MARZIEH AYAT

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Linkedin ⋄ Github ⋄ Website

RESEARCH INTERESTS

Artificial intelligence: Data mining, Machine Learning

Algorithm: Optimization of Algorithms, Complexity Theory, Graph Theory, Data Structures, Algorithm design

EDUCATION

University of Isfahan, Isfahan, Iran   *September 2018-july 2022*

Bachelor of Science in Computer Science

Overall GPA:16.75/20 equivalence to 3.46/4

RESEARCH EXPERIENCE

Advanced programming   Feb 2019

C++   *Prof. Ghasem Mahdevar*

· The general concept is storing certain information about clients and calculating the companies' budget from summing the employees salaries.

· It is a practice for function and object orienting programming

· Adding a client, removing a client, recognizing the minimum salary, counting the total budget, and showing a list of clients are this program abilities. In each step, a direction will be display on screen(consule log).

Compiler   Jan 2021

C++   *Prof. Elham Esmaeeli*

· It has two sections:

    Lexis Analyzer - also known as scanner.

    Semantic Analyzer - also known as parser.

· The compiler is for a semi-C language called Decaf. More information is available *here*

· ersion C++11 or higher is needed to compile this code.

Operating Systems   Jan-May 2021

C++   *Prof. Elham Esmaeeli*

· Three separately projects are available:

  1. The first project is a practice for scheduling in operating systems .

  2. The second project is a practice for synchronization in operating systems.

  3. The third project is a practice for memory management in operating systems .

· The first project is a time manager for planes take off. There are several policies manage the priority based on fuel or time.

· The second project is similar to producer-consumer problem. no QT version of semaphores or other features is used.

· The third project is for memory management and it can define the address of data in a hard drive, the page fault rates, page table hit, TLB hits.

· Version C++11 or higher is needed to compile all the phases of this code.
· Good libraries has used especially for the second project, which is a practice for multi-thread programming.

computer networks
python

Dec 2021

Prof. M.Alambardar

· A socket programming code which connects two systems and help them to communicate with each other.
· Multi-threading helps both client and server to chat(send and receive data).
· It only contains one piece of code and by running it on one computer the other computer should connect it via terminal(Linux).
· Only one computer can be used and the consul log can communicate with the terminal.
· It is two way communication and each of the consul log and terminal can both send and receive data.

Artificial Intelligence
python

Oct-Dec 2021

Prof. Z.Moslehi

· A solution for **traveling salesman problem** using **genetic algorithm**.
· It contains a python file of useful classes and methods like individuals, population, cities, and etc.
· Inputs are: number of population,number of generations and probabilities and adjacency matrix.
· The outputs are the efficient chromosome of all and certain generation and as number of population there are permutations of cities and for each generation it repeats(the input contain number of generations.).
· Both input and output are sent by files.

Data Mining
python

Jan-Jun 2022

Prof. Z.Moslehi

· It has 3 phases and the first phase which is preprocessing had uploaded into two sections
· The data for train was in an excel file.
· A various machine learning libraries has used likeL panda, pca, yellowbricks, sklearn, boxplot, and etc.
· The discription in details is mentioned in readme in github.

BSc Project in Computer Science
LaTeX

Jan-Jun 2022

Prof. D.Mirzaei

· It was mainly about dimention reduction algorithm
· It begins with LSP and then dimension reduction algorithms. Defining them and analyze their application on data, for example kernel PCA works better non linear data than PCA.

Cryptography
LaTeX

Jun 2022

Prof. M.Rafiee

· It was about Email protocols like SMTP and S/MIME protocols
· It was a team work and I have done it with other 2 members.
· This protocols were discussed throw different aspects like, their application The structure of these protocols also were discussed.

TECHNICAL STRENGTHS

Computer Languages	C++, C, Python, MatLab
Operating Systems	Windows, Linux
Databases	MySQL, PostgreSQL, Microsoft SQL
Tools	Office (Word, Power point, Excel), LaTeX,Jupiter notebook, QT,git

ENGLISH CERTIFICATES

TOEFL	R:22, L:25, S:20, W:24, TOTAL:91
GRE	by October 3

SELECTED COURSES

Data Structures (17.28/20)	Fundamentals of Algebra (18.5/20)
Computer Architecture Organization (20/20)	Linear Optimization (20/20)
Compiler Design (17.45/20)	Matrices and Linear Algebra (17/20)
Concepts of Database(20/20)	Introduction to Real Analysis(19/20)
Theory of Computing (17.78/20)	Introduction to Numerical Analysis (17.75/20)
Artificial intelligence (17.25/20)	Principles of Logic(17/20)

HONORS AND AWARDS

- Ranked in the top 7% among all undergraduate students of computer science major in 2018 .

- Ranked in the top 5% among more than 144,000 participants of National Universities Entrance Exam in 2018.

- Ranked in the top 6% among more than 2,000 participants of National Universities Masters degree Entrance Exam for Computer Science major in 2022.

- Given the score of 17 out of 20 for Bachelors' Project in 2022.

- Given the score of 17.55 out of 20 for the Elective Bachelors' Project in 2022.

- Given the score of higher than 3.25 out of 4 for 6 semesters.

- Given the score 4 out of 4 for 1 semester.

LANGUAGES

Persian	Native
English	Fluent(C1)