Laya Fakher
Computer Engineer

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in Laya Fakher

🎓 EDUCATION

2024 - Present	**Ph. D. in Computer Science**, Illinois Institute of Technology, Chicago, USA.
2019 - 2023	**Bachelor's in Computer Engineering**, K. N. Toosi University of Technology, Tehran, Iran. World University Rankings 2024 : 801 - 1000 in Times Higher Education (THE), 2024. Thesis title : Bitcoin Price Prediction Using News Sentiment Analysis. (score : 20/20) Supervisor : Dr. Masoud Dehyadegari Cumulative GPA : 3.68/4 or (17.68/20.0) - Last 2 years GPA : 3.85/4 or (18.8/20.0)

💡 INTERESTS

General	Machine Learning, Deep Learning, Natural Language Processing, Data Mining, Computer Vision, Federated Learning, Garphs, Computer Networks, Software Engineering, Security.
Specific	Large Language Models, Social Computing Science, Human-Computer Interaction, Distributed Learning, AI in Public Health, Robotics, Responsible AI, Bioinformatics, Community Detection in Graphs, Cloud Computing, Hardware & Software Co-design.

☰ SKILLS

Languages	**Python**, **Java**, C/C++, C#, Matlab , VHDL , Javascript , HTML5, CSS , PHP.
Frameworks & Libraries	TensorFlow , Keras , Scikit-learn, PyTorch, Pandas, NLTK, BERT, FinBERT, TextBlob, VADER, React JS, jQuery, Node JS, Express JS, Bootstrap.
Architectural & design Patterns	MVC , MVP , Observer , Singleton.
Data base	phpMyAdmin, MySQL, PostgreSQL.
Tools	Jupyter Notebook, Cisco Packet Tracer, Wireshark, IntelliJ Idea, Eclipse, Visual Studio 2019, Visual Studio code, WebStorm, PhpStorm, Xilinx ISE, Proteus 8 Professional, git.
Operating systems	Windows , Linux , Android.
Modelization	UML, BPMN, Use Case Diagram, Sequence Diagram.
Office automation	LaTeX, Pack Office(Word, Excel, PowerPoint).

☰ LANGUAGES

Persian	Native
English	IELTS Academic : 6.5 (Listening : 7 ,Reading : 6.5 ,Speaking : 6.5 ,Writing : 6.5)

🎓 ACADEMIC EXPERIENCE

Fall 2024	**Graduate Teaching Assistant , Database Organization , FUNDAMENTALS, Instructor : Dr. Michael Choi** › Grading projects and assignments. › Leading discussion sections. `Database Architecture` `Database Modelling and Design`
	Research Assistant , Depression Detection , IMPLEMENTATION, Supervisor : Dr. Farnaz Sheikhi › Using natural language processing, machine learning and deep learning techniques for text sentiment analysis and early depression detection. `Python` `LSTM` `GRU` `Bi-GRU` `Bi-LSTM`
Fall 2023	**Teaching Assistant , Computer Networks , ADVANCED, Instructor : Dr. Fateme Rezaei** › Grading projects and homework. › Preparing Presentations. `Application Layer` `Transport Layer` `Network Layer`

Teaching Assistant , System Analysis & Design , Principles, Instructor : Dr. Mehdi Esnaashari
> Grading assignments, projects and homework.
> Helping students who need extra support to complete tasks.

`Agile methodology`

Teaching Assistant , Database Design , Principles, Instructor : Dr. Mohammadhadi Alaeiyan
> Project Declaration and Preparing Presentations.
> Explaining concepts and offering additional support to students who needed it.

`Microsoft SQL Server` `RDBMS` `NoSQL Databases`

Spring 2023 | Teaching Assistant , Hardware/Software Codesign , SystemC, Instructor : Dr. Hoda Roodaki
> Grading tests, projects and homework.
> Helping students who need extra support to complete tasks.
> Teaching small groups who need additional help or guidance.

`SystemC` `Visual Studio 2019`

Fall 2022 | Teaching Assistant , Computer Networks , fundamentals, Instructor : Dr. Fateme Rezaei
> Grading projects and homework.
> Explaining concepts and offering additional support to students who needed it.

`The Physical Layer` `The Data Link Layer` `Python` `MATLAB` `Signal Processing`

Spring 2021 and Spring 2022 | Teaching Assistant, Advanced Programming, Instructors : Dr. Mehdi Esnaashari ,Mr. Mehdi Zamanian
> Grading tests, projects and homework.
> Project Declaration and Preparing Presentations.
> Supervising group activities.

