Kavous Firouznia, Mohammad Salehi-Sadaghiani, Meisam Mohseni, Dona Gharaei, Hossein Ghanaati, Hamidreza Saligheh Rad, and Majid Masoudnia. "The effects of voxel localization and time of echo on the diagnostic accuracy of cystic brain tumors in 3 tesla magnetic resonance spectroscopy." *Iranian Journal of Radiology* 9, no. 4 (2012)*.

- **Prostate Cancer**

35. "Prediction of Clinically Significant Prostate Cancer in Biparametric MRI: Development of Interpretable and Explainable Radiomics-Based Machine Learning Models," (In Preparation).

36. "Deep learning-powered framework for prostate cancer diagnosis through the integration of multiparametric MRI and clinical information," (In Preparation)

37. "Enhancing Prostate Lesion Differentiation: A Comprehensive Review of Multiparametric MRI and Deep Learning Integration," (In Preparation)

38. Jamshidi, Ghazaleh, Ali Abbasian Ardakani, Mahyar Ghafoori, Farshid Babapour Mofrad, and Hamidreza Saligheh Rad. "Radiomics-based machine-learning method to diagnose prostate cancer using mp-MRI: a comparison between conventional and fused models." Magnetic Resonance Materials in Physics, Biology and Medicine 36, no. 1 (2023).

39. Koopaei, Soheila, Anahita Fathi Kazerooni, Mahyar Ghafoori, Mohamadreza Alviri, Fakhereh Pashaei, and Hamidreza Saligheh Rad. "Quantification of Multi-Parametric Magnetic Resonance Imaging Based on Radiomics Analysis for Differentiation of Benign and Malignant Lesions of Prostate." *Journal of Biomedical Physics & Engineering* 13, no. 3 (2023)*.

40. Homayoun, Hassan, Hamidreza Saligheh Rad, and Ali Abbasian Ardakani. "The Role of Artificial Intelligence in Urology Practice." *Translational Research in Urology* 4, no. 1 (2022).

41. Jamshidi, Ghazaleh, Farshid Babapour Mofrad, Mahyar Ghafoori, and Hamidreza Saligheh Rad. "A review on the role of mp-MRI for detection, localization and staging of prostate cancer." Tehran University of Medical Sciences Journal 80, no. 6 (2022)*.

42. Koopaee, Soheila, Anahita Fathi Kazerooni, Mahyar Ghafoori, Mohamad Reza Alviri, Kamal Hoseini, Fakhereh Pashaei,

and Hamidreza Saligheh Rad. "Diagnostic Accuracy of Multi-Parametric Magnetic Resonance Imaging for Differentiation of Benign and Malignant Lesions of Prostate Using Radiomics Analysis." *Iranian Journal of Radiology* 16, no. Special Issue (2019)*.

- **Breast Cancer**

43. "The diagnostic value of DCE perfusion maps in differentiating benign and malignant breast lesions via machine learning: A radiomics analysis," (In Preparation).
44. "Machine Learning and Radiomics Models Based on Multiparametric MRI for Differentiating Malignant from Benign Breast Masses; A Single-Center Retrospective Study," (In Preparation).
45. "Computer-Aided Detection and Segmentation Methods for Breast Cancer using Magnetic Resonance Imaging: A Technical Review," (In Preparation)
46. Alviri, Mohammad Reza, Anahita Fathi Kazerooni, Soheila Koopaee, Hamidreza Saligheh Rad, and Masoumeh Gity. "A Review of Diffusion Magnetic Resonance Imaging in Characterization of Breast Cancers." *Frontiers in Biomedical Technologies* 9, no. 2 (2022)*.
47. Banaie, Masood, Hamid Soltanian-Zadeh, Hamid-Reza Saligheh-Rad, and Masoumeh Gity. "Spatiotemporal features of DCE-MRI for breast cancer diagnosis." Computer methods and programs in biomedicine 155 (2018).
48. Noori, Maryam, Bahareh Siahlou, Hamidreza Salighehrad, Anahita Fathi, and Mohammad Fathi. "The importance of diffusion weighted imaging in breast MRI." *Iranian Journal of Radiology* 5 (2017)*.
49. *Navaei-Lavasani, Saeedeh, Anahita Fathi-Kazerooni, Hamidreza Saligheh-Rad, and Masoumeh Gity. "Discrimination of benign and malignant suspicious breast tumors based on semi-quantitative DCE-MRI parameters employing support vector machine." Frontiers in Biomedical Technologies 2, no. 2 (2015)*.*

