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Mohammar. R. Salmanpour, Ph.D.



❖ **Education:**

- **Ph.D.** 2016-2021
 - Exchange Ph.D. Student, University of British Columbia (UBC) & BC Cancer Research Institute, Vancouver, Canada (January 2020-December, 2021 (~ 2 years)).
 - Medical Physics/Radiation, Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran
 - **Thesis:** Hybrid Machine Learning to Classify and Predict Outcome for Parkinson's Disease Patients

- **M.A.SC** 2012-2014
 - Faculty of Engineering, Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran
 - **Thesis:** Design of Advanced Control Rod to Reduce Drop-Time in Typical Swimming Pool

- **B.SC** 2007-2011
 - Electrical Engineering, Hadaf University, Sari, Iran
 - **Thesis:** Optimal Transformer Capacity Utilization Based on Network Harmonics

❖ **Summary of Qualifications**

- Highly Motivated Researcher and Scientist with Independent, Innovative, and Collaborative Skills
- Demonstrated Strong Writing Skills through Writing One of My School's Most Comprehensive Doctoral Theses, Plus Publishing Multiple Papers in Prestigious Journals and Conferences, Mostly as First Author.
- Significant Experience as a Consultant in a Mid-size Company; Advisor & Administrator in Experimental Labs; Experienced Researcher and advisor in BC Cancer Team (Vancouver, Canada); Researcher, Mentor, and Project Leader in TECVICO CORP. (Vancouver, Canada); Educator with Multiple Years of Experience.
- Significant Publication Record

❖ Research Topics

- Signal and Image Processing, Medical Imaging, Optimization Algorithms, Machine Learning Algorithms, Deep Learning Algorithms, Hybrid algorithms, Fusion Techniques, Attention Maps, Automatic Segmentation and Object Detections, Clinical Imaging (PET, SPECT, MRI, CT, ...), Dosimetry and Radiation Treatment Planning.

❖ Experience

- **Computer-Integrated-Interventions and Diagnostics (CIID) laboratory/Djavad-Mowafaghian-Centre**, Department of Radiology, University of British Columbia,, Vancouver, BC, Canada
 - **Duration:** 06/2023 to Now
 - Post-Doctoral Fellow, Mentor and Data Scientist and Programmer (Machine Learning/Deep Learning and Image Processing Algorithms)
 - Mentor and advisor
- **Quantitative Radiomolecular Imaging and Therapy (Qurit) Lab**, BC Cancer Research Institute, Vancouver, BC, Canada (www.qurit.ca)
 - **Duration:** 06/2023 to Now
 - Mentor and advisor
 - Project leader
- **Quantitative Radiomolecular Imaging and Therapy (Qurit) Lab**, BC Cancer Research Institute, Vancouver, BC, Canada (www.qurit.ca)
 - **Duration:** 01/2022 to 06/2023
 - Post-Doctoral Fellow, Mentor and Data Scientist and Programmer (Machine Learning/Deep Learning and Image Processing Algorithms)
 - Mentor and advisor
- **TECVICO Corp. Company**, Vancouver, BC, Canada (>240 subscribers, mentors, etc.); www.tecvico.com
 - **Duration:** 08/2020 to 06/2023
 - Project Leader
 - Advisor/Mentor
- **Quantitative Radiomolecular Imaging and Therapy (Qurit) Lab**, BC Cancer Research Institute, Vancouver, BC, Canada (www.Qurit.ca)
 - **Duration:** 01/2020 to 01/2022
 - PhD Candidate Researcher

