

MOHAMMAD JOGHATAEE

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PROFESSIONAL PROFILE

Ph.D. candidate in Computer Science with deep experience building machine learning and generative AI systems for clinical and regulated environments. Specialized in developing secure, interpretable models for rare disease detection and clinical note analysis, with strong attention to privacy, compliance (HIPAA/IRB), risk mitigation, and human oversight. Experienced in translating technical AI capabilities into practical, controlled solutions that support decision-making while managing risk.

TECHNICAL SKILLS

Programming & Languages	Python, R, SQL, Java, C++
Machine Learning & Generative AI	scikit-learn, TensorFlow, PyTorch, LLMs, Generative AI, Prompt Engineering, Statistical Modeling, ETL Pipelines, API Integration, Model Calibration & Interpretability (SHAP)
Tools & Systems	pandas, NumPy, Git, Jupyter, VS Code, Linux, Tableau, Power BI, matplotlib, Seaborn

WORK EXPERIENCE

Research Assistant — Auburn University, AL, USA 2022 – Present

Develop predictive and interpretable machine learning models using EHR and time-series data to support clinical decision-making and early detection of rare infectious diseases. Design end-to-end Python pipelines for preprocessing, feature engineering, evaluation, and compliance-aware deployment.

- Built a HIPAA-compliant generative AI pipeline using prompt engineering and fine-tuned open-source LLMs to summarize and extract themes from unstructured clinical notes of rare-disease patients; integrated outputs into clinician dashboards.
- Developed an automated Python tool to detect and remove personally identifiable information (PII) from clinical notes to meet IRB and HIPAA requirements.
- Created machine learning pipelines for rare disease prediction from multi-site EHR data with emphasis on interpretability, calibration, and clinical utility. This work led to: *Machine Learning Approaches to Identify Rare and Atypical Infections in Hospitalized Patients* (International Journal of Medical Informatics) and *Development and Validation of a Preliminary Multivariable Diagnostic Model for Identifying Unusual Infections in Hospitalized Patients* (Biomol Biomed, 2024).
- Developed deep learning methods for interpretable classification of PTSD and post-concussive syndrome from resting-state fMRI (*Channel-Recalibrated Temporal Deep Learning for Interpretable Classification of PTSD and Post-Concussive Syndrome Using Resting-State fMRI*, JAMIA, under review).
- Collaborated with Mayo Clinic on human activity recognition models using accelerometer time-series data from ICU patients.

Teaching Assistant — Auburn University, AL, USA

2022 – Present

Assisted in software engineering and database systems courses. Mentored students on data analytics, application development, database design, and SQL projects.

NLP Researcher — Iran University of Science and Technology, Tehran, Iran 2019 – 2021
 Conducted research on relation extraction and knowledge graph construction for biomedical text. Built data cleaning, entity linking, and model deployment pipelines.

EDUCATION

- **Ph.D. Candidate in Computer Science and Software Engineering**
 Auburn University, AL, USA — GPA: 3.93/4.0 Aug 2022 – Present
 Research focus: AI-driven diagnosis of rare infectious diseases using EHR data
 Advisors: Dr. Ashish Gupta, Dr. Xiao Qin
- **M.S. in Management of Information Systems**
 Harbert College of Business, Auburn University, AL, USA — GPA: 4.0/4.0 2023 – 2025
 Graduate Certificates: Business Analytics, Cybersecurity
 Relevant coursework: Risk Analysis and Management, Project Management
- **M.S. in Computer Science and Engineering**
 Iran University of Science and Technology, Tehran, Iran — GPA: 18.16/20 2019 – 2021

PUBLICATIONS

- **Channel-Recalibrated Temporal Deep Learning for Interpretable Classification of PTSD and Post-Concussive Syndrome Using Resting-State fMRI.**
Journal of the American Medical Informatics Association (JAMIA) — Under Review, 2026.
- **Machine Learning Approaches to Identify Rare and Atypical Infections in Hospitalized Patients.**
International Journal of Medical Informatics, 2026.
- **Development and Validation of a Preliminary Multivariable Diagnostic Model for Identifying Unusual Infections in Hospitalized Patients.**
Biomol Biomed, 2024.
- **History of Multiple Concussions Associated with Impaired Perceptual Decision-Making Metrics Identified by Both Machine Learning and Statistical Regression Methods.**
PLOS One, 2026.
- **Multimodal Approaches for Classifying PTSD and PCS-PTSD from Resting-State fMRI: Deep Learning on Time-Series and Interpretable Feature-Based Models.**
Pre-ICIS SIGDSA Symposium Proceedings, 2025.
- **Predicting PTSD Severity in Veterans: An Explainable fMRI-Based Deep Learning Approach.**
Pre-ICIS SIGDSA Symposium Proceedings, 2025.
- **Development of a Body Movement Classification Algorithm Using Wearable Accelerometers: A Pilot Study.**
AMIA, 2024.
- **Modeling Long COVID Disease Network in Pediatric Population.**
AMCIS TREOs, 2023.
- **AI Models for Rare Infectious Disease Detection.**
Decision Sciences Institute, 2023.