Mohammad Eshratabadi

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○ github.com/AAEA132

Research Interests

- ○ Machine Learning
- ○ Deep Learning
- ○ Computer Vision
- ○ Natural Language Processing
- ○ Multi-Modal Models
- ○ Explainable AI and Trustworthy ML

Education

Bachelor of Science in Computer Engineering　　　　　　**Sep. 2020 – Present (2025 Expected)**
Amirkabir University of Technology (Tehran Polytechnic)　　　　　　*Tehran, Iran*

- ○ GPA: **18.39**/20 (3.93/4.00)
- ○ Thesis: *Automated Financial Chart Interpretation Using Multimodal Large Language Models*
  - – *Under the supervision of [Dr. Ahmad Nickabadi](#)*
- ○ **Relevant Coursework (All "A" Grades):**
  - – Principles of Computational Intelligence (20/20)
  - – Information Retrieval (20/20)
  - – Data Structures and Algorithms (19.5/20)
  - – Applied Linear Algebra (19.4/20)
  - – Data Mining (18.7/20)
  - – Algorithm Design (18.25/20)
  - – Principles and Applications of AI (17/20)
  - – Engineering Statistics (20/20)

High School Diploma in Mathematics and Physics　　　　　　**Sep. 2017 – Jun. 2020**
National Organization for the Development of Exceptional Talents　　　　　　*Karaj, Iran*

- ○ GPA: **19.55**/20 (4.00/4.00)

Publications

A. Fakhrzdaeh, A. H. Seddighi, **M. Eshratabadi**, and A. Esfandyari, "**Text Recognition in Printed Persian Documents Based on Recurrent Neural Networks**", In *Iranian Journal of Information Processing and Management*, In Press, 2025.
[Link ↗](#)

Research Experience

Research Assistant　　　　　　**Feb. 2025 – Present**
Amirkabir University of Technology, Computer Engineering Department　　　　　　*Tehran, Iran*
Under the supervision of [Dr. Ahmad Nickabadi](#)

- ○ Automated Financial Chart Interpretation Using Multimodal Large Language Models (Thesis Project).
- ○ Collected and organized a test dataset consisting of annotated financial chart images (including drawn indicators, handwritten notes, and visual cues) paired with corresponding textual analyses authored by the annotators.
- ○ Evaluated the performance of multimodal language models to interpret visual financial chart analyses.

Research Assistant　　　　　　**Feb. 2024 – Jan. 2025**
Iranian Research Institute for Information Science & Technology (IranDoc)　　　　　　*Tehran, Iran*
Under the supervision of [Dr. Azadeh Fakhrzadeh](#)

- ○ Fine-tuned Tesseract and EncoderDecoder models (ViT + ParsBert) on custom Persian dataset.
- ○ Conducted error analysis on test documents, identifying low-performance areas and producing reports on error patterns.
- ○ Generated and normalized a 2 million text-line dataset from a 45k word-list in 4 fonts for training.
- ○ Created test sets of Persian text-lines, used to evaluate model performance using CER and WER metrics.
- ○ Contributed to writing a research paper, including sections on methodology, used metrics and model architecture.

Language Skills

English: IELTS Academic 8 *(Reading: 9, Listening: 8, Speaking: 7.5, Writing: 7.5)* (Taken: 24/8/2024)
Persian: Native

Skills

Programming Languages: Python, Java, C, SQL, HTML/CSS, JavaScript
Libraries & Frameworks: PyTorch, Tensorflow, Scikit-learn, Pandas, NumPy, Matplotlib, MLFlow, Spring Boot
Tools: Git, Docker, SQL Database (MySQL), LaTeX, Postman, Kubernetes, Google Colab, Flask

Teaching Experience

Teaching Assistant   **Fall 2020 – Present**
Amirkabir University of Technology   *Tehran, Iran*

- **Principles of Computational Intelligence**: Fall 2024 & 2025, Spring 2025, Instructor: Dr. Mohammad Mehdi Ebadzadeh
- **Principles & Applications of Artificial Intelligence**: Spring 2025, Instructor: Dr. Mahdi Javanmardi
- **Software Engineerig II**: Spring 2025, Instructor: Dr. Faezeh Gohari
- **Computer Networks**: Spring 2025, Instructor: Dr. Masoud Sabaei
- **Operating Systems – Lab Instruction Revision Team**: Spring–Summer 2024, Contributed to rewriting the syllabus, under the supervision of Dr. Hamid R. Zarandi
- **Research and Technical Presentation**: Spring 2024, Instructor: Dr. Hamed Farbeh
- **Applied Linear Algebra**: Fall 2023, Instructor: Dr. Ehsan Nazerfard

Projects

Persian Information Retrieval System   *Information Retrieval (GitHub)*

- Developed a TF-IDF-based search engine for Persian documents using positional indexing, cosine similarity, and champion lists.
- Implemented end-to-end text processing pipeline including normalization, tokenization, stop-word removal, and ranked retrieval.

Pacman-AI: Intelligent Agents for Search and RL   *Pacman-AI (GitHub)*

- Built AI agents using search algorithms, adversarial decision-making, reinforcement learning, and probabilistic inference in a grid-world environment.
- Implemented custom heuristics, Minimax/Expectimax agents, Q-learning, and HMMs to handle partial observability and ghost tracking.

MyTorch: Minimal Deep Learning Library from Scratch   *MyTorch (GitHub)*

- Implemented an educational PyTorch-like library in NumPy with core modules for tensors, autograd, layers (FC, Conv2D), activations, loss functions, and SGD.
- Trained MLP and CNN models on MNIST achieving over 93% test accuracy using only the framework.

Work Experience

R&D Artificial Intelligence Intern (CO-OP)   **Jul. 2023 – Feb. 2024**
R&I (Research and Innovation) center at CROUSE PJS   *Tehran, Iran*

- Conducted focused research on Lane Detection task, such as research on various datasets used for training and testing lane detection models. Produced detailed reports and presentations on the findings for team members.
- Enhanced an internal framework for model training and getting inference results by integrating new models with different backbones and datasets.
- Utilized MLFlow as a ML OPs tool for experiment tracking.

Java Backend Intern (CO-OP)   **Feb. 2022 – Sep. 2022**
Tosan (Banking and Payment Solutions Provider)   *Tehran, Iran*

- Developed microservices aimed at modernizing a core project by creating RESTful APIs and applying Test Driven Development (TDD) methodologies.
- Produced project documentation outlining some of the current system functionalities.

Honors & Awards

- Ranked 470 (top 0.3%) among 135,000+ participants of the Nationwide University Entrance Exam (Konkour) in Mathematics and Physics.
- Passed the first stage of Iran's National Olympiad in both Mathematics Olympiad and Informatics (Computer) Olympiad.

References

Available upon request.