Arthur Kantor

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Education

Technical University of Cluj-Napoca (TUCN)
Third-year student, Bachelor of Science in Computer Science — **Expected Graduation – July 2028**

- **Relevant Coursework**: Data Structures and Algorithms (C++), Fundamental Algorithms (C++), Operating Systems (Linux and C), Computer Architecture (VHDL), Object-Oriented Programming (Java), Object-Oriented Programming Techniques (Java), Artificial Intelligence (Python), Numerical Methods, Linear Algebra

Awards and Competitions

Gazeta Matematica Olympiad: Awarded with Honorable Mention (local phase) 2021
Romanian Mathematical Olympiad: Awarded with Honorable Mention (local phase) 2017
Bloomberg BPuzzled: Logic Puzzle Competition Oct. 2026

- With my team, "2 + 2", I solved logic puzzles and riddles about world cities and countries under time pressure.

Amazon Online Developer Hackathon: **Alexa+ MCP server - Six AI Agentic Workflow** Oct. 2026

Projects

Implied Volatility Estimator | **C++26, CMake, Multithreading, Python** Oct. 2026

- I have always loved **FinTech**, **numerical methods** and **low-level programming**, and this study fascinated me.
- **Multithreaded C++26 implied volatility** estimator for European calls: **Monte Carlo** GBM simulation (Black-Scholes) with the **C++26 Philox RNG**, millions of paths per contract in about 0.037 s.
- **4 to 10 threads cut the average runtime from 0.060 s to 0.037 s**; pinning threads to cores added about 0.01 s.

The Rime of the Ancient Mariner - Game | **YouTube Gameplay** | **C++17, OpenGL, GLSL, Blender, Python**

- I read Coleridge's poem and turned its story into a 3D game for my university graphics project.
- **Blinn-Phong** lighting, **shadow mapping**, **Gerstner waves**, volumetric lighthouse beam, rain and **skeletal animation**.

ubermenschs.com – **GitHub Repo** | **C++20, Redis, React, TypeScript, Docker** Nov. 2026 - Present

- I love **philosophy**, but found no website to study it that also keeps me motivated, so I built the one I wanted.
- Full-stack PWA: **C++20 REST API** on **Redis** (AOF + replica), **React + TypeScript** frontend, **Argon2id** password hashing, daily **Web Push** reminders encrypted (RFC 8291) and **VAPID**-signed with **OpenSSL**, a **Redis rate limiter**.
- **Latency** (1,000 HTTPS requests, Romania to Frankfurt, new TLS connection each): **p50/p95/p99 = 93/117/135 ms**; time to first byte on an open connection: **60 ms** (p50).

MSI Snoopy Cache Coherence Protocol (Dual-Core) | **VHDL, Basys 3 FPGA, C++17, Dear ImGui** Oct. 2026

- I built this project to solve a common problem: understanding how a **cache coherence protocol** actually works. Two cores with private write-back caches share one bus, and the **MSI snoopy protocol** keeps their copies consistent.
- Self-checking **VHDL** testbench (7 scenarios), a **C++17 Dear ImGui** step-by-step viewer and a **Basys 3 FPGA** build.

Amazon Hackathon - Six AI Agentic Workflow | **Python, Local AI SLM, FastMCP, Anthropic API** 2026

- Speak a product request, and six AI agents compare prices across shops in parallel and read the cheapest offer back to you.
- MCP server (**FastMCP**) with a **six-agent AI workflow**: a planner (**Claude Sonnet 5.5**) plans the spoken request, four workers (**Claude Haiku 5.5**) search shops' websites concurrently (**asyncio**, one cloud browser each) and a judge agent replies. **$0.01 per search.** Speech-to-text runs on a **local AI model, Whisper (small)**, so recordings stay local.

32-bit MIPS Processor | **VHDL, FPGA, Nexys A7** May 2026

- Fully functional 32-bit MIPS32 processor in VHDL: data path, control logic, instruction set and a demo program.

Clients Queue Simulation | **Java, Multithreading, Maven, Swing, FlatLaf** Apr. 2026

- Multithreaded Java app simulating real-time client queues across multiple servers with custom allocation policies.

Online Shop | **Java, PostgreSQL, Maven, JDBC, Swing, FlatLaf** Jun. 2026

- Layered MVC warehouse and sales app; products, clients, orders and bills stored in PostgreSQL via JDBC.

Experience

Festival Operations & Logistics Specialist: Electric Castle (Temporary Employee) Jul. 2026 – Jul. 2026

- Tracked supply levels in real time with teammates and solved bottlenecks on the spot at a 100,000+ attendee festival.

Volunteering Experience

Private Tutor: Mathematics Dec. 2024 – Jun. 2025

- Built a tailored curriculum preparing a disadvantaged student for the Baccalaureate exam in Mathematics.

Chess Player: Lions Clubs International, Cluj-Napoca Division Apr. 2021 – Feb. 2023

- Developed great pattern recognition, strategic thinking and problem-solving skills.

Certifications

Beginning C++ Programming – From Beginner to Beyond (Udemy) Aug. 2024 – Oct. 2026
AI Skills Fest - Develop Your First Agent with Microsoft Azure AI Foundry Jun. 2026
CRUD Operations in MongoDB Nov. 2026

Technical Skills

Languages: **C++ (11/14/17/20/23/26)** (primary focus), **C**, **x86 Assembly**, **VHDL**, **SQL**, **Java**, **Python**
Network Protocols: UDP, TCP/IP, HTTP, REST APIs.
Tools & Technologies: CMake, Google Test, Redis, Docker, Anthropic API, Kernel.sh API, GCC 16.1, Claude Code, Render, Neovim, GitHub Copilot, OpenAI Codex, Git/GitHub, Linux, Vivado, VS Code, IntelliJ
Spoken Languages: English and Romanian