- **Alzheimer's Disease**

50. "Quantitative MRI techniques to track perfusion and metabolic alterations in Alzheimer's disease: A Review Study," (In Preparation).
51. Valizadeh, Gelareh, Reza Elahi, Zahra Hasankhani, Hamidreza Saligheh Rad, and Ahmad Shalbaf. "Deep Learning Approaches for Early Prediction of Conversion from MCI to AD using MRI and Clinical Data: A Systematic Review." *Archives of Computational Methods in Engineering* (2024).
52. Mohammadian, Fatemeh, Arash Zare Sadeghi, Maryam Noroozian, Vahid Malekian, Majid Abbasi Sisara, Hasan Hashemi, Hanieh Mobarak Salari et al. "Quantitative assessment of resting-state functional connectivity MRI to differentiate amnestic mild cognitive impairment, late-onset Alzheimer's disease from normal subjects." *Journal of Magnetic Resonance Imaging* 57, no. 6 (2023).
53. Mohammadian, Fatemeh, Maryam Noroozian, Arash Zare Sadeghi, Vahid Malekian, Azam Saffar, Mahsa Talebi, Hasan Hashemi et al. "Effective connectivity evaluation of resting-state brain networks in Alzheimer's disease, amnestic mild cognitive impairment, and normal aging: an exploratory study." *Brain Sciences* 13, no. 2 (2023).
54. Alizadeh, Farzad, Hassan Homayoun, Seyed Amir Hossein Batouli, Maryam Noroozian, Forough Sodaie, Hanieh Mobarak Salari, Anahita Fathi Kazerooini, and Hamidreza Saligheh Rad. "Differential Diagnosis among Alzheimer's Disease, Mild Cognitive Impairment, and Normal Subjects Using Resting-State fMRI Data Extracted from Multi-Subject Dictionary Learning Atlas: A Deep Learning-Based Study." *Frontiers in Biomedical Technologies* (2022)*.
55. Yu, Xinying, Bo Peng, Zeyu Xue, Hamidreza Saligheh Rad, Zhenlin Cai, Jun Shi, Jianbing Zhu, and Yakang Dai. "Analyzing brain structural differences associated with categories of blood pressure in adults using empirical kernel mapping-based kernel ELM+." *BioMedical Engineering OnLine* 18 (2019).
56. Mehr, Fardin Samadi Khoshe, Soroor Kalantari, Jafar Zamani, Hanieh Mobarak Salari, and Hamidreza Salighehrad. "Quantification of ASL Perfusion MRI in MCI Patients Using Single-Post Labeling Delay Model-Fitting Approach." *Frontiers in Biomedical Technologies* 6, no. 3 (2019)*.

- **Ovarian Masses**

57. Gity, Masoumeh, Sara Parviz, Hamidreza Saligheh Rad, Anahita Fathi Kazerooni, Elham Shirali, Madjid Shakiba, and

Masoud Baikpour. "Differentiation of benign from malignant adnexal masses by dynamic contrast-enhanced MRI (DCE-MRI): quantitative and semi-quantitative analysis at 3-Tesla MRI." *Asian Pacific Journal of Cancer Prevention: APJCP* 20, no. 4 (2019).

58. Fathi Kazerooni, Anahita, Mahnaz Nabil, Hamidreza Haghighat Khah, Mohammadreza Alviri, Maryam Heidari-Sooreshjaani, Masoumeh Gity, Mahrooz Malek, and Hamidreza Saligheh Rad. "ADC-derived spatial features can accurately classify adnexal lesions." *Journal of Magnetic Resonance Imaging* 47, no. 4 (2018).

59. Kazerooni, A. Fathi, Mahnaz Nabil, H. Haghighat Khah, Sara Parviz, Masoumeh Gity, and H. Saligheh Rad. "A one-step biomarker quantification methodology for DCE-MRI of adnexal masses: Capturing kinetic pattern from early to late enhancement." *Magn Reson Med* 79, no. 2 (2018).

60. Kazerooni, Anahita Fathi, Mahrooz Malek, Hamidreza Haghighatkhah, Sara Parviz, Mahnaz Nabil, Leila Torbati, Sanam Assili, Hamidreza Saligheh Rad, and Masoumeh Gity. "Semiquantitative dynamic contrast-enhanced MRI for accurate classification of complex adnexal masses." *Journal of Magnetic Resonance Imaging* 45, no. 2 (2017).

