Durnea Maxim

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Education

Politehnica University of Bucharest, B.S. Computer Engineering 2023 – 2027
Coursework: Data Structures & Algorithms, Operating Systems, Computer Networks, Communication Protocols, Object-Oriented Programming, Digital Electronics, Assembly Language
Additional: Security Summer School (2025) – OWASP Top 10, Web Application Security, Vulnerability Exploitation; CTF First Place (30 teams)

Projects

ByteBucket File Storage Backend *(Go, PostgreSQL, AWS S3, JWT)*
Developed a file storage backend with user authentication, bcrypt password hashing, JWT access and refresh tokens, and database-backed session management. Implemented presigned S3 URLs for direct client-to-cloud uploads. Built CI/CD pipeline with GitHub Actions and used SQLC for type-safe database queries.

System Logs Anomaly Detector *(Python, PyTorch, ML)*
Collaborated with team to build data preprocessing pipeline with optimized PCAP parser (3x performance boost) for Windows event log analysis. Developed neural network using PyTorch achieving 90% accuracy for threat detection in system logs.

Assembly Algorithms & Systems Programming *(x86 Assembly, Low-Level Optimization)*
Implemented low-level algorithms and system functions in x86 assembly, including parenthesis validation, binary search, quicksort, permission checks, and an 8-byte block cipher (Treyfer). Strengthened understanding of CPU architecture, stack management, recursion, and instruction-level data handling.

Museum & Visit Management System *(Java, OOP, Design Patterns)*
Developed an object-oriented museum management application applying core OOP principles and software design patterns to enhance modularity, scalability, and maintainability. Implemented structured command execution, event-driven updates, and flexible data handling for efficient museum and visit management.

Router Dataplane *(C, Networking, Data Structures)*
IP routing dataplane implementing trie-based routing table for efficient lookups, dynamic ARP table management, packet queueing system, ICMP handling, and TTL-aware packet forwarding. Gained hands-on experience with network protocols and low-level packet processing.

Achievements & Activities

Security Summer School CTF (2025) – First place among 30 teams in intermediate-level cybersecurity competition
NASA Space Apps Challenge (2025) – Developed prototype using Sentinel-1 SAR and Sentinel-2 satellite imagery for wetland identification
Perpetuum Competition (2025) – Winner; programmed Arduino for paper plane launcher with sequential action control
HackTheBox – Active member documenting penetration testing and exploitation methods in technical writeups on Medium.

Technical Skills

Programming & Systems: Go, C, C++, Python, Java, Assembly, Bash, Git; multithreading, concurrency, sockets, memory management
Backend & Database: REST APIs, JWT auth, bcrypt, sessions, PostgreSQL, SQLC, Goose, schema design, query optimization
Cloud & DevOps: AWS S3/CloudFront/IAM, presigned URLs, CI/CD, GitHub Actions, Docker, automated testing
Security: Burp Suite, Nmap, Metasploit, Wireshark, PCAP analysis, network security, OWASP Top 10, penetration testing, CTFs

Soft Skills

Qualities: Adaptability, Empathy, Attention to Detail, Critical Thinking, Problem Solving, Collaboration, Stress Management, Responsibility, Time Management, Self Motivation, Communication
Languages: English (C1), Romanian (Native), Russian (Fluent)

Areas of Interest

Ethical Hacking, Digital Electronics, Assembly x86, Systems Programming, Networking, Cloud Computing, DevOps, Software Architecture, Design Patterns, Cybersecurity, Vulnerability Assessment, Embedded Systems, IoT, CI/CD Automation, Machine Learning for Security