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Cătălin-Alexandru Rîpanu

Computer Science Student

Faculty of Automatic Control and Computers

Key skills

- Proficiency in **statistics** & **simulation software**:
  LTspice (Advanced)
  Octave/Matlab (Advanced).
- Operating systems: **Unix/Linux** and **Windows**.
- Database: Basic knowledge of **SQL** and good knowledge of **Excel**.
- Languages:
  Romanian (**native speaker**)
  English (**professional level**)
  French (**good command**)

Programming

- Highly Advanced: **C** (Data structures and Algorithms), **Shell/Bash** in Linux.
- Advanced: **Java/C++** (For OOP).
- In progress: **Racket,Haskell,Prolog, Verilog (Hardware)**

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Massive Open Online Courses

- **Machine Learning**, by Andrew Ng (on Coursera,in progress).
- **Deep Learning**, by Andrew Ng (on Coursera,in progress).

Interests

- Quantum Computing.
- Artificial intelligence.
- Cryptography,Cryptanalysis.
- Computational Mathematics/Physics.

Work Experience

2021 – 2022 **University Assistant** ***POLITEHNICA University of Bucharest***, Bucharest

Taught students **Computational Mathematics and Numerical Methods** in order to help them acquire **skills for analyzing physical phenomena**. Used **Matlab/Octave**.

Projects

Mar 2021 **Vim-Text Editor(Linux)**

Implemented in C a version of Vim using **Queues**, **Stacks**, **Linked Lists**, **Doubly Linked Lists** and **Lists of Doubly Linked Lists**. This program offers the most basic and useful commands such as: **undo**, **redo**, **quit**, **delete**, **replace**, etc. It will be available soon on my GitHub *Vim-Text Editor*.

May 2021 **Tic Tac Toe-Minimax Algorithm(Game Theory)**

Used the **Tree/Binary Search Tree Data Structure** in C to implement the Minimax AI Algorithm on Tic-Tac-Toe (or Noughts and Crosses) game. Minimax is a decision-making algorithm, typically used in a turn-based, two player games. The goal of the algorithm is to find the optimal next move.

May 2022 **Halite(Algorithm Design Team Project)**

Implemented in C++ a Halite bot using algorithm design techniques such as Divide and Conquer, Greedy and Dynamic Programming. The goal of the implementation is to save strength for conquering the entire map. Obtained the 1^{st} prize of the Champions League Competition which took place on 1 June 2022.

Education

2020-Present **Bachelor of Computer Science POLITEHNICA University of Bucharest**

Coursework: Computer Programming in **C/C++**, Operating Systems, Data Structures in **C**, Numerical Methods (**Matlab/Octave**), Object-Oriented Programming (**Java/C++**), Network Protocols, Programming Paradigms, Algorithm Analysis/Design, Introduction to Computer Architecture and Assembly Language
Second year GPA: 9.75/10.
Expected graduation date: 2024.

Awards and Achievements

Nov-2021 **Mathematics Student Competition "Traian Lalescu"** *at* ***POLITEHNICA University of Bucharest***

Participated and obtained the 1^{st} prize of the **Complex Analysis** section. This section was addressed to 2^{nd} year students.

May-2019 **Mathematics Student Competition "Marcel Rosculet"** *at* ***POLITEHNICA University of Bucharest***

Solved Real Analysis and Linear Algebra problems and obtained the 1^{st} prize. This competition was addressed to 11^{th} grade students from high school.

Activities

Nov-2021 **Mathematics Student Competition "Traian Lalescu"** *at* ***Transilvania University of Brasov***

Participated in the **National phase** which took place in Brasov on 25-27 November. Obtained the 3^{rd} prize of the **Complex Analysis** section.