- o Programmer (Machine Learning/Deep Learning and Image Processing Algorithms)
- **Medical Radiation Laboratory**, Amirkabir University of Technology, Tehran, Iran
 - o **Duration:** 09/2016 to 12/2019
 - o Administrator
- **Physics II Laboratory**, Amirkabir University of Technology, Tehran, Iran
 - o **Duration:** 09/2016 to 12/2019
 - o Instructor
 - o Syllabus/Guideline Maker and Preparing a Standard Booklet for Students.
- **Tarh Gostaran Navard Khazar Compony**, Sari, Mazandaran, Iran
 - o **Duration:** 09/2014 to 11/2016
 - o Technical Advisor/Consultant
- Mehr-Alborz University, Tehran, Iran
 - o **Duration:** 06/2015 to 06/2016
 - o Taught Soft Computing and Introduction of Artificial Intelligent Course
 - o Taught Machine Learning Course

❖ Publications

- **Journal Papers**
 - o **M. R. Salmanpour**, M. Hosseinzadeh, et al, “Fusion-based Tensor Radiomics using Reproducible Features: Application to Survival Prediction in Head and Neck Cancer”, Computer Methods and Programs in Biomedicine, 2023, vol. 240, pp. 107714.
 - o **M. R. Salmanpour***, SM. Rezaei, et al. "Deep versus Handcrafted Tensor Radiomics Features; Prediction of Survival in Head and Neck Cancer using Machine Learning and Fusion Techniques ", Diagnostics, 2023 vol.13 , pp. 1696. <https://doi.org/10.3390/diagnostics13101696>.
 - o M Hosseinzadeh,..., **M. R. Salmanpour***, " Prediction of Cognitive Decline in Parkinson’s Disease using Clinical and DAT SPECT Imaging Features, and Hybrid Machine Learning Systems", Diagnostics, 2023 vol.13 , pp. 1691.<https://doi.org/10.3390/diagnostics13101691>.
 - o **M. R. Salmanpour***, M Hosseinzadeh et al " Prediction of Drug Amount in Parkinson’s Disease using Hybrid Machine Learning Systems and Radiomics Features", International Journal of Imaging Systems and Technology, 2023, pp. 1-13. <https://doi.org/10.1002/ima.22868>.

- o **M. R. Salmanpour***, M Bakhtiyari et al "Application of novel hybrid machine learning systems and radiomics features for non-motor outcome prediction in Parkinson's disease", *Physics in Medicine & Biology*, 2023, vol. 68, pp. 035004.
- o **M. R. Salmanpour**, M. Shamsaei et al "Longitudinal clustering analysis and prediction of Parkinson's disease progression using radiomics and hybrid machine learning", *Quantitative Imaging in Medicine and Surgery*, 2021, vol. 12, pp. 906-919.
- o **M. R. Salmanpour**, M. Shamsaei, and A. Rahmim, "Feature selection and machine learning methods for optimal identification and prediction of subtypes in Parkinson's disease", *Computer Methods and Programs in Biomedicine*, 2021, vol. 206, pp. 1-8.
- o **M. R. Salmanpour**, M. Shamsaei, et al, "Robust Identification of Parkinson's Disease Subtypes using Radiomics and Hybrid Machine Learning", *Computers in Biology and Medicine*, 2021, vol. 129, pp. 1-14.
- o **M. R. Salmanpour**, M. Shamsaei, et al, "Machine Learning Methods for Optimal Prediction of Motor Outcome in Parkinson's Disease", *Physica Medica*, 2020, vol. 69, pp. 233-240.
- o **M. R. Salmanpour**, M. Shamsaei et al "Optimized Machine Learning Methods for Prediction of Cognitive Outcome in Parkinson's Disease", *Computers in Biology and Medicine*, 2019, vol. 111, pp. 1-8.
- o **M. R. Salmanpour**, M. Gharib, S.M. Mirvakil, "Control Rod Drop Time Reduction in Typical Swimming Pool Research Reactors", *Progress in Nuclear Energy*, 2018, 106, 146-152.

