BORNA FOROOHARI

PROGRAMMER & STUDENT

CONTACT

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EDUCATION

2020-2022

ALLAMEH TABATABAYI SCHOOL

- Diploma in Mathematics and Physics
- GPA: 19.7 / 20

2022-Now

UNIVERSITY OF TEHRAN

- Bachelor of Science in Computer Engineering
- GPA: 18.11 / 20

SKILLS

Programming

Advanced: Python, C++, C, Java

Intermediate: VerilogHDL, System Verilog

Beginner: SQL, Assembly, HTML, CSS

TOOLS

VSCode, IntelliJ IDEA, Jupyter Notebook Quartus, Multisim, Modelsim, Vivado, Linux, FPGA boards, Tableau, PowerBI, Kafka, MySQL

LANGUAGES

- Persian(Native)
- English (Fluent)

PROFILE

Date of Birth: January 5, 2004
Highly motivated undergraduate Computer Engineering student at the University of Tehran. Ranked 75th nationally in Iran's university entrance exam among 145,000 participants. Strong academic background with a passion for Artificial Intelligence, Machine Learning, and advanced programming. Experienced in tutoring and highly skilled in C, C++, and Python. A team player with fast learning and problem-solving abilities.

TEACH EXPERIENCE

Part-time Tutor | 2022 – 2025
Taught mathematics and physics for national entrance exams. Customized lesson plans and mentored students one-on-one.

Introduction to Computing Systems and Programming | 2024
Instructor: Dr. Mahmoud Reza Hashemi   University of Tehran
Teaching Assistant: Laboratory TA, Final exam grader

Computer Architecture | 2024 – 2025
Instructor: Dr. Saeed Safari   University of Tehran
Teaching Assistant: Homework, Quiz , computer assignment grader

UNIVERSITY COURSES

Data Science, Instructor: Dr. Bahrak & Dr. Yaghoobzadeh, In Progress

Data Base, Instructor: Dr. Shakeri, In Progress

Compiler Designing and Programming Languages, Instructor: Dr. Tavassoli, In Progress

Artificial Intelligence, Grade: 19.5/20, Instructor: Dr. Fadayi & Dr. Yaghoobzadeh

Algorithm Design, Grade: 19.6/20, Instructor: Dr. Asadpoor

Formal Language and Automata Theory, Grade: 17.6/20, Instructor: Dr. Hojjat

Data Structures and Algorithms, Grade: 20/20, Instructor: Dr. Faili & Dr. Amiri Fall

Probability and Statistics, Grade: 18.1/20, Instructor: Dr. Tavassolipour

Advanced Programming, Grade: 18/20, Instructor: Dr. Khosravi

Introduction to Computing Systems and Programming, Grade: 20/20, Instructor: Dr. Hashemi

Computer Architecture, Grade: 20/20, Instructor: Dr. Safari

Electric Circuits, Grade: 19.4, Instructor: Dr. Khalaj

REAL-WORLD APPLICATIONS & PROJECTS

- Compiler Designing for a New Language (CPY)(Java)

Developed the frontend of a C-Python-like compiler using Java, featuring a comprehensive AST, grammar parser, semantic analyzer via the visitor pattern, and a robust symbol table.

- Fake News Detection (Python)

Built a fake news classifier with a Python-based pipeline, incorporating data preprocessing, feature extraction, and supervised learning models to detect misinformation.

- AI-Powered Connect4 with Minimax(Python)

Created an intelligent Connect4 game using Minimax with alpha-beta pruning and difficulty settings, supported by an interactive Pygame interface.

- Heuristic Search Algorithm Optimization(Python)

Optimized heuristic algorithms (BFS, IDS, A*, Weighted A*) for solving the Lights Out puzzle, focusing on node efficiency and reduced computation time.

- Genetic Image Reconstruction(Python)

Used genetic algorithms to recreate images through iterative mutation, crossover, and fitness-based evolution for visual refinement.

- Neural Network from Scratch (Python)

Implemented key deep learning components including forward/backward passes, loss functions, and optimizers from scratch, without using external libraries.

- CNN with VGG16 for Image Classification(Python)

Applied transfer learning using VGG16 on CIFAR-10 dataset to classify images into 10 categories, demonstrating the power of CNNs.

- Hotel Price Prediction (Python)

Designed a classifier to predict hotel price ranges using features like location, star rating, amenities, and user reviews.

- News Subject Clustering (Python)

Performed unsupervised clustering on news articles using transformer-based embeddings and classical clustering to discover topic groupings.

- Operating System Laboratory Projects(C)

Extended the xv6 kernel with new system calls, improved CPU scheduling, and enhanced memory and I/O management.

- Operating System Projects (C++)

Developed distributed systems using socket programming, MapReduce frameworks, and multithreading for efficient inter-process communication.

- Statistics and Probability Projects(Python)

Applied statistical models including Bayesian inference and distribution analysis in text and numerical data scenarios.

- Data Structures Projects (Python)

Implemented and tested core data structures such as stacks, heaps, trees, and graphs with an emphasis on performance.

- Algorithm Design Projects (Python)

Solved computational problems using dynamic programming, greedy algorithms, and NP-approximation techniques.

- Computer-Aided Design Projects (VerilogHDL, SystemVerilog)

Designed digital components including multipliers and buffers, modeled accelerator arrays, and implemented pipeline-based computations.

- Digital Logic Design Projects(VerilogHDL)

Built and synthesized RTL logic modules for both combinational and sequential systems such as gates and flip-flops.

- Digital Logic Design Laboratory(VerilogHDL, SystemVerilog)

Implemented FPGA-based projects for waveform generation, accelerators, and sequential circuit synthesis.

- Computer Architecture Projects(VerilogHDL)

Developed single-cycle, multi-cycle, and pipelined RISC-V processors with arithmetic units and control logic.

- Computer Architecture Laboratory Projects(VerilogHDL, SystemVerilog)

Designed and deployed a pipelined ARM processor with hazard detection and forwarding mechanisms on FPGA.

INTERESTS

Artificial Intelligence
Machine Learning
Data Science
NLP