

Javid Dadashkarimi

Summary

As a computer scientist specializing in medical imaging, my work centers on creating innovative AI solutions for medical image analysis to improve diagnostic accuracy and enhance patient care. My work has been published in many high-impact journals and conferences, including Nature, Molecular Psychiatry, MICCAI, and COLING. I also have a strong background in natural language processing, particularly in machine translation and information retrieval, where I hold a patent.

Research Interests

Medical Imaging, Machine Learning/Deep Learning, Mathematical Optimization, Optimal Transport, Natural Language Processing, High-Performance Computing.

Education

2023 **PhD**, Computer Science, Yale University, USA

2015 **M.Eng.**, Computer Science, University of Tehran, Iran

Experience

07/2023 **Research Fellow**, MASSACHUSETTS GENERAL HOSPITAL/HARVARD MEDICAL SCHOOL

- Developed cutting-edge deep learning models for fetal brain segmentation and automated fetal brain extraction, enhancing the accuracy and efficiency of neuroimaging analyses.
- 10/2024 Spearheaded the design of dynamic cascade UNet architectures, leveraging synthetic training data to achieve high precision in localizing fetal brain structures across diverse imaging conditions.
- Demonstrated a significant increase in segmentation accuracy, achieving a 5% improvement in the Dice score for younger fetuses, which highlights the model's effectiveness in accurately delineating smaller brain structures relative to the overall field of view.

02/2023 **Machine Learning Engineer**, BLACKBOX AI REMOTE

- Specialized in developing tools that leveraged large language models (LLMs) adjusted for code generation, enhancing developer productivity through automated function creation and relevant documentation retrieval.
- 04/2023 Advised on optimizing software development workflows through streamlined processes and enhanced efficiency, while leveraging insights from the latest advancements in machine learning to refine algorithm design.

09/2017 **Graduate Research Assistant**, YALE INSTITUTE FOR NETWORK SCIENCE, YALE UNIVERSITY

- Conducted advanced research in functional brain connectivity and the development of machine learning models for neuroimaging analysis.
- 09/2023 Designed and implemented predictive models, utilizing optimization techniques to efficiently convert brain connectomes between atlases in linear time without direct access to raw data.
- Focused on machine learning applications in medical imaging and decision systems, emphasizing the analysis of brain-behavior associations to inform clinical practice.
- Leveraged LLMs for code generation and sequence-to-SQL tasks ([url](#)), facilitating efficient data retrieval and manipulation in complex systems.
- Utilized advanced natural language processing (NLP) techniques for semantic parsing and named entity recognition ([url](#)), extracting actionable insights from unstructured text sources.
- Developed neural ranking algorithms leveraging LLMs to enhance the relevance and accuracy of information retrieval in medical contexts.
- Collaborated with a cross-functional team of data scientists, software engineers, and healthcare experts to deploy a robust and scalable analysis system.

- 09/2017 **Graduate Student**, MULTI-MODAL IMAGING, NEUROINFORMATICS, & DATA SCIENCE (MINDS)
– LAB, YALE UNIVERSITY
- 07/2023
- Collaborated with clinicians and neuroscientists, focusing on predictive modeling of brain connectivity data and applying machine learning to neuroimaging studies.
 - Developed tools for brain data analysis and conducted statistical tests comparing healthy controls with individuals diagnosed with mental disorders.
 - Enhanced the [BioImage Suite](#) connectivity viewer by developing JavaScript panels, including summary matrices and chord plots, gaining sustained attention from clinicians.

Technical Skills

Python Data Science Stack, DL Frameworks (Tensorflow, Pytorch), R/RStudio, Julia, Bash, SLURM[®]
Amazon Web Services (AWS), Docker/Singularity, Google Cloud Computing (GCP), Flask

Patent

- US Patent Shayan Aliakbar Tabrizi, Azadeh Shakery, Mohammad Ali Tavallaei, **Javid Dadashkarimi**, “Method and system for information retrieval”, US Patent, 2016.

Select Journal Publications

- 2024 Stephanie Antons, . . . , **Javid Dadashkarimi**, . . . , Marc N Potenza, “Prediction of craving across studies: A commentary on conceptual and methodological considerations when using data-driven methods”. [Journal of Behavioral Addictions](#).
- Jean Ye, . . . , **Javid Dadashkarimi**, . . . , Dustin Scheinost, “Altered brain dynamics across bipolar disorder and schizophrenia revealed by overlapping brain states”. [Biological Psychiatry](#).
- Huili Sun, . . . , **Javid Dadashkarimi**, . . . , Dustin Scheinost, “Edge-centric network control on the human brain structural network”. [Imaging Neuroscience](#).
- 2023 **Javid Dadashkarimi**, Amin Karbasi, . . . , Dustin Scheinost, “Cross Atlas Remapping via Optimal Transport (CAROT): Creating connectomes for any atlas when raw data is not available”. [Medical Image Analysis](#).
- Dustin Scheinost, . . . , **Javid Dadashkarimi**, . . . , Margaret L Westwater, “Machine learning and prediction in fetal, infant, and toddler neuroimaging: a review and primer”. [Biological Psychiatry](#).
- 2022 Link Tejavibulya, . . . , **Javid Dadashkarimi**, . . . , Dustin Scheinost, “Predicting the future of neuroimaging predictive models in mental health”. [Molecular Psychiatry](#).
- 2021 Daniel S Barron, – **Javid Dadashkarimi**, . . . , R Todd Constable, Dustin Scheinost, “Transdiagnostic, connectome-based prediction of memory constructs across psychiatric disorders”. [Cerebral Cortex](#).
- Corey Horien, . . . , **Javid Dadashkarimi**, . . . , R Todd Constable, Dustin Scheinost, “A hitchhiker’s guide to working with large, open-source neuroimaging datasets”. [Nature Human Behavior](#).
- Dustin Scheinost, **Javid Dadashkarimi**, . . . , Wan-Ling Tseng, “Functional connectivity during frustration: a preliminary study of predictive modeling of irritability in youth”. [Nature NPP](#).
- 2016 **Javid Dadashkarimi**, . . . , Hamed Zamani, “An expectation-maximization algorithm for query translation based on pseudo-relevant documents”. [Information Processing & Management](#).

