MARYAM SADEGHI

Neuroimaging Researcher

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Gender: Female **Date of birth:** 30/01/1990 **Nationality:** Iranian

ABOUT ME

• Passionate and dedicated researcher specializing in Neuroimaging and Cognitive Science (Neuroscience) as well as possessing 8 years of hands-on experience in multi-disciplinary collaborative projects.

• Possess strong judgment and analytical thinking, creativity, love of learning, perseverance, curiosity, and self-regulation according to the Values in Action Inventory Survey (VIA Survey). Moreover, possess knowledge and skills in "Image Processing" (MRI, fMRI, PET, DTI, VBM), "Deep Learning"(CNN), and writing scientific proposals and articles in favor of passing some courses in edX, Coursera, and other national institutes as well as joining to a national cognitive neuroscience research group to perform some projects in the field of neuroimaging.

• Seeking a research position to further enhance my knowledge and contribute to scientific advancements in the field of neuroimaging to move across science boundaries, and enhance mankind's knowledge and lifestyle quality as well.

WORK EXPERIENCE

[01/10/2015 – Current]

Research Cooperator

Radiation Research Center (RRC)

• Voluntarily cooperated with RRC in various fields in writing scientific proposals and articles, as well as performing projects and experimental activities during my M.Sc. education years and after graduating from Shiraz University.

[01/09/2017 – Current]

Dosimetrist

Sanjesh Parto Mehr Arshida Company

• Manage and run the dosimetry lab, as well as handle official affairs.

[01/04/2016 – 30/08/2016]

Research Cooperator

Ionizing and Non-ionizing Radiation Protection Research Center

• Collaborated with the center in writing scientific proposals and articles, as well as performing projects and experimental activities.

EDUCATION

[01/09/2012 – 01/09/2015]

M.Sc. in Medical Radiation Engineering

Shiraz University

Thesis: Developing an Optimized Protocol for Thermoluminescent Dosimetry Using TLD-100 and TLD-100H

• The knowledge of literature searching
• Experimental laboratory techniques
• Taguchi optimization method
• Statistical analysis

[01/09/2008 – 01/09/2012] **B.Sc. in Physics**

Salman Farsi University of Kazerun

- Top student

INTERNATIONAL COURSES

[11/2023 – Current] **Neuroscience and Neuroimaging Specialization**

Coursera (John Hopkins University)

- Fundamental Neuroscience for Neuroimaging
- Principles of fMRI
- Introduction to Neurohacking in R

[10/2023 – 11/2023] **The Psychology of Emotions: An Introduction to Embodied Cognition**

edX (University of Cambridge)

- Introduction to Cognitive Psychology
- Feeling and studying emotions
- Recognizing other's emotional facial expressions

NATIONAL COURSES

[08/2023 – 09/2023] **Python in Neuroscience and Cognitive Science**
Interdisciplinary Schools

Analysis of DTI, EEG, fNIRS, and fMRI in Python

[07/2023 – 08/2023] **Writing Scientific Proposals and Articles**

Interdisciplinary Schools

[07/2023 – 08/2023] **Cognitive Functions and Technologies**

Interdisciplinary Schools

- Neurobiology and neuroanatomy, theory, modeling, and disorders of cognitive functions such as language, emotion, attention, decision, memory, and learning
- Introduction to tDCS, rTMS, bio and neurofeedback, virtual reality, phototherapy, and cognitive rehabilitation software

[06/2023 – 07/2023] **Introduction to Neuroimage and EEG Signal Processing**

Interdisciplinary Schools

Theory of: fMRI, DTI, VBM, EEG
Softwares: SPM12, FSL, Freesurfer, Explore DTI, Cat12, EEG Lab

[04/2023 – 07/2023] **Cognitive Neuroscience Based on Michael Gazzaniga's Book**

Interdisciplinary Schools

[04/2023 – 06/2023] **Introduction to fMRI Data Analysis**

Interdisciplinary Schools

fMRI data analysis using SPM12 and CONN

[01/02/2022 – 20/06/2022] **Cognitive Functions of Excellence: from Assessment to Change**

Brain Gym Academy (Taught by Dr. Hamed Ekhtiari and Dr. Tara Rezapour)

Gaining essential knowledge and expertise to design cognitive interventions and run efficacy trials based on recent advances in designing and assessing them

[21/04/2021 – 21/05/2021] **Introduction to Artificial Intelligence in Neuroscience: from Image Data Analysis to Neural Networking**

- The connection between artificial intelligence, neuroscience and cognitive science
- Brain imaging methods and processing of MRI images using Python
- Operational models in artificial intelligence such as deep learning and... using Python
- Neuromarketing

[06/03/2020 – 26/08/2020]

Medical Image Processing and Artificial Intelligence in Medicine

- Medical image processing using Matlab and 3DSlicer
- Convolutional Neural Networks(CNN) and Generative Adversarial Networks (GAN) using Matlab

[06/04/2019 – 10/04/2019]

Advanced fMRI Data Analysis Using SPM Software

PROJECTS

[2023 – Current]

Investigating the Correlation Between Brain Auditory Region Size and Related Functional Connectivity Networks During Listening to Special Words

(Supervised by Interdisciplinary School's Cognitive Neuroscience Research Group)

- Collaborating in this project as a performer

[2021 – 2023]

Optimizing Generalized 2D,3D Convolutional Neural Networks(CNNs) Using Taguchi Method to Classify Alzheimer's Disease Based on MRI Images

(Supervised by RRC)

- Collaborating in this project as a proposer, manager, and performer.
- Working on optimizing some hyperparameters of different 2D and 3D CNNs such as VGG-19,... to acquire a high accuracy for classification of Alzheimer's and normal brain MRI images using a generalized trained network.
- Skills: Brain MRI image processing and deep learning using Matlab, FSL and 3D Slicer.