`Java` `JavaFX` `Object-Oriented Programming`

Fall 2020 and Fall 2021 | Teaching Assistant, Advanced Programming, Instructor : Mr. Mehdi Zamanian
> Grading assignments, projects and homework.
> Supervising group activities.
> Explaining concepts and offering additional support to students who needed it.

`Java` `JavaFX` `Object-Oriented Programming`

🖥 Researches and Projects

Depression Detection on e-Risk 2017 using Long Short-term Memory Models   September 2023 - present
Published Paper 🔗 Paper Link
Depression detection on social media using machine learning and deep learning techniques.

`Python` `LSTM` `GRU` `Bi-LSTM` `Bi-GRU`

Research Area Extraction using Mistral   November 2023 - present
🔗 github.com/layafakher/FineTuning-Mistral-7B-For-Research-Areas-Extraction-With-Ludwig-and-4-Bit-Quantization
Fine-tuning Mistral on a paper-area dataset for extracting related research areas for each article based on the title of articles.

`Python` `Mistral` `Large language Models`

Bitcoin Price Prediction Using News Sentiment Analysis   June 2023 - September 2023
🔗 github.com/layafakher/Bitcoin-Price-Prediction-Using-News-Sentiment-Analysis   🔗 Google Colab
Bitcoin Price Prediction using Financial News Sentiment Analysis.

`Python` `LSTM` `Textblob`

Pitch Detection   February 2023 - March 2023
🔗 github.com/layafakher/pitch-detection
Detecting and plotting pitch contour of a given audio file using AMDF, Autocorrelation and Cepstrum methods.

`MATLAB`

💼 WORKING EXPERIENCE

October 2023 May 2024	**Natural Language Processing Engineer, Data scientist, Full-Time, Smartory Labs** › working on the resume-parsing project. Python · Fine-Tuning Large Language Models · Natural Language Processing · Machine Learning · Deep Learning

📖 CONFERENCES

December 2023	Member of the student committee at the 11th RSI International Conference on Robotics and Mechatronics (ICRoM 2023) - University of Tehran.
February 2024	Article acceptance and presentation at the 20th CSI International Symposium on Artificial Intelligence and Signal Processing (AISP 2024) - Mazandaran University of Science and Technology.

🎓 HONORS AND AWARDS

2023	Ranked within the top 20% among the graduated students of the Computer Engineering Department, K. N. Toosi University of Technology, Iran, 2022.
2019-2023	Received a full four-year scholarship for the entire duration of my undergraduate studies, including a complete tuition waiver.
2019	Ranked among the top 1% among approximately 160,000 participants in the University Entrance Exam for bachelor's degree, Iran.

✚ RELEVANT COURSES

› Speech & Language Processing : **20/20**
› Artificial Intelligence and Expert Systems : **19.25/20**
› Graph Theory and Algorithms : **20/20**
› Data Mining : **20/20**

› Principles of Database Design : **20/20**
› Software Engineering : **20/20**
› Principles of Compiler Design : **20/20**
› Computer Networks 2 : **18.2/20**

🎓 CERTIFICATIONS

2024	Machine Learning Specialization, Coursera.
2024	Advanced Learning Algorithms, Coursera.
2023	Advancements of AI in Surgery : Enabling Smart Video-guided Surgical Training, ICRoM 2023.
2023	Robotic Grasping : A Deep Learning Approach, ICRoM 2023.
2023	Advancements in Medical Robotics : Design, Analysis, and Innovation, ICRoM 2023.
2023	Artificial Intelligence And Robotics, A Practical Overview , ICRoM 2023.
2023	Finetuning Large Language Models, Coursera.
2023	Sequence Models, Coursera.
2023	Structuring Machine Learning Projects, Coursera.
2023	Improving Deep Neural Networks : Hyperparameter Tuning, Regularization and Optimization, Coursera.
2023	Neural Networks and Deep Learning, Coursera.
2023	Supervised Machine Learning : Regression and Classification, Coursera.
2022	Java Programming : Solving Problems with Software, Coursera.
2022	Front-End Web Development with React, Coursera.
2022	Programming for Everybody (Getting Started with Python), Coursera.

💬 REFERENCES

Dr. Masoud Dehyadegari
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