AMIR HOSSEIN POURIA

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SUMMARIZE

I'm Amir Hossein Pouria and I am deeply interested in pursuing research in Graph Machine Learning, Big Data, LLM, Natural Language Processing and Medical Image Processing.

EDUCATION

- **AmirKabir University of Technology** *Sep. 2021 - Aug. 2024*
  M.Sc. in Computer Engineering | Supervisor: Prof. Bagheri Tehran, Iran
  - GPA: 3.2/4.0 | 26 credits
  - Thesis title: Presenting link prediction Algorithm in sparse Graphs using machine learning and graph attention network method

- **Qom Univeristy of Technology** *Sep. 2017 - Aug. 2021*
  B.Sc. in Computer Engineering | Advisor: Prof. Mohajjel Qom, Iran
  - GPA: 4.0/4.0 | 140 credits
  - Thesis title: Application of Artificial Intelligence in Embedded Systems

RESEARCH EXPERIENCE

- **Graph ML and Knowledge Graphs** *Aug. 2024 - Present*
  AmirKabir University of Technology, ***Big Data Lab*** Tehran, Iran
  - **Knowledge Graph Completion:** developed enhanced-embedding knowledge graph completion using structural and textual information with dynamic domain size.
  - **Graph Machine Learning:** Engineered Graph Embedding and Big Data algorithms in Python using **PyTorch** and **PyG** for complex graph classification and recommender systems.
  - **Graph-LLM Integration:** A systematic Review of multi-modal LLM to significantly enhance the performance and accuracy of graph analysis algorithms.
  - **Deep Learning:** Implemented various advanced deep neural networks, neural embeddings, and Graph Neural Networks (GNNs).

- **Medical Imaging and Data Science** *Apr. 2025 - Present*
  TECVICO, ***Virtual Corporation*** Vancouver, Canada
  - **Medical Imaging:** Technical Team Lead in PySERA project: Open-source standardized python library for automated, scalable, and reproducible handcrafted and deep radiomics
  - **Computer Vision:** Implemented advanced feature extraction and segmentation algorithms to generate precise medical image masks.
  - **Predictive Analytics:** Developed Machine Learning models in Python using **PyTorch** and **Pyradiomics** to predict clinical medical outcomes.

- **Social Network Analysis Algorithms** *Sep. 2021 - Aug. 2024*
  AmirKabir University of Technology, ***Algorithm Design Lab*** Tehran, Iran
  - **Network Analytics:** Developed complex network algorithms utilizing community detection and influential node identification.
  - **Bioinformatics Applications:** Applied Graph Neural Networks (GNNs) and neural embeddings in Python (**PyG**) to perform link prediction for drug-protein and P2P interactions.

- **Social Media Trend Analysis & Relationship Mapping** *Nov. 2021 - Feb. 2022*
  International Think Tank of Sociology Tehran, Iran
  - **Technical Team Lead:** Led the AI division of the project, overseeing data collection and predictive modeling strategies.
  - **Data Pipeline & Modeling:** Built custom scraping pipelines using **Selenium** to collect social network data, constructed behavioral colonies, and mapped community trends using **Gephi**.

- **Data Structures and Image Processing** *Oct. 2020 - Aug. 2021*
  Qom University of Technology Qom, Iran
  - **Image Processing:** Developed an image classification model for airport logistics leveraging a pre-trained **VGG16** neural network in **TensorFlow**.
  - **IoT & Networking:** Designed and implemented several software projects for IoT and wireless networks utilizing **Python, Java,** and **C/C++**.

WORK EXPERIENCE

- **Frontend Developer & Data Science Researcher** *Jul. 2021 - Apr. 2025*
  MobinTadbir Co. Tehran, Iran
  - **Recommender Systems:** Analyzed user behavior, video consumption, and engagement data to build personalized recommendation algorithms for content delivery.
  - **Frontend Engineering:** Developed high-performance, responsive web applications utilizing **JavaScript** across **ReactJS** and **NextJS** frameworks.
  - **High-Throughput Systems:** Designed and implemented robust data pipelines to efficiently manage massive multi-source datasets and process high-volume API requests.
  - **Audio Processing:** Built a low-latency, real-time speech-to-text software solution leveraging **Python**, **faster-whisper**, and the **FFmpeg** library.

