

# Matei-Cosmin Drăgușin

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## Education

Polytechnic University of Bucharest  
Faculty of Automatic Control and Computer Science, BS in Computer Science

Oct 2022 – June 2026  
Bucharest, Romania

## Projects

### BitTorrent Protocol Implementation (*C, MPI, Pthreads*)

- Implemented a distributed BitTorrent-like protocol using **MPI** and **Pthreads** for efficient peer-to-peer file sharing
- Developed a multi-threaded architecture with separate download and upload threads to maximize transfer speeds
- Created a tracker system to coordinate swarm management and peer discovery across the network

### Game Development Projects (*C++, OpenGL*)

- Developed **Drone Delivery Game** (3D) with **C++** and **OpenGL** featuring procedural terrain generation and physics-based gameplay
- Created **Tank Wars** (2D) battle game also using **C++** and **OpenGL** with terrain destruction and physics-based projectiles
- Implemented collision detection systems, camera controls, and particle effects for enhanced gameplay experience

### IMDB System Management (*Java, OOP, Design Patterns*)

- Implemented a complete management system for a platform similar to IMDB using **Java** and **object-oriented principles**
- Applied multiple **design patterns** including **Singleton**, **Factory**, **Strategy**, and **Observer** for robust architecture
- Created flexible data models using **inheritance**, **polymorphism**, and **generics** for managing movies, TV series, and actors

### Network Infrastructure Implementation (*C, Python, TCP/IP*)

- Developed a software router implementing IP forwarding, **ARP protocol**, and **ICMP** error handling with **C**
- Implemented a network switch with **VLAN** support, MAC address learning, and **Spanning Tree Protocol** using **Python**
- Designed efficient packet parsing, routing algorithms, and dynamic network topology management systems

### Cloudflight Coding Contest (*Algorithms, Python, C++*)

- Participated in a competitive programming hackathon, solving algorithmic challenges under tight time constraints
- Applied advanced **data structures**, **algorithm optimization** techniques, and problem-solving strategies
- Implemented solutions using **Python** and **C++** for different types of challenges

## Technical Skills

**Languages:** C/C++ (Systems programming, Game development), **Java** (OOP, Design patterns), **SQL** (Database management), **Rust** (Systems programming), **Python** (Machine Learnings)

**Technologies & Tools:** Git, MPI, Pthreads, TCP/IP Stack, OpenGL, Relational Databases, Network Protocols

**Concepts:** Data Structures, Object-Oriented Programming, Design Patterns, Algorithms, Database Design, Distributed Systems, Multithreading, Network Architecture, Graphics Programming