

# ALEXANDRU-GABRIEL VASILE

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## Education and Certifications

**University POLITEHNICA of Bucharest**  
Bachelor's Degree, Computer Science |

Expected graduation date: Jun. 2026

- Finished first and second year with a cumulative grade of **9.34/10**.
- Relevant Courses: **Computer Programming, Data Structures and Algorithms, OOP, Numerical Methods**.

**Machine Learning Specialization, DeepLearning.AI, Stanford University, Sep 2024**  
**Deep Learning Specialization, DeepLearning.AI, Oct 2024**

## Projects

### Supervised & Unsupervised Machine Learning - Julia & Python

July 2024 - Sep 2024

- A collection of **supervised and unsupervised** learning algorithms written in **Julia and Python** that reliefs **basic knowledge and theory** in **machine learning**.
- In supervised part, the collections contains different **regressions models**, used to predict items in different datasets, **neural networks** used in MNIST database.
- In unsupervised part, the collections contains **clustering with kmeans, Recommender Systems via Collaborative filtering, Anomaly Detection and Reinforcement Learning**.

### Dataplane Router - C

Mar 2024 - Apr 2024

- The project consists of implementing a **dataplane** for a router and simulated on 4 hosts connected to two routers.
- The implementation is responsible for: **forwarding** packages to destination, **ARP** protocol and **ICMP** protocol.

### GlobalWaves x Http - Audio Player - Java

Nov 2023 - Jan 2024

- A **spotify-like player** with functionalities ranging from basic audio playback (**search, next, prev, top5**) to complex features like **analytics, recommendations, and monetization strategies** based on data collected from all users.
- The program uses particular **design patterns** (Strategy, Command, Observer) and various **data structures**.
- The **Audio Player** is incorporated into a **Http-server** where **multiple web-clients** can do requests on server.

### Load Balancer - C

Apr 2023 - May 2023

- This program simulates a mechanism frequently used in distributed systems and has the advantage of fulfilling the **minimal disruption constraint**, i.e. minimizing the number of transfers required when a server is stopped or started.
- The program uses **Consistent Hashing** on a **hash-ring** structure which can contain up to **100.000 linked servers**.

### Virtual Memory Allocator - C

Mar 2023 - Apr 2023

- Developed an entire virtual memory allocator that had the role of **reserving memory**, at the library level, traditionally through memory calls such as **malloc()** or **calloc()**.
- Also, the memory allocator deals with **freeing reserved** areas, the related library call being **free()**.

### PPM Image Editor - C

Nov 2022 - Jan 2023

- An entire photo editor built to handle **.ppm** and **.pgm** files and apply different **effects** and **filters** such as **crop, rotate, Edge, Sharpen, Blur** using kernels and convolution matrices.
- Special features for **black and white** pictures such as **histogram** (displays a histogram of the gray shades used) and **equalize** (adjust the contrast of an image by modifying the intensity distribution of the histogram).

## Volunteering and Extracurricular

### LSAC - association for students

Oct 2023 - Ongoing

- Orchestrating **workshops, coding sessions, and events** to enhance skills and encourage continuous learning.

### Competitive Programming

Oct 2021 - Ongoing

- Participation in various online programming competitions such as **CodeForces, AtCoder, CodeChef, LeetCode**.

## Skills

### Programming Languages:

**C/C++, Java, Julia, Python, Assembly Languages, Octave**

### Technologies & Tools:

**Flask, Git, Linux, Docker**

### Languages:

**Romanian(Native), English(Fluent)**