Reihaneh Teimouri

Machine Learning and Data Scientist, Computational Biologist

Vancouver, British Columbia, Canada
+1(438)5094067
reihane.teimoori@gmail.com
linkedin.com/in/reihaneh-teimouri
github.com/ReihaneT

About

I am a Machine Learning Scientist with a Master's in Computer Science from Concordia and McGill University, specializing in AI for medical imaging, bioinformatics, computer vision, LLMs, and data processing. At Synthesis Health, I developed ML models for medical image analysis, enhancing diagnostic accuracy and workflow efficiency.

Work Experience

2022-2023 **Machine Learning Scientist Intern, Synthesis Health**
- Developed and trained machine learning models for segmentation, registration, and classification of medical images, significantly enhancing diagnostic accuracy and workflow efficiency.

2021–2024 **Research Assistant at Concordia University**, *Health-X Lab and AP Lab*
- Innovated MRI-to-CT translation and synthetic CT creation using unpaired **Diffusion and GAN** models.
- Developed an uncertainty-aware CT brain ventricle segmentation technique with an attention recurrent residual U-Net, eliminating the need for CT ground truths.

2019-2020 **Research Assistant at IUT**, *HaDIP Lab*
- Focused on brain tumor segmentation using deep learning algorithms like CapsNet and machine learning approaches such as Expectation Maximization (EM), advancing neuroimaging diagnostic tools.

Education

2021–2024 **M.Sc. in Computer Science**, ***Concordia University***, Montreal, Canada
Selected Courses: Neuroimage computing, Deep Learning, Computer Vision

2021–2023 **NSERC Surgical Innovation Program Fellow**, ***McGill University***, Montreal, Canada
Participated in McGill University's Surgical Innovation Program, a cross-disciplinary initiative blending business, engineering, computer science, and surgery to identify and address unmet needs in surgery.

2015–2020 **B.Sc. in Software Engineering**, ***Isfahan University of Technology (IUT)***, Iran
Selected Courses: Multimedia Systems, Algorithm Design, Artificial Intelligence, Programming, DataBase

Professional skills

Programming	Python, C++, Java, R, C#, MATLAB, SQL
AI	PyTorch, MONAI, TensorFlow, Keras
IDEs	PyCharm, Anaconda, Visual Studio Code, Jupyter Notebook, SQL Server Management Studio
Tools	***Image Analysis*** (ANTs, FSL, Slicer, SimpleITK, OpenCV), ***Data Analysis*** (Pandas, NumPy, Matplotlib, Seaborn), ***Bioinformatics*** (BLAST, Clustal, BioPython, AlphaFold), ***Generative AI*** (GAN and Diffusion Models, VAE), ***LLM*** (Transformers, BERT, GPT), Git, Jira(Agile), MLflow
Platforms	Google Cloud Platform (GCP), Compute Canada, Docker, Singularity, Kubernetes, Linux, Windows
DevOps	System Administration, Bash Scripting, SSH

Publications

2024 **R. Teimouri**, Y. Xiao, M. Kersten. **"CT-based brain ventricle segmentation via diffusion Schrödinger Bridge without target domain ground truths."** Early acceptance at MICCAI2024.

2020 **R. Teimouri**, K. Mostafaie, Z. Nabizadeh, N. Karimi, S. Samavi. **"Region of Interest Identification for Brain Tumors in Magnetic Resonance Images."** International Conference on Electrical Engineering, Iran.

2020 **R. Teimouri**, Z. Nabizadeh, N. Karimi, S. Samavi. **"An Abstraction Model for Semantic Segmentation Algorithms."**International Conference on Machine Vision and Image Processing.