61. Kazerooni, Anahita Fathi Fathi, Mahnaz Nabil, Elaheh Kia, Mahrooz Malek, and Hamidreza Saligheh Rad. "An Automated Non-Rigid Registration Method for Accurate Quantification of Dynamic Contrast Enhanced MR Imaging (DCE-MRI) in Complex Adnexal Masses Employing Residual Complexity Framework." *Frontiers in Biomedical Technologies* 3, no. 3-4 (2016)*.

62. Kazerooni, Anahita Fathi, Mahnaz Nabil, and Hamidreza Saligheh Rad. "Can an Automated Decision Tree Based on Quantitative DCE-MRI Help to Accurately Classify Complex Adnexal Masses?," (2014).

- **Epilepsy**

63. Dashtkoohi, Mohammad, Delaram J. Ghadimi, Farzan Moodi, Nima Behrang, Ehsan Khormali, Hanieh Mobarak Salari, Nathan T. Cohen, Taha Gholipour, and Hamidreza Saligheh Rad. "Focal Cortical Dysplasia Detection by Artificial Intelligence Using MRI: A Systematic Review and Meta-analysis." (2024).

64. Salari, Hanieh Mobarak, Forough Sodaei, Jafar Zamani, Nahid Abyari, Fardin Samadi Khoshe Mehr, and Hamidreza Saligheh Rad. "The evaluation of the brain alterations in epileptic patients using structural magnetic resonance imaging." *Frontiers in Biomedical Technologies* 6, no. 3 (2019)*.

65. Mobarakeh, Neda Mohammadi, Fatemeh Fadaie, Mohammad Reza Nazem Zadeh, Jafar Mehvari Habibabadi, and Hamidreza Saligheh Rad. "The use of proton MR spectroscopy in epilepsy: a methodological review." *Frontiers in Biomedical Technologies* (2019)*.

66. Mobarakeh, N. Mohammadi, Jafar Mehvari Habibabadi, S. S. H. Fesharaki, H. Saligheh Rad, and M. R. Nazem-Zadeh. "Lateralization of Temporal Lobe Epilepsy Using MRI and DTI Findings in Hippocampus." Epilepsia 59 (2018).

67. Fadaie, Fatemeh, Neda Mohammadi Mobarakeh, Sayed Sohrab Hashemi Fesharaki, Mohammad Hossein Harirchian, Homayoun Hadizadeh Kharazi, Hamidreza Saligheh Rad, and Jafar Mehvari Habibabadi. "1H-MRS metabolite's ratios show temporal alternation in temporal lobe seizure: Comparison between interictal and postictal phases." Epilepsy Research 128 (2016).

68. Mohammadi, Neda, Mohammad Hadi Arabi, Fatemeh Fadaei, Anahita Fathi-Kazerooni, Jafar Mehvari-Habibabadi, Mohammad Hossein Harirchian, Seyed Sohrab Hashemi-Fesharaki, Saeed Sarkar, and Hamidreza Saligheh-Rad. "A novel 1H-MRS quantification approach based on spectral fitting for lateralization/localization of seizure foci in patients with temporal lobe epilepsy." Frontiers in Biomedical Technologies 2, no. 1 (2015)*.

- **Liver Disease Quantification**

69. Ghadery, Abdolkarim Haji, Niloofar Ayoobi Yazdi, Hamed Bagheri, Anahita Fathi Kazerooni, Faeze Salahshour, Sam Sharifzadeh Javidi, Sandra Saeedi, Hamidreza Saligheh Rad, and Babak Shekarchi. "Prediction of hepatocellular carcinoma response to transarterial chemoembolization with intravoxel incoherent motion diffusion-weighted imaging." *Egyptian Journal of Radiology and Nuclear Medicine* 53, no. 1 (2022).

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- **Physics / Non-Focused Topics in MRI**

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International Research Grants

Funder	Role	Years of Execution	Title
European Union (Horizon 2020)	PI	2021 – 2023	Quantification of Free and Bound Water Concentrations in Human Cortical Bone Employing Hybrid Hard-Tissue MRI: Towards Comprehensive Osteoporosis Assessment
National Institute for Medical Research Development (NIMAD)	PI	2018 – 2023	Radiogenomic analysis of low-grade diffuse gliomas using AI based on pre-operative multi-parametric MRI (GliomaAI)
Cognitive Sciences and Technologies Council (COGC)	PI	2016 – 2020	Image-Based Radiological Evidences for Differential Diagnosis of Patients with Dementia Employing Multi-parametric MRI (PWI/DTI/T1-w); A Baseline Study
Iran National Science Foundation (INSF) International Grants Department and Chinease Academy of Sciences (CAS)	PI	2022 – 2024	7T Animal MRI System; Reconstruction Software Development for Conventional Sequences

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