PUBLICATIONS

J=JOURNAL, C=CONFERENCE, P=PREPRINT/UNDER REVIEW

[J.1] **A.H. Pouria**, M.H. Chehreghani, A. Bagheri. (2026). **Singular value decomposition-based graph densification for link prediction in sparse graphs**. *The Computer Journal* (Oxford University Press), 69(5), 773-785. doi:10.1093/comjnl/bxaf144.

[J.2] M.R. Salmanpour, **A.H. Pouria**, S. Falahati, S. Taeb, S.S. Mehrnia, M. Maghsudi, A.F. Jouzdani, M. Oveisi, I. Hacihaliloglu, A. Rahmim. (2026). **Robust Semi-Supervised CT Radiomics for Lung Cancer Prognosis: Cost-Effective Learning with Limited Labels and SHAP Interpretation**. *IEEE Transactions on Biomedical Engineering (TBME)*, 1-13. doi:10.1109/TBME.2026.3701855.

[J.3] M.R. Salmanpour, **A.H. Pouria**, S. Barichin, Y. Salehi, S. Falahati, I. Shiri, M. Oveisi, A. Rahmim. (2026). **PySERA: Open-source standardized python library for automated, scalable, and reproducible handcrafted and deep radiomics**. *Computer Methods and Programs in Biomedicine*, 284, 109463. doi:10.1016/j.cmpb.2026.109463.

[J.4] A. Gorji, N. Sanati, **A.H. Pouria**, S.S. Mehrnia, I. Hacihaliloglu, A. Rahmim, M.R. Salmanpour. (2026). **Radiological and biological dictionary of radiomics features: addressing understandable AI issues in personalized breast cancer; dictionary version BM1.0**. *Physics in Medicine & Biology*, 71(2), 025008. doi:10.1088/1361-6560/ae3658.

[J.5] **A.H. Pouria**, S. Taeb, S. Mehrnia, S. Ghandilu, M. Oveisi, A. Rahmim, M.R. Salmanpour. (2025). **Semi-Supervised Multi-Sequence Glioblastoma MRI Radiogenomics for Prediction of IDH Mutation Status: Improved Robustness to Limited Labels and SHAP Interpretations**. *International Journal of Current Research in Science, Engineering & Technology*, 8, 426-435, doi.

[C.1] M.R. Salmanpour, **A.H. Pouria**, S. Falahati, S. Taeb, S.S. Mehrnia, M. Maghsoudi, Z. Farsangi, A. Safarian, M. Oveisi, I. Hacihaliloglu, A. Rahmim, R. Yuan. (2025). **Multi-Center Semi-Supervised Prediction of Lung Cancer Survival Outcomes Via Pseudolabeling of CT Images**. *IEEE Nuclear Science Symposium (NSS) and Medical Imaging Conference (MIC)*, 1-1. doi:10.1109/NSS/MIC/RTSD57106.2025.11287351.

[C.2] M.R. Salmanpour, A.M. Ahmadzedeh, S.J. Ghandilu, S. Taeb, **A.H. Pouria**, S.S. Mehrnia, M. Oveisi, A. Rahmim, I. Hacihaliloglu. (2025). **Advanced Prediction of Glioblastoma IDH Mutation Using Semi-Supervised Pseudolabeling and Combined MRI Sequences Across Multiple Centers**. *IEEE Nuclear Science Symposium (NSS) and Medical Imaging Conference (MIC)*, 1-2. doi:10.1109/NSS/MIC/RTSD57106.2025.11287502.

[C.3] M.R. Salmanpour, **A.H. Pouria**, M. Oveisi, A. Rahmim. (2026). **PySERA: open-source, IBSI-compliant Python library for automated, scalable, and reproducible radiomics: demonstration of added predictive power**. *SPIE Medical Imaging 2026: Image Processing*, 13925, 139251W. doi:10.1117/12.3085957.