- **Conference Papers**

- o **M. R. Salmanpour***, I. Shiri, et al, "ViSERA: Visualized & Standardized Environment for Radiomics Analysis - A Shareable, Executable, and Reproducible Workflow Generator", *Proceedings of IEEE Medical Imaging Conference (MIC)*, 2023.
- o **A. Gorji, M. Hosseinzadeh,.... M. R. Salmanpour***, "Region-of-Interest and Handcrafted vs. Deep Radiomics Feature Comparisons for Survival Outcome Prediction: Application to Lung PET/CT Imaging", *Proceedings of IEEE Medical Imaging Conference (MIC)*, 2023.
- o **M. R. Salmanpour***, M. Hosseinzadeh, et al, "ViSERA: Visualized & Standardized Environment for Radiomics Analysis", *SNMMI*, 2023.
- o **M. R. Salmanpour***, M. Hosseinzadeh, et al, "Tensor Deep versus Radiomics Features: Lung Cancer Outcome Prediction using Hybrid Machine Learning Systems", *SNMMI*, 2023.
- o **M. R. Salmanpour***, M. Iranpour, et al, "Prediction of TNM Stage in Head and Neck Cancer Using Tensor Deep vs. Radiomics Features", *SNMMI*, 2023.
- o S. KalayiniaM... **M. R. Salmanpour***, et al, "Prediction of Parkinson's Disease Pathogenic Variants via Semi-Supervised Hybrid Machine Learning Systems, Clinical Information and Radiomics Features", *SNMMI*, 2023.
- o A. Gorji... **M. R. Salmanpour***, "PET-CT Fusion Based Outcome Prediction in Lung Cancer using Deep and Handcrafted Radiomics Features and Machine Learning", *SNMMI*, 2023.

- o SM. Rezaei... **M. R. Salmanpour***, “Use of Deep Image-to-Image Translations to assess Complementary Value of Imaging Modalities: Application to PET and CT images in Head and Neck Cancer”, SNMMI, 2023.
- o **M. R. Salmanpour***, G. Hajianfar, et al, “Deep Learning and Machine Learning Techniques for Automated PET/CT Segmentation and Survival Prediction in Head and Neck Cancer”, In3D Head and Neck Tumor Segmentation in PET/CT Challenge 2022 Sep 22 (pp. 230-239). Cham: Springer Nature Switzerland.
- o SM, Rezaei, A. Harimi, **M. R. Salmanpour***, “:Fusion-based automated segmentation in head and neck cancer via advance deep learning techniques”. In3D Head and Neck Tumor Segmentation in PET/CT Challenge 2022 Sep 22 (pp. 70-76). Cham: Springer Nature Switzerland.
- o **M. R. Salmanpour***, M. Hosseinzadeh et al, “Deep versus handcrafted tensor radiomics features: application to survival prediction in head and neck cancer”, EUROPEAN JOURNAL OF NUCLEAR MEDICINE AND MOLECULAR IMAGING, Suppl 1, 2022.
- o **M. R. Salmanpour***, M. Hosseinzadeh et al, “Reliable and Reproducible Tensor Radiomics Features in Prediction of Survival in Head and Neck Cancer”, EUROPEAN JOURNAL OF NUCLEAR MEDICINE AND MOLECULAR IMAGING, Suppl 1, 2022.
- o AF. Jouzdani, ... **M. R. Salmanpour***, “Prediction of Cognitive Decline in Parkinson's Disease using Deep and Handcrafted Radiomics Features”, EUROPEAN JOURNAL OF NUCLEAR MEDICINE AND MOLECULAR IMAGING, Suppl 1, 2022.
- o A. Rahmim, A. Toosi, **M. R. Salmanpour** et al, “Tensor radiomics: Paradigm for systematic incorporation of multi-flavoured radiomics features”, IEEE Medical Imaging Conference, 2022.
- o **M. R. Salmanpour***, M. Hosseinzadeh et al, “Drug Amount Prediction in Parkinson’s Disease using Hybrid Machine Learning Systems and Radiomics Features”, SNMMI, 2022.
- o Ghasem Hajianfar , ..., **M. R. Salmanpour***, “Hybrid Machine Learning Systems for Prediction of Parkinson’s Disease Pathogenic Variants using Clinical Information and Radiomics Features”, SNMMI, 2022.
- o **M. R. Salmanpour***, M. Hosseinzadeh et al, “Robustness and Reproducibility of Radiomics Features from Fusions of PET-CT Images”, SNMMI, 2022.
- o **M. R. Salmanpour***, M. Hosseinzadeh et al, “Cognitive Outcome Prediction in Parkinson’s Disease using Hybrid Machine Learning Systems and Radiomics Features”, SNMMI, 2022.
- o **M. R. Salmanpour**, G. Hajianfar et al, “Advanced automatic segmentation of tumors and survival prediction in head and neck cancer”, In3D Head and Neck Tumor Segmentation in PET/CT Challenge 2021 Sep 27 (pp. 202-210). Cham: Springer International Publishing.
- o M. Fatan, ..., **M. R. Salmanpour***. “Fusion-based head and neck tumor segmentation and survival prediction using robust deep learning techniques and advanced hybrid machine learning systems”. In3D Head and Neck Tumor Segmentation in PET/CT Challenge 2021 Sep 27 (pp. 211-223). Cham: Springer International Publishing.

