




Mehrdad Nourbakhsh

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 Tehran, Iran

SUMMARY

- Earned a Master's and Bachelor's in Computer Engineering, developing a strong foundation in AI, machine learning (ML), and software development over eight years of academic training.
- 3+ years of industry experience in software development and data science, working on AI-driven solutions, backend systems, and web applications across multiple organizations.
- Proven research and development skills, driven by a passion for learning new concepts and solving complex, practical problems.

TECHNICAL AND PERSONAL SKILLS

- Programming: Python, JavaScript/TypeScript, R, Java, C++
- Machine Learning Libraries: Tensorflow, PyTorch, PyGOD, Scikit-learn, Pandas, Matplotlib, Flower
- Frameworks: Django, React, Next.js, Vue, Tailwind CSS, HTML/CSS, SASS, Vite, Electron, Spring
- Tools & Platforms: Git, Docker, PostgreSQL, MongoDB, GraphQL, Simulink, OpenCV
- Language: Persian (Native), English (TOEFL ibt: 107/120), French (Elementary)

EDUCATION

- **University of Tehran** Tehran, Iran
M.Sc. in Software Engineering; GPA: 4.00/4.00 2021 – 2024
- **University of Tehran** Tehran, Iran
B.Sc. in Computer Engineering; GPA (last two years): 2.92/4.00; 2015 – 2020

RELEVANT EXPERIENCE

- **University of Alberta** Edmonton, Canada (Remote)
Graduate Researcher Mar. 2025 - Sep. 2025
 - Prototyped a **Graph Neural Network (GNN)** fraud detection method for transaction graphs, compared baselines, and documented gaps in current methodologies.
- **B.A Foods** Tehran, Iran
Data Scientist Jan. 2025 - Mar. 2025
 - **Analyzed data relationships** to detect periodic and seasonal patterns using visualizations and statistical metrics, including the Autocorrelation Function (ACF) and Partial Autocorrelation Function (PACF).
 - Developed an **AI-driven** time series forecasting solution to **predict company revenue**, leveraging models like ARIMA and SARIMA for accurate financial projections.
- **University of Tehran** Tehran, Iran
Software Developer Sep. 2023 - Sep. 2024
 - Built a **desktop application** using **Node.js**, **Vue**, and **Electron** for managing graduate student records, automating form generation, and generating reports to enhance the workflow of the ECE graduate department.
- **University of Tehran** Tehran, Iran
Graduate Researcher Sep. 2022 - Sep. 2024
 - Designed a graph-based anomaly detection approach to mitigate the impact of backdoor attacks in **Federated Learning (FL)**. Developed the proposed method using **TensorFlow** for training utilities, **PyTorch Geometric** for graph construction, and **PyGOD** for outlier detection.
- **University of Tehran** Tehran, Iran
Teaching Assistant Apr. 2021 - Sep. 2024
 - Deep Neural Networks: Designed and implemented a coding assignment using **TensorFlow** and **Pandas** to teach **class imbalance**, **data augmentation**, **CNNs**, and **GANs**.

- Statistical Inference: Created written homework and an **R** project on **statistics, data analysis, and visualization**.

Tehran, Iran

• SynApps

Mar. 2020 - Oct. 2020

Software Developer

- Worked as a **Django backend developer** using **Python** to build a clinic management application that is currently being used by more than 14 hospitals and 8000 doctors
- Implemented primary features that allow app users to organize crowded patient queues and submit medical history, lab tests, and radiology reports of the patients
- Collaborated with an **interdisciplinary group** consisting of medical students and software developers
- Developed the first version of the application API using **REST API** and **Swagger** documentation

Tehran, Iran

• Authin

July 2019 - Sep. 2019

Software Developer Intern

- Implemented parts of a central authorization service in **Java/Spring**, adding endpoints and tests, and participated in code reviews.

Tehran, Iran

• FojhunExsom

July 2017 - Nov. 2018

Software Developer

- Worked as a **fronted developer** to design and implement the UI of a web application using **JavaScript, jQuery, and Sass**. The application was part of a software solution specifically developed for POS systems.

NOTABLE PROJECTS

- Emotion Recognition of Speech: Collected and processed speech data for emotion recognition, extracting features like Chroma and Zero Crossing Rate. Developed machine learning models using KNN, SVM, and MLP for classification, and applied clustering methods such as K-Means and DBSCAN to analyze emotions like Anger, Disgust, and Sadness.
- BERT Implementation From Scratch 🤖: Implemented BERT from scratch, constructing all Transformer components, including the encoder and multihead attention mechanisms, to gain a deeper understanding of its core functionality.
- GAN Implementation 🤖: Implemented Deep Convolutional GAN from scratch, optimizing training with label smoothing, batch normalization, and noise addition. Also developed a Wasserstein GAN (WGAN) with customized loss functions to enhance performance.
- Job offer System 🤖: Built a job offer web app with Java (Spring) backend, React frontend, JPA database, and security features like JWT, Docker, and Kubernetes.
- Working with Testnet Network 🤖: Gained insights into Bitcoin mechanics by generating valid testnet addresses using SHA-256 and RIPEMD-160, simulating transactions with python-bitcoinlib, and testing the mining process with real blockchain data.
- Substitution Cipher Decoder: Implemented a decryption process using Genetic Algorithms, leveraging genes, chromosomes, fitness functions, and mutations to decode messages encrypted with a substitution cipher.

HONORS

- Ranked 2nd, among master's students in Software Engineering 2022
- Ranked within the top 0.7% (145th) among approximately 18,000 participants in the computer engineering national master entrance exam for Iranian universities. 2021
- Ranked within the top 0.1% (237th) among approximately 181,000 participants in the computer engineering national master entrance exam for Iranian universities. 2015