Umut Utku ERŞAHİNCE

B.S. - Computer Engineering
İhsan Doğramacı Bilkent University, Ankara

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Github | LinkedIn

Education

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
B.S. Major	İhsan Doğramacı Bilkent University	3.96 (Current)	2022-Present
High School	Ankara Atatürk Anadolu High School	99.50/100	2018-2022

Projects

- **Pool for Physicists Only**
  Software Engineering Project | Java: swing, awt, Socket Github
  – This project is an implementation of the popular game of 9-ball and 8-ball pool.
  – Coordinated the project consisting of 5 people.
  – Did the research for the physics engine of the project and wrote the code for it.
  – Gave advice for and modified the UI of the game.
  – Added networking to the project, making it multiplayer.

- **ConwayGoL**
  Software Engineering Project | C++: SDL2, Makefile / serialization Github
  – This project is an implementation of the famous 2D cellular automaton known as Conway's Game of Life. It is a collaboration of 2 people.
  – Set up the UI of the entire game with intuitive controls and infinite grid, zoom in/out, etc...
  – Added a mode which I called "Multilife" in which squares are not strictly black/white but rather an rgb color. Added mixing between these colors as the automaton progresses.
  – Implemented save game state, created converters to convert between formats which are popular in the automaton community.

- **Loldle Guessr**
  Software Engineering Project | C++ Github
  – Inspired by a 3blue1brown video titled "Solving Wordle Using Information Theory", this project seeks to find the optimal way to play the popular internet game loldle.
  – Implemented the classic loldle solution using the concepts from information theory. On average, the bot can solve classic loldle in 2.5 tries.

- **Miscellaneous Small Projects**
  Software Engineering Project | Python: pygame / C++: SDL2 / Machine Learning Some of these are in my GitHub
  – **2048 clone:** This is a clone of the popular mobile game 2048 using pygame.
  – **n-queens and knight tour:** I implemented a visualization of the backtracking solution to the n-queens problem. I also experimented with heuristics on the knight tour problem such as Warnsdorff's algorithm and Euclidian distance.
  – **double pendulum simulator:** Implemented a double pendulum simulator with Runge-Kutta and Adams-Bashforth differential equation solvers.
  – **digit recognition:** Implemented a basic neural network and a kNN digit recognizer, achieving 93% and 97% accuracy on MNIST dataset on kaggle, respectively.

Skills

- **Programming**: Python, C/C++, Java, Git/GitHub, Windows/Linux/MacOS

Key courses taken

- **Mathematics/Physics**: Calculus I-II, Discrete Maths, Physics I
- **Computer Engineering**: Algorithms and Programming I-II, Fundemental Structures of Computer Science I, Digital Design

Achievements

- **Turkish University Enterance Exam**, 4th out of approximately 3 million candidates *2022*
- **Bilkent Computer Engineering Rankings**, 1st out of the cohort consisting of 179 top students *Present*
- **High School Rankings**, 2nd out of approximately 300 students in my high school *2022*

Extracurriculars

- **President**, Bilkent Classical Guitar Club *2022*
- **Board Member**, Bilkent Chess Club *2023*