- o **M. R. Salmanpour***, M. Hosseinzadeh et al, “Prediction of TNM Stage in Head and Neck Cancer Using Hybrid Machine Learning Systems and Radiomics Features”, SPIE, 2021.
- o **M. R. Salmanpour***, M. Hosseinzadeh et al, “Advanced Survival Prediction in Head and Neck Cancer Using Hybrid Machine Learning Systems and Radiomics Features”, SPIE, 2021.
- o A. Javanmardi, **M. R. Salmanpour***, “Multi-Modality Fusion Coupled with Deep Learning for Improved Outcome Prediction in Head and Neck Cancer”, SPIE, 2021.
- o **M. R. Salmanpour***, A. Saberi et al, “Hybrid Machine Learning Methods and Ensemble Voting for Identification of Parkinson’s Disease Subtypes”, J Nucl Med, 2021.
- o **M. R. Salmanpour***, A. Saberi et al, “Longitudinal Clustering Analysis and Prediction of Parkinson’s Disease Progression”, J Nucl Med, 2021.
- o **M. R. Salmanpour***, G. Hajianfar et al, “Multitask Outcome Prediction using Hybrid Machine Learning and PET-CT Fusion Radiomics”, J Nucl Med, 2021.
- o A. Javanmardi, **M. R. Salmanpour***, A. Rahmim, “Do DTI Features Add Value to Clinical and SPECT Imaging Features for Outcome Prediction in Parkinson’s Disease?”, J Nucl Med, 2021.
- o **M. R. Salmanpour***, A. Rahmim, “Machine Learning Methods for Identification and Prediction of Parkinson’s Disease Subtypes”, UBC Conference, CAIDA Presents, Emerging Technologies: BC's AI Showcas, 2020.
- o **M. R. Salmanpour***, M. Shamsaei et al, “Hybrid Machine Learning Methods for Robust Identification of Parkinson’s Disease Subtypes”, J Nucl Med, vol. 61 (suppl 1), pp. 1429-1429, 2020.
- o **M. R. Salmanpour***, M. Shamsaei et al, “Radiomic Features Combined with Hybrid Machine Learning Robustly Identify Parkinson’s Disease Subtypes”, in Annual AAPM Meeting, Vancouver, 2020.
- o **M. R. Salmanpour***, A. Saberi et al, “Optimal Feature Selection and Machine Learning for Prediction of Outcome in Parkinson’s Disease”, J. Nucl. Med., vol. 61 (suppl. 1): 524, 2020.
- o **M. R. Salmanpour***, A. Saberi et al, “Cluster Analysis on Longitudinal Data of Parkinson’s Disease Subjects”, Proc. Annual AAPM Meeting, 2020.
- o **M. R. Salmanpour***, M. Shamsaei et al, “Machine Learning Methods for Optimal Prediction of Outcome in Parkinson’s Disease”, Proceedings of IEEE Medical Imaging Conference (MIC), 2018.
- o K. H. Leung, **M. R. Salmanpour** et al, “Using Deep-Learning to Predict Outcome of Patients with Parkinson’s Disease”, Proceedings of IEEE Medical Imaging Conference (MIC), 2018.
- o M. Marbouti, M. Khakian Ghomi, **M. R. Salmanpour** et al, “Designing and Constructing a Vlf Radio Telescope with An External Filter to Receive the Sudden Ionospheric Disturbances (SID) In Iran”, IJTPE, Number 2, Volume 7, Issue 23, ISSN 2077-3528, Pages 34-38, 2015.
- o M. Marbouti, A. Shahbazi, **M. R. Salmanpour**, “Relations During the Acceleration Phase in a Cyclotron”, 6th global conference of Esfahan Payam Noor university, Esfahan, Iran, February 2014.