Select Proceedings

- 2024 **Javid Dadashkarimi**, . . . , Lilla Zollei, Malte Hoffmann, “Scan wide, focus deep: fetal brain extraction when no training data is available”, submitted, ISBI 2025.
- Stephanie Antons, . . . , **Javid Dadashkarimi**, . . . , Dustin Scheinost, Matthias Brand, Marc N Potenza, “Connectome-based prediction of craving in gambling disorder and cocaine use disorder”. [Workshop on Clinical Image-Based Procedures](#).
- 2023 Matthew Rosenblatt, **Javid Dadashkarimi**, Dustin Scheinost, “Gradient-based enhancement attacks in biomedical machine learning”. [Workshop on Clinical Image-Based Procedures](#).

- Javid Dadashkarimi**, . . . , Dustin Scheinost, “Stacking multiple optimal transport policies to map functional connectomes”. [IEEE Annual Conference on Information Sciences and Systems](#).
- 2022 Qinghao Liang, **Javid Dadashkarimi**, . . . , Dustin Scheinost, “Transforming connectomes to any parcellation via graph matching”. [International Workshop on Graphs in Biomedical Imaging – Best Paper Award](#).
- Javid Dadashkarimi**, Amin Karbasi, Dustin Scheinost, “Combining Multiple Atlases to Estimate Data-Driven Mappings Between Functional Connectomes Using Optimal Transport”. [MICCAI – Early Acceptance \(top 13%\)](#).
- Javid Dadashkarimi**, Amin Karbasi, Dustin Scheinost, “Data-driven mapping between functional connectomes using optimal transport”. [MICCAI – 29% Acceptance Rate \(AR\)](#).
- 2019 **Javid Dadashkarimi**, . . . , Dustin Scheinost, “A mass multivariate edge-wise approach for combining multiple connectomes to improve the detection of group differences”. [International Workshop on Connectomics in Neuroimaging – Best Poster Award](#).
- 2016 **Javid Dadashkarimi**, . . . , Azadeh Shakery, “Dimension projection among languages based on pseudo-relevant documents for query translation”. [ECIR – 23% AR](#).
- Javid Dadashkarimi**, . . . , Azadeh Shakery, “Learning to Weight Translations using Ordinal Linear Regression and Query-generated Training Data for Ad-hoc Retrieval with Long Queries”. [COLING – 32% AR](#).
- Hamed Zamani, **Javid Dadashkarimi**, . . . , W Bruce Croft, “Pseudo-relevance feedback based on matrix factorization”. [CIKM – 22% AR](#).

■ Honors and Scholarships

- 2022 Best Paper Award, Graphs in Biomedical Imaging, MICCAI ([url](#)), *with Qinghao Liang*
- 2021 Brain Initiative Trainee Award ([url](#))
- 2020 Best Poster Award, Connectomics for NeuroImaging, MICCAI, ([url](#))
- 2012 Ranked 5th/40 in undergraduate studies, University of Tehran
- 2008 Ranked 331st/200,000 in the Iran’s nationwide University entrance exam

■ Talks

- 2024 Super Group at Martinos Center at Massachusetts General Hospital
- 2023 57th IEEE Annual Conference on Information Sciences and Systems
- 2023 McGovern Institute for Brain Research at MIT
- 2023 LCN Group at Martinos Center at Massachusetts General Hospital

■ Teaching

- Fall 2023 **Intermediate Machine Learning** Yale University
- Summer 2023 **Machine Learning** Pathlvy program for high school students ([url](#))
- Spring 2023 **Introduction to Machine Learning** Yale University
- Spring 2015 **Information Retrieval** University of Tehran
- Fall 2014 **Data Mining** University of Tehran

■ Reviewer & Editorial Services

Human Brain Mapping, NeuroImage
ICML, ICLR, MICCAI

■ GitHub

- 1 [Automated Fetus Brain Extraction](#)

- 3 [CAROT Project](#), Cross Atlas Remapping via Optimal Transport
- 4 [Seq to SQL](#), Sequence to SQL
- 5 [EM4QT](#), Expectation Maximization for Query Translation

Visa Status

Permanent Resident (Green Card holder)