ATEFEH IRANI

ML Engineer | Ph.D. Candidate in AI | Senior AI Developer

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SKILLS

AI & Machine Learning: Agentic AI, Weak Supervision, Multimodal Learning, Time-Series Modeling, Feature Engineering, Statistical Inference, Optimization

ML Systems: End-to-End ML Pipelines, Production ML Systems, Real-Time Inference, MLOps

Programming & Platforms: Python (PyTorch, TensorFlow, Scikit-learn, Pandas, NumPy), C++, C#, SQL, REST APIs, Linux, Cloud-Based ML (AWS), Git

Data Processing: Large-Scale Video Processing, Signal Processing, Landmark Extraction, Temporal & Motion Modeling, MediaPipe, OpenCV

EXPERIENCE

Pacific Parkinson Research Centre at UBC Hospital

Vancouver, BC Jul 2024 - Present

Machine Learning Researcher

- Designed and productionized **end-to-end ML pipelines** integrating multimodal video data, clinical metadata, and weakly supervised labels for disease severity assessment.
- Developed **agent-based reporting** architectures to support explainable AI and automated decision workflows, bridging research prototypes and deployment-ready systems.
- Built and deployed **real-time inference services** integrated into clinician-facing applications.
- Automated data preprocessing, validation, and evaluation pipelines to improve **research-to-production velocity**.
- Led and mentored a **cross-functional team of 7+ researchers** and engineers, ensuring code quality, reproducibility, and system reliability.

Pars Cognition

Tehran, Iran 2014 - 2023

Lead Full Stack Developer

- Led the design and development of **large-scale, production software systems** serving 4,000+ active users across healthcare and education domains.
- Integrated **ML-driven analytics pipelines** (time-series modeling, voice feature extraction, behavioral metrics) into web, mobile, and Unity-based applications.
- Built and maintained **scalable backend systems** supporting real-time data ingestion, ML inference, and long-term analytics.
- Collaborated with designers, product stakeholders, and domain experts to deliver **end-to-end user-facing AI systems**.

EDUCATION

VIRS at Machine Learning

Vancouver, BC Nov 2023 - Jul 2024

The University of British Columbia

Ph.D. in Artificial Intelligence and Robotics

2020 – Dec 2026 (Expected Graduation Date)

University of Tehran

Thesis: Parkinson's Disease Detection Using Facial and Vocal Features

MSc in Artificial Intelligence and Robotics

2015 – 2018

University of Tehran

Thesis: A Serious intelligent Game for Rehabilitation and Assessment of Emotional Skills in Children Suffering from Autism Spectrum Disorder.

PROJECTS HIGHLIGHTS

Attention Games

2019

A suite of neurogames designed to enhance attention and memory skills, supported by gameplay analytics and adaptive difficulty tuning.

- Developed and deployed 10+ cross-platform games (Android/Web/Windows), using Unity and behavioral task design.
- Managed end-to-end game development lifecycle including A/B testing for balancing cognitive load.
- Applied statistical analysis on 100,000+ user responses to refine task difficulty and personalize player experience.

EmoGalaxy

2017

A serious game for emotion recognition and screening of developmental disorders using classification models.

- Designed a Unity-based game targeting 6 core emotions to assess emotional skills in children.
- Collected labeled behavioral data from over 200+ children (including ASD and ADHD) for model training and evaluation.
- Built and validated a supervised classification model achieving 93%+ accuracy in identifying ASD vs. neurotypical cases.
- Recognized as a finalist for the National Serious Game Prize.

UT-MoDaPark

2021-2023

Multimodal dataset for Parkinson's disease assessment

- Curated a large-scale dataset integrating video and voice recordings to evaluate motor and speech symptoms.
- Developed baseline pipelines for landmark extraction, time-series analysis, and multimodal fusion.
- Applied weak supervision strategies to refine noisy clinical labels and support reproducible research.

PUBLICATIONS

HiLWS: A human-in-the-loop weak supervision framework for curating clinical and home video data for neurological assessment
2025 International Conference on Machine Learning (ICML), DataWorld workshop

Enhancing reliability of automated remote Parkinson's assessments: Real-world video quality challenges
2025 Mov. Disord. Clin. Pract.

Facial Expression Analysis to Uncover the Relationship Between Sialorrhea and Hypomimia in Parkinson's Disease
2025 Frontiers in Neurology

Quantitative Assessment of Facial Expression Asymmetry in Parkinson's Disease
2024

Effectiveness of **Emogalaxy video game** on social skills of children with ADHD
2019 International Serious Games Symposium (ISGS)

Effectiveness of **EmoGalaxy video game** on social skills of children with oppositional defiant disorder
2019 International Serious Games Symposium (ISGS)

Autism screening using a **video game** based on emotions
2018 2nd National and 1st International Digital Games Research Conference: Trends, Technologies, and Applications

Effectiveness of **computer games** of emotion regulation on social skills of children with intellectual disability
2018 2nd National and 1st International Digital Games Research Conference: Trends, Technologies, and Applications

A serious game to learn and enhance emotional skills for children: A pilot study
2017 Proceedings of 1st Digital Games Research Conference Trends, Technologies and Applications