- o **M. R. Salmanpour***, H.Mohammadi et al, "Theory of Modification of Starter of Star Triangle Motor And Its Modification to Way of Multistep", ICTPE, Number 33, Code 01PES25, Pages 178-182, 2014.
- o M. Marbouti, M. Khakian Ghomi, **M.R. Salmanpour** et al, "Constructing Radio Waves Antenna with Internal Filter System and Recording The Vlf Data", ICTPE, Number 57, Code 04COM02, Pages 279-282, 2014.
- o M. Marbouti, M. Khakian Ghomi, **M.R. Salmanpour** et al, "Building and the Analysis of Two Radio Antennas (SSRT) in VLF Zone", 40th COSPAR Scientific Assembly2014, <http://adsabs.harvard.edu/abs/2014cosp...40E2000M>.

❖ **Book Authorship**

- M. Abedi, **M. R. Salmanpour**, F. Safdarian, "Overview of Electrical Systems (PLC& LOGO Training (Book 1) (in Farsi)", Partian Publications, Tehran, Iran, (2015), ISBN: 978-600-5578-40-9, 140 pages, 2015.
- M. Abedi, **M. R. Salmanpour**, F. Safdarian, "Overview of Electrical Systems (Triggering Three-phase Electrical Motor Steering Circuits and Elevator Circuits) (Book 2) (in Farsi)", Partian Publications, Tehran, Iran, ISBN: 978-600-5578-41-6, 140 pages, 2015.
- M. Abedi, **M. R. Salmanpour**, F. Safdarian, and J. Riahi, "Overview of Electrical Systems (Building Wiring and Industrial Electrical Panels (Book 3) (in Farsi)", Partian Publications, Tehran, Iran, ISBN: 978-600-5578-43-0, 140 pages, 2015.
- M. Abedi, **M. R. Salmanpour**, F. Safdarian, and J. Riahi, "Overview of Electrical Systems (Fire Alarm System, Closed-Circuit Television System, Theft Alarm System and Emergency Power System (Book 4) (in Farsi)", Partian Publications, Tehran, Iran, ISBN: 978-600-5578-42-3, 140 pages, 2015.
- Book authorship, "Solution of Pedrotti Optics" (Book 1) (in Farsi) by M. Marbouti, **M. R. Salmanpour**, A. Sadr Sadat, "Partian Publications, Tehran", (2014), ISBN "978-600-5578-34-8" and "978-600-5578-35-5"
- Book authorship, "Solution of Pedrotti Optics (Book 2) (in Farsi)" by M. Marbouti, F. Sabohi, **M. R. Salmanpour**, Z. Shabani, M. Hosseyni, Partian Publications, Tehran, (2015), ISBN "978-600-5578-44-7" and "978-600-5578-35-5".

❖ **Patents**

- **M. R. Salmanpour**, S. J. Tabatabaei, "Air Filtration System", Amirkabir University of Technology (Tehran Polytechnique), Iran, Patent Number: 82486, 2014.
- **M. R. Salmanpour**, "Motor with Multistep Starter", Amirkabir University of Technology (Tehran Polytechnique), Iran, Patent Number: 80638, 2013.
- **M. R. Salmanpour**, A. Gheydi et al, "Intelligent Car Alarm", Amirkabir University of Technology (Tehran Polytechnique), Iran, Patent Number: 84564, 2013.