SKILLS AND SOFTWARES

Neuroimaging

SPM | CONN | FSL | Freesurfer | ExploreDTI | Cat12

Image Processing

Matlab | 3D Slicer | MRIcro | Python

Deep Learning

CNN | GAN | MATLAB | Python

Statistics

Minitab | R

LANGUAGE SKILLS

Mother tongue(s): Persian

Other language(s):

English

LISTENING C1 **READING** C1 **WRITING** C1

SPOKEN PRODUCTION C1 **SPOKEN INTERACTION** C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

PUBLICATIONS

[2023]

Synthesis of Prospective Multiple Time Points F-18 FDG PET Images from a Single Scan Using a Supervised Generative Adversarial Network

Collaborating in carrying out the project in RRC

[2022]

A Taguchi-Optimized Pix2pix Generative Adversarial Network for Internal Dosimetry in 18F-FDG PET/CT

Collaborating in carrying out the project in RRC

[2021]

Development of a Simple Method for Determining the Absorbed Activity Concentration by the Thyroid Gland of Nuclear Medicine Staff

Collaborating in carrying out the project in RRC

[2017]

Developing an Optimum Protocol for Thermoluminescence Dosimetry with GR-200 Chips Using Taguchi Method

Based on M.Sc.'s thesis

[2015]   **Investigation of Lif, Mg and Ti (TLD-100) Reproducibility**

Based on M.Sc.'s thesis

[2015]

SU-E-I-78: Establishing a Protocol for Quick Estimation of Thyroid Internal Contamination with 131I in Normal and Emergency Situations

Collaborating in carrying out the project in RRC

[2014]

Investigation of the Entrance Surface Dose and Dose to Different Organs in Lumbar Spine Imaging

Collaborating in carrying out the project in RRC

[2014]

SU-E-T-222: Investigation of Pre and Post Irradiation Fading of the TLD100 Thermoluminescence Dosimetry for Photon Beams

Based on M.Sc.'s thesis

[2014]

SU-E-I-09: Application of LiF: Mg, Cu (TLD-100H) Dosimeters in Diagnostic Radiology

Collaborating in carrying out the project in RRC

CONFERENCES AND SEMINARS

[15/08/2022 – 19/08/2022]   **Annual Congress of the European Association of Nuclear Medicine**

"Assessment of PET scanner SNR, and CNR factors: validation of Gate Monte Carlo code and STIR reconstruction with experimental study"

[16/08/2021 – 23/08/2021]   **Virtual IEEE Nuclear Science Symposium and Medical Imaging Conference**

"Internal Dosimetry in Diagnostic Nuclear Medicine Using Monte Carlo Techniques"

The Health Physics Society (HPS) Annual Meeting 2015

"Developing a New Method for Determining the I-131 Concentration in Thyroid Glands of Nuclear Medicine Staff"

ICMPRPR2K15 (International Conference on Medical Physics, Radiation Protection and Radiobiology-2015)

"Comparison of the Response of TLD-100 and TLD-100H Dosimeters in Diagnostic Radiology"

18th National Iranian Congress of Nuclear Medicine (ICNM 2014)

"A New Approach for Determination of the ^{131}I Concentration in the Thyroid Glands of the Staff in Nuclear Medicine Departments"

[11/09/2014 – 13/09/2014] **8th European Conference on Medical Physics (ECMP2014)**

"Comparison of the Patient Dose in Different Radiology Procedures Using Rando Phantom and Thermoluminescence Dosimetry"

[01/05/2013 – 03/05/2013] **5th International and 17th National Iranian Congress of Nuclear Medicine**

Attending as a member of executive committee

HONOURS AND AWARDS

Top Student During Bachelor Education in Physics

[2016] **2nd National Simin Health Physics Award**

Research Subject: Developing an Anthropomorphic Thyroid Male and Female Phantom and Investigation of Its Different Applications

[2018] **4th National Simin Health Physics Award**

Research Subject: Developing an Optimized Protocol for Thermoluminescent Dosimetry Using TLD-100H by Taguchi Method

COMMUNICATION AND INTERPERSONAL SKILLS

Work in teams, Cooperate with colleagues, Flexibility, Prepare presentation materials, Speak in public

MANAGEMENT AND LEADERSHIP SKILLS

Priorities tasks, Plan medium to long term objectives, Develop strategy to solve problems

ORGANISATIONAL SKILLS

Multi-tasking, Brainstorm ideas, Create solutions to problems, Develop creative ideas

RECOMMENDATIONS

Supervisor and RRC manager
Name: Samira Sina
Email: samirasina@yahoo.com

Prof. of Radiation Research Center, School of Mechanical Engineering, Shiraz University, Shiraz, Iran

Supervisor
Name: Reza Faghihi
Email: faghihir50@gmail.com

Full Prof. of Nuclear Engineering Department, School of Mechanical Engineering, Shiraz University, Shiraz, Iran

For more detailed information, please feel free to contact me.

Maryam Sadeghi