Amirali Amini

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Education

University of Tehran — **Tehran, Iran**
Bachelor of Science in Computer Science — *Sept 2020 – Present*
GPA: 17.91/20 (Equivalent to 3.84/4) - Ranked among top 10 students

NODET — **Neyshabur, Iran**
Diploma in Mathematics and Physics — *Sept 2014 – Sept 2020*
GPA: 19.31/20 - Among 3 top students
Affiliated with the National Organization for Development of Exceptional Talent

Research Interest

- XAI (Explainable AI)
- Autonomous Driving
- Reinforcement Learning
- Decision Making

Selected Projects

Segmentation on Kvasir-SEG CODE — **June 2024**
- **Technologies:** *Python, PyTorch, Scikit-learn, Numpy*
- Developed a deep learning **U-Net** model using **Kvasir-SEG** dataset for automatic polyp detection. Achieved high accuracy and performance metrics, enabling early cancer screening. Optimized hyperparameters and used data augmentation for better clinical practices.

Author Identification in Persian Literature using Language Models CODE — **June 2024**
- **Technologies:** *Python, PyTorch, Scikit-learn, Pretrained transformers*
- **Scraped Persian literature** websites to create a dataset containing 10 authors with 30 documents each. Developed a **BERT-based** machine learning model for authorship identification.

Bio-Inspired Multi-Scale Filter Analysis for Convolutional Spiking Neural Networks CODE — **June 2024**
- **Technologies:** *Python, PyTorch, CoNeX*
- Developed a spiking neural network using CoNeX, integrating multi-scale Gabor and DoG filters. Explored different filter sizes to analyze what features are learned by the CNN model. Applied the model to both synthetic and real-world images, replicating biological visual processing.Successfully replicated biological visual processing, with smaller filters learning edges and larger filters detecting features such as eyes.

Grapevine Leaves Classification CODE — **June 2022**
- **Technologies:** *Python, PyTorch, CoNeX*
- Implemented various pretrained and custom **CNN models** for grapevine leaves classification. In order to achieve better results, data augmentation with a data generator is implemented. Also, I designed an autoencoder model for dimensionality reduction.

Bio-inspired AI Optimization for Industrial Applications CODE — **Nov 2023**
- **Technologies:** *Python, Scikit-Learn, Numpy*
- Developed and implemented **bio-inspired AI** algorithms, like **genetic algorithms** and **simulated annealing**, to theoretically model and solve cutting stock problems, leading to improved resource utilization and industry-specific solutions.

Code Editor with assembly language CODE — **July 2023**
- **Technologies:** *Assembly(x86 Nasm), Text Processing*
- Developed a text editor in Assembly to read, display, and edit file content, with features for file statistics (characters, words, lines) and search-and-replace functionality.

Experience

Front-end developer at the Advanced Technology Lab (ZLab) — **Jan 2022 – Jul 2023**
Front-end developer and AI intern — *Tehran, Iran*

MTI startup — **Jul 2022 - March 2023**
Full-stack developer — *Tehran, Iran*

RabinCash Website — **May 2019 – August 2019**
Full-stack intern — *Tehran, Iran*

Teaching Assistant-ships

Teaching Assistant for 10+ courses, helping 400+ students **2020 – 2024**

- Conducted weekly classes, projects, and assignments to support students' learning journey.
- Consistently provided guidance and resources across various domains and subjects.
- Collaborated with multiple instructors to create engaging lessons and effective learning environments.

Including:

- Teacher assistant of Dr. Babaali in the **Information Retrieval** course.(**Fall 2024**)
- Teacher assistant of Dr. Hedieh Sajedi in the **Data Mining** course.(**Sprint 2024**)
- Teacher assistant of Dr. Babaali and Dr. Nadi in the **Principals of Computer Systems** course.(**Sprint 2023**)
- Teacher assistant of Dr. EsmaeilZadeh in the **Statistical Methods** course.(**Sprint 2023**)
- and Principals of Computer Systems, Fundamentals of OS, Basic Programming, Data structures, General Calculus I,

Relevant Coursework

- Linear Algebra (18.66/20)
- Artificial Intelligence (19.2/20)
- Advanced Information Retrieval(19.08/20)
- Computational Neuroscience (Graduate Course-19.5/20)
- MIT 6.S191-A deep learning course (Audited)
- The Foundations of Dynamic Systems(17.75/20)
- The Fundamentals of Programming (18/20)
- Statistical Methods (19.2/20)

Honors and Awards

Achieved Six Out of Eight Semesters of Excellence in Term

An official title given by the University of Tehran to students with academic excellence. *2019 – 2020*

National University Entrance Exam

Ranked 66 (0.05%) among 155k participants *Aug 2020*

Skills

Languages: Python, C, C++, PHP, SQL, JavaScript, HTML, CSS
Frame Works: Scikit-learn, TensorFlow, Keras, PyTorch, CoNeX, OpenCV, Django, Laravel, NodeJS, Vue.js, React.js, Next.js, Typescript
Tools: GIT, MongoDB, MySQL, Redis, Linux, Photoshop, Pixelmator, Figma
Soft Skills: Leadership, Team Working, Time Management
Others: Karate (two national medals), Swimming (several medals), Chess (several medals), Santoor (Iranian musical instrument, +10 years)

Language

English: Fluent – C1 **2024 – 2026**

Achieved an overall IELTS score of 7.5 , with 8.0 in Listening and Reading, and 6.5 in Speaking and Writing.

Persian: Native

References

- **Name:** Bagher Babaali
  Title: Assistant Professor of Computer Science
  Contact: babaali@ut.ac.ir
- **Name:** Hedieh Sajedi
  Title: Associate Professor of Computer Science
  Contact: hhsajedi@ut.ac.ir
- **Name:** Gholam Reza Rokni Lamouki
  Title: Associate Professor of Computer Science
  Contact: rokni@ut.ac.ir