❖ International Competition and Challenge

- Standardized convolutional filters for quantitative radiomics, Image Biomarker Standardization Initiative (IBSI 2), 2022, Team name: Qurit SERA, <https://ibsi.radiomics.hevs.ch/>
- **M. R. Salmanpour***, G. Hajianfar, et al, “Deep Learning and Machine Learning Techniques for Automated PET/CT Segmentation and Survival Prediction in Head and Neck Cancer”, Team name: Qurit_Tecvico, MICCAI 2022, Head and neck TumOR segmentation and outcome prediction in PET/CT images (HECKTOR), 2022 Sep 22 (pp. 70-76). Cham: Springer Nature Switzerland.
- M. Rezaeijo,...**M. R. Salmanpour***, “Fusion-Based Automated Segmentation in Head and Neck Cancer via Advance Deep Learning Techniques”, Team name: Tecvico Corp, MICCAI 2022, Head and neck TumOR segmentation and outcome prediction in PET/CT images (HECKTOR), 2022 Sep 22 (pp. 230-239). Cham: Springer Nature Switzerland.
- **M. R. Salmanpour**, G. Hajianfar et al, “Advanced automatic segmentation of tumors and survival prediction in head and neck cancer”, Team name: Qurit_Tecvico, **third position**, MICCAI 2022, Head and neck TumOR segmentation and outcome prediction in PET/CT images (HECKTOR), 2021 Sep 27 (pp. 202-210). Cham: Springer Nature Switzerland.
- M. Fatan, ..., **M. R. Salmanpour***. “Fusion-based head and neck tumor segmentation and survival prediction using robust deep learning techniques and advanced hybrid machine learning systems”. Team name: Tecvico Corp, MICCAI 2022, Head and neck TumOR segmentation and outcome prediction in PET/CT images (HECKTOR), Sep 27 (pp. 211-223). Cham: Springer Nature Switzerland.

❖ Honours and Awards

- Awarded by 2023 MITACS accelerate grant, 2023, Vancouver, BC, Canada
- Highest scored abstract from Canada to SNMMI 2021; highest score abstract in Data Sciences Category: “Hybrid Machine Learning Methods & Ensemble Voting for Identification of Parkinson’s Disease Subtypes”, 2021.
- Poster Award Candidate in SNMMI 2021, “Longitudinal Clustering Analysis and Prediction of Parkinson’s Disease Progression”, 2021.
- First Place, Electrical Engineering Olympiad in Mazandaran Province, Iran, 2008.
- 6th Place, Global Electrical Engineering Olympiad in Iran, 2008.
- Ranked 2nd Among Thousands of Participants for Doctoral Entrance Exam, 2016.
- Third Place, Local Festival Related to Innovation (Domestic Festival), Domestic Festival Related to Patent and Commercialization in Sistane-Baluchistan, Iran, 2013.
- The best innovation at 14th Festival Related to Research and Technology, Amirkabir University of Tehran and Tehran International Exhibition, 2013.

❖ References

- **Dr. Arman Rahmim**
 - Associate Professor of Radiology & Physics
 - University of British Columbia (UBC)
 - 675 West 10th Ave., Office 6-112, BC Cancer Research Institute
 - Vancouver, BC V5Z 1L3, Canada
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- **Dr. Carlos Uribe**
 - Clinical Assistant Professor of Radiology at University of British Columbia (UBC) and the leader of Clinical Nuc Med Physics at BC Cancer Research Center
 - 675 West 10th Ave., Ground floor, Qurit lab, BC Cancer Research Institute
 - Vancouver, BC V5Z 1L3, Canada
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- **Dr. Ilker Hacihaliloglu**
 - Assistant Professor of Radiology & Medicine
 - University of British Columbia (UBC)
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