Vanja Sretenović

Backend & systems engineer | Čačak, Serbia | English **B2** | Driving licence **B**
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Experience

Inery Blockchain (backend and blockchain engineer) Full-time Jul 2022 – present

- **Consensus & validation:** contributed to the consensus design; implemented **validator pooling in groups of 11** to balance validation latency, security, and consistency.
- **IneryDB indexing:** worked with special **64-bit** index types that pack characters at **5 bits** per character (up to **12** characters per key) for compact, fast lookups.
- **Data stack: EOSIO** and Inery decentralized databases; **Redis**; **MongoDB**; **PostgreSQL**; **MySQL**.
- **Linux & networking:** server DevOps; **TCP/UDP** socket services; **Bash** and **Python** automation on Linux hosts.
- **Cluster build & deploy: Bash** and **Python** scripting to build, deploy, and operate blockchain node clusters.
- **IneryDBMS: Node.js** backend between the IneryDB **DLS** (decentralized ledger system across blockchain nodes) and the IneryDB **GUI** client—plus broader **C++** core and tooling.

Eik Europe DOO (full-stack engineer with embedded RFID integration) Part-time Aug 2025 – present

- **EIK Race Management** platform: **Laravel** backend for the web application; **C#** / .NET for RFID readers, timing, and **embedded** integration with **byte-level** framing (see Selected projects).

StepUpSave (co-founder & technical lead) Full-time Apr 2023 – Sep 2023

- Startup on the theme "well-being": backend ecosystem for a blockchain-powered well-being app; custom **Linux** server setup and multi-node cluster; developed **C++** smart contracts. Mentored under **Rising Starts**; owned the path from prototype through early operations.

ICraft (intern — mobile applications) Jun 2019 – Jul 2019

- Čačak; **C** and **C++** for mobile applications; learned **data structures and algorithms** in both languages.

Education

M.Sc. Software Engineering (in progress) — Faculty of Technical Sciences, University of Kragujevac.
B.Sc. Information Technologies (2019–2023) — same faculty; GPA **9.42** / 10.0.
Secondary Technical School Čačak — Information Technologies (2015–2019); GPA **5.0** / 5.0.

Awards

Dositej Obradović scholarship and diploma (among the best 100 students in Serbia).
Vuk Karadžić diploma.

Events

FON Hackathon — Belgrade (blockchain / well-being project).
Tomorrow Conference — workshop speaker on decentralized databases.
Jahorina Tech Conference — speaker on a decentralized database solution.
Republic of Serbia Programming Competition (2017, 2018) — Belgrade.

Selected projects

Flatpack (*C++, CMake, SIMD*) github.com/vanja032/flatpack

Standalone high-performance **data structures** library: Robin Hood hash map, 64-bit packed keys, fingerprinted probes, SIMD (AVX2 / SSE2 / NEON); header-only, cache-friendly design.

Flatpack Archive (*C++, binary format, compression, crypto*) github.com/vanja032/flatpack-archive

Standalone **archival** tool: custom `.flatpack` file format (header, file table, payloads), optional zlib/LZ4/Zstd/Brotli and AES-256, CLI to pack and restore directory trees.

Flatpack Protocol (*C, Linux kernel module (GPL)*) github.com/vanja032/flatpack-protocol

Standalone **networking** experiment: kernel module for a custom Ethernet EtherType, 10-byte header parsing, per-CPU debugfs statistics—not tied to the C++ libraries above.

Assembler (*C# — assembler to machine code*) github.com/vanja032/AssemblerApp

Hard-coded **assembler** → **machine code** tool for a **custom CPU architecture** (fixed ISA): maps mnemonics to encoded bit patterns (educational, low-level compilation focus).

train-stations (*Kotlin, Gradle*) github.com/vanja032/train-stations

Compiler-style assessment: **dataflow** analysis on a rail network using a **worklist** fixpoint and **bitset** cargo sets—fixpoint propagation and compiler-inspired reasoning.

EIK Race (race platform) (*Laravel, C#, .NET, RFID, embedded*) eik-race.com

End-to-end **EIK Race Management** product (private codebase): **Laravel** powers the backend (registration, timing, event ops); **C#** services for RFID provisioning, reads, and timing with **raw byte-level** framing; hardware–embedded integration for timing lanes.

Technical skills

Core: C++, C, C#, Node.js, Linux (userspace, kernel basics, DevOps), CMake, Git, Bash, TCP/UDP sockets, Python.
Data & chain: PostgreSQL, MySQL, MongoDB, Redis; EOSIO-style and Inery decentralized DBs.
Also: Kotlin, Docker, Laravel; AES/RSA (applied).