Ali Asgari

Tehran, Iran
✉ ali.asgari.2001@ut.ac.ir or ✉ asgaria266@gmail.com
🌐 ali-asgari.github.io
⚙ Ali-Asgari

Education

2019–2024 **University of Tehran**,
Bachelor of Science in Computer Science
GPA: 17.05/20 - (3.59/4)

2011–2019 **High School Diploma in Mathematics and Physics**,
National Organization for the Development of Exceptional Talents
GPA: 19/20 - (4/4)

Research Interests

- **Computer Graphics**
- **Software Design**
- **Computer Vision**
- **Machine Learning**

Research Experience

August 2023 — Present **CNRL**
I am a member of the Computational Neuroscience Research Laboratory (CNRL) team developing a framework for efficient simulation of spiking neural networks on GPUs under the supervision of **Dr. Mohammad Ganjtabesh**. In spiking neural networks, practical visualization tools are limited. I developed a comprehensive 3D visualizer that includes real-time plotting, using OpenGL to access the graphics API directly and ImGui for the graphical user interface. This setup allows for real-time management of the neural network and facilitates configuration adjustments. My contributions have been incorporated into PymoNNtorch and CoNeX.

Teaching Experiences

February 2022 — June 2022 **University of Tehran**, *Teaching Assistant*
Advanced Programming
- instructor: Dr. Abbas Nouzari Dalini

February 2023 — June 2023 **University of Tehran**, *Teaching Assistant*
Machine Language and Assembly
- instructor: Dr Fazel(Abolfazl) Nadi

Projects

Visualizer for PymoNNtorch, *OpenGL, ImGui, PymoNNtorch*
- This project provides 3D real-time visualization and advanced plotting capabilities for neural networks defined using PymoNNtorch.**(Code)**
- supervisor: Dr. Mohammad Ganjtabesh

Ray tracing using CUDA, *CUDA, OpenGL, ImGui*
- This project involves the implementation of ray tracing using CUDA, featuring real-time output visualization through CUDA and OpenGL interoperability. **(Code)**

Real-time Visualizer of 2D Tenseor, *OpenGL, ImGui, PyTorch*
- This project is a visualization of a PyTorch 2D tensor on a Cuda device using OpenGL, without the need to transfer data to the CPU. **(Code)**
- supervisor: Dr. Mohammad Ganjtabesh

Bracelet in OpenGL, *OpenGL*
- This project focuses on rendering a 3D bracelet by utilizing a variety of essential and advanced OpenGL functions, along with Python for generating the mesh data. **(Code)**
- supervisor: Dr. Reza Aghaizadeh Zoroofi

Connect 4 Game, *Pygame, Numpy*
- This project is a implementation of the classic Connect 4 with a game of an opponent with AI algorithms using the Pygame library from Python. **(Code)**
- supervisor: Dr. Hedieh Sajedi

Assembler Disassembler, *Python, Assembly*
- This project is a assembler and disassembler for a wide range of x64 assembly instructions, and convert assembly instructions to their binary code and vice versa. **(Code)**
- supervisor: Dr. Abbas Nouzari Dalini

Selected Courses

Computer Graphics
- instructor: Dr. Reza Aghaizadeh Zoroofi
- GPA: 18.5/20

Design and Analysis of Algorithms
- instructor: Dr. Mohammad Ganjtabesh
- GPA: 17/20

Data Structure And Algorithm
- instructor: Dr. Bagher Babaali
- GPA: 18.66/20

Machine Language and Assembly
- instructor: Dr. Abbas Nouzari Dalini
- GPA: 17/20

Advanced Programming
- instructor: Dr. Abbas Nouzari Dalini
- GPA: 17.5/20

Database Management Systems
- instructor: Dr. Alireza Khalilian
- GPA: 16/20

Introduction to Theory of Computation
- instructor: Dr. Mojtaba Mojtahedi
- GPA: 18.9/20

Theory of Computation
- instructor: Dr. Mojtaba Mojtahedi
- GPA: 20/20

Artificial Intelligence
- instructor: Dr. Hedieh Sajedi
- GPA: 19/20

Differential Equations
- instructor: Dr. Mahdi Khajeh Salehani
- GPA: 18.01/20

Algebra 1
- instructor: Hossein Sabzrou
- GPA: 16/20

Graph Theory and Applications
- instructor: Morteza Mohammad Nouri
- GPA: 19.81/20

Skills

Languages	C++, C, Python, Assembly, MySQL, CUDA
Frameworks	ImGui, Qt, Numpy, Pandas, Jupyter Notebook, Pygame
APIs	OpenGL
OS	Windows, Linux

Honors and Awards

2019	**Top 1% at National University Entrance Examination Among more than 160,000 Participants**

Languages

English	Fluent
	TOEFL iBT (Dec. 1, 2024) : 94/120 (Reading: 25, Listening: 26, Speaking: 22, Writing: 21)
Persian	Native