[C.4] M.R. Salmanpour, S. Falahati, A. Mousavi, **A.H. Pouria**, S.S. Mehrnia, M. Alizadeh, A. Gorji, Z. Farsangi, A. Safarian, M. Maghsudi, A. Rahmim, R. Yuan. (2026). **Minimal input, maximal impact: a CT-only semi-supervised learning pipeline for lung cancer survival prediction across 12 datasets**. *SPIE Medical Imaging 2026: Computer-Aided Diagnosis*, 13926, 139260D. doi:10.1117/12.3085933.

[C.5] A. Gorji, N. Sanati, **A.H. Pouria**, S.S. Mehrnia, I. Hacihaliloglu, A. Rahmim, M.R. Salmanpour. (2026). **BM1.0: a radiomics computational dictionary bridging AI research and clinical practice in breast cancer care**. *SPIE Medical Imaging 2026: Clinical and Biomedical Imaging*, 13929, 1392924. doi:10.1117/12.3085651.

[P.1] **A.H. Pouria**, M.H. Chehreghani. **Graph-LLM Synergy: A Systematic Survey and Taxonomies**. *Under Review by WIREs Data Mining and Knowledge Discovery*.

[P.2] M.R. Salmanpour, S. Falahati, **A.H. Pouria**, A. Mousavi, S.S. Mehrnia, M. Alizadeh, A. Gorji, Z. Farsangi, A. Safarian, M. Maghsudi, C. Uribe, A. Rahmim, R. Yuan. (2025). **Click, Predict, Trust: Clinician-in-the-Loop AI Segmentation for Lung Cancer CT-Based Prognosis within the Knowledge-to-Action Framework**. *arXiv preprint arXiv:2510.17039*.

[P.3] **A.H. Pouria**, M.H. Chehreghani. **Enhanced embedding-based Knowledge Graph Completion Algorithm**. *In Progress*.

ACADEMIC PROJECTS

- **Selected Graduate & Undergraduate Coursework** *2017 - 2024*
  - **Information Retrieval & NLP:** Built custom web search, QA, and translation systems leveraging **BERT, Word2Vec, Bigram/Unigram** models, and classic retrieval algorithms (**BIM, BM25**); evaluated performance using **MRR, MAP,** and **P@5** metrics.
  - **Computer Vision & Health AI:** Implemented state-of-the-art medical image segmentation architectures (**3D Attention U-Net, MedSAM3D, ResUNet**) alongside probabilistic skin classification models utilizing **Bayes** and **Gaussian Mixture Models (GMM)**.
  - **Graph Streams & RecSys:** Developed iterative clustering and cycle-counting algorithms for streaming graphs using **Apache Spark**, and engineered a food recommender system powered by **Approximate Matrix Factorization** and **BERT** embeddings.

HONORS AND AWARDS

- **Outstanding Student** *Aug. 2021*
  Awarded annually by the Faculty of Computer Engineering to fewer than 5 candidates for the BS degree
- **Iranian National Elites Foundation grant** *Nov. 2021 - Feb. 2022*

TEACHING EXPERIENCE

- **Graduate & Undergraduate Teaching Assistant** *2019 – 2022*
  AmirKabir University of Technology & Qom University of Technology Tehran & Qom, Iran
  - **Software Engineering** – Supervised by Prof. Kalbasi Fall 2022
  - **Data Structures** – Supervised by Prof. Mohajjel Fall 2020
  - **Artificial Intelligence** – Supervised by Prof. Mirehi Fall 2019

CERTIFICATIONS

- **Machine Learning** – Stanford University (Coursera), Grade: 96.07/100.00 *Aug. 2022*

SKILLS

- **Programming Languages:** Python, JavaScript, C/C++, Java, MATLAB, Shell Scripting
- **AI Frameworks:** PyTorch, PyTorch Geometric (PyG), TensorFlow
- **Web Technologies:** React.js, Next.js, HTML5, CSS3
- **Database Systems:** MongoDB, MySQL
- **Tools & Dev-Ops:** Git, Linux (Ubuntu), Apache Spark, Selenium, Gephi, LaTeX

ADDITIONAL INFORMATION

Languages: English (IELTS 6.5), Farsi (Native), Arabic (Conversational), German (Pre-Intermediate)
Hobbies & Interests: Taekwondo, Mountain Climbing, Distance Running, Swimming, Cooking, Reading, Cinema