

# CĂTĂLIN-ALEXANDRU RÎPANU

Aleea Teişani 292, Otopeni, Romania

☎ (+40) 771 067 932 ✉ [cataripanu66@gmail.com](mailto:cataripanu66@gmail.com) [in](#) [Linkedin profile](#) [Github profile](#)

## Education

### POLITEHNICA University of Bucharest

September 2020 – July 2024

*Faculty of Automatic Control and Computers*

*Bucharest, Romania*

- Bachelor's Degree in Computer Science, **GPA: 9.805/10**.
- Relevant **coursework**: Data Structures, Networking, Computer Architectures, Parallel Programming, OOP, Algorithms Analysis & Design, Numerical Methods, Operating Systems Design, Machine Learning, Artificial Intelligence

## Work Experience

### POLITEHNICA University of Bucharest

February 2022 – July 2024

*University Undergraduate Teaching Assistant*

*Bucharest, Romania*

- Taught students **programming subjects** in order to help them gain a better understanding of low-level concepts.
- Helped in grading projects, midterms and final exams and participated as an **invigilator** along with professors in exams.

## Projects

### 2016 Halite Bot | *Algorithms, OOP, C++, Techniques Design*

May 2022

- Implemented in C++ a *Halite bot* using techniques such as Divide and Conquer, Greedy and Dynamic Programming.
- Processed the **highest score cells** first so that the goal of the design (which is saving the bot's strength) is achieved.
- Developed a greedy approach used by the border cells so that all the unoccupied cells will be attacked.
- Created a **strength loss correction** method which uniformly redirects power to all own cells for minimizing the waste.

### Car Race | *C++, OpenGL, OOP, GLSL*

December 2022

- Developed a *Car race* based game using C++, OpenGL and Graphics Design techniques.
- Implemented collision detection with opponents (which are dynamic objects) using the **Sphere vs Sphere** test.
- Created a complex shape of the road rendering a large density of triangles so that no visual artifacts are generated.

### Seven-Segment LED Display on FPGA | *Verilog, Vitis HLS, C++, Vivado*

January 2023

- Created a *C++ project* which takes 8 signals as input from a Nexys A7-100T board and shows the right number on it.
- Implemented the Double Dabble algorithm for simplifying the conversion between **Binary** and **BCD** formats.
- Operated with High-level synthesis process so that the C++ behavioral specification is used along with a constraint file.

### RPG Adventure Game | *Java, OOP, JSON, Swing, Design Patterns*

December 2021

- Designed a *Complex RPG* based game using Java and JSON files for **storing accounts** which are used for **logging in**.
- Implemented a functionality which allows the user to choose between 2 game formats (**GUI** and **CLI**).
- Developed a method such that there is a probability that an enemy can **double** it's damage or **dodge** the user's attack.

## Extracurricular Activities

### POLITEHNICA University of Bucharest

February 2022 – July 2024

*University Undergraduate Student Assistant*

*Bucharest, Romania*

- Held a *presentation* during the **Introduction to Quantum Computing** course.
- Presented the natural transition from the study of an **abstract classical neural network** to the study of an **abstract quantum neural network**.

### 3DPUB Summer School

June 2022

*2<sup>nd</sup> Year Student*

*Bucharest, Romania*

- Participated in 5 **Gameloft** and **UPB workshops** related to GPGPU, Computer Vision and Game Development.
- Understood basic implementation practices of **Multiplayer** functionality and **Artificial Intelligence** in modern games.

## Awards

### National Student Mathematics Competition "Traian Lalescu"

November 2021

*2<sup>nd</sup> Year Contestant*

*Transilvania University of Brasov, Romania*

- Participated in the **National phase** and obtained the **honorable mention** of the **Complex Analysis** section.

## Skills

### Technical Skills

- Intermediate Knowledge: Python, Algorithms Design, Numpy, Pandas, Networking, C/C++, Parallel Programming
- Basic Knowledge: Pytorch, TensorFlow, Github, Gitlab CI/CD, TensorFlow Quantum, Keras, Docker Swarm, AWS

### Languages

- Romanian: Native Speaker
- English: Professional Level
- French: Good Command