Narges Babalar

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About Me

Computer engineering student (6th semester) with a strong interest in artificial intelligence, Python programming, databases, and web development. Passionate about exploring various tech domains and eager to gain real-world experience. Currently seeking a summer internship to expand practical knowledge and become familiar with professional environments.

Date of Birth: October 11, 2003   (1382/07/19)

Education

University of Tehran   *Sept 2022 – Present*
B.Sc. in Computer Engineering
GPA: 14 / 20

Zahra Nezam Mafi High School   *Sept 2021 – Sept 2022*
Diploma in Mathematics and Physics
GPA: 19.89 / 20

Relevant Coursework

- **Intro to CS and Programming**
  Dr. M.Hashemi (Term 1)

- **Advanced Programming**
  Dr. R.Khosravi (Term 2)

- **Discrete Mathematics**
  Dr. S.Mohammadi (Term 2)

- **Probability and Statistics**
  Dr. M.Tavassolipour (Term 3)

- **Data Structures and Algorithms**
  Dr. H.Faili (Term 3)

- **Logic Circuits**
  Prof. Zain Navabi (Term 3)

- **Computer Architecture**
  Dr. S.Safari (Term 4)

- **Theory of Formal Languages**
  Dr. Hojjat (Term 4)

- **Algorithm Design**
  Dr. M.Asadpour (Term 4)

- **Artificial Intelligence**
  MSc. Y.Yaghoubzadeh (Term 5)

- **Operating Systems**
  Dr. M.Kargahi (Term 5)

- **Digital System Design**
  Dr. M.Modarresi (Term 5)

- **Signals and Systems**
  Dr. A.Akhaei (Term 5)

- **Database Design**
  Dr. A.Shakeri (Term 6)

- **Compiler Design**
  Dr. Sh.Tavassoli (Term 6)

Technical Skills

- **Programming Languages:** Python, C++, Verilog
  Beginner in C, Java, SQL, HTML, CSS

- **Tools & Environments:** VS Code, Quartus, ModelSim, MySQL, Vivado, Word, PowerPoint

- **Operating Systems:** Windows, Linux

Projects

- **Designing a Compiler for the CPY Language** *Java, ANTLR*
  Developed the frontend of a compiler for a custom CPY language—a blend of C and Python—featuring a full Abstract Syntax Tree (AST), grammar and parser construction using ANTLR, semantic analysis with the Visitor design pattern, and a structured symbol table for name resolution.

- **AI-Powered Connect4 Game with Minimax Algorithm** *Python, Jupyter Notebook*
  Implemented an intelligent Connect4 game using the Minimax algorithm with alpha-beta pruning. The game features adjustable difficulty levels and a user-friendly GUI built with Pygame.

- **Genetic Image Reconstruction** *Python, Jupyter Notebook*
  Developed a program that recreates images using genetic algorithms with mutation, crossover, and fitness evaluation for image refinement.

- **Hokm Game** *C*
  Implemented a complete 4-player version of the traditional Persian card game Hokm. Players take turns playing cards according to official rules, and teams compete to win hands and ultimately the game.

- **Manual Neural Network Implementation** *Python, NumPy, PyTorch*
  Implemented a custom neural network from scratch using NumPy to understand the fundamentals of forward and backward propagation. Compared its performance with a pretrained VGG16 model using PyTorch on image classification tasks.

- **Machine Learning Projects** *Python, Jupyter Notebook*
  Developed and curated a suite of machine learning projects covering classification, regression, and recommendation tasks using real-world datasets.

- **Audio Noise Filtering with Multithreading** *C++, Linux*
  Developed a system-level audio processing project for filtering noise from voice files using both serial and multithreaded (parallel) techniques.

- **Parallel Processing with MapReduce Model** *C++, Linux*
  Implemented distributed computation on structured data using the MapReduce model. Simulated task partitioning and parallel processing across multiple cores.

Languages

- Persian: Native
- English: Intermediate

Interests

- Artificial Intelligence and Machine Learning

- Database Design and Query Optimization

- Web Development (Front-end , Back-end)

- Logo Design, Photoshop, and Video Editing