

SERGIU IOAN MOCAN

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TECHNICAL SKILLS

Languages: C#, C++, C, TypeScript, Python, SQL, Solidity, Bash

Frameworks: .NET / .NET Core, ASP.NET Core, EF Core, React, Node.js, Avalonia UI

Cloud & Infra: AWS (ECS/Fargate, ECR, S3, RDS, VPC), AWS CDK (IaC), Docker, Kubernetes, Azure DevOps CI/CD

Data: SQL Server, PostgreSQL, Redis

EXPERIENCE

TSS Yonder — Software Engineer, .NET & AWS

2025 – Present

Migrating a Dealer Management System used by 750+ automotive businesses across Western Europe from a legacy VB6 desktop app to a cloud-native .NET/AWS platform.

- **Led the cloud migration** to React/TypeScript and ASP.NET Core, provisioning AWS infrastructure from scratch with CDK and decomposing core APIs into resilient Fargate microservices. Now serving **23,000+ daily transactions and 1,000+ concurrent users** with zero-downtime deploys.
- **Cut deployment time 86% (90 → <12 min)** by building end-to-end Azure DevOps pipelines covering automated testing, SQL migrations, and multi-environment AWS rollouts.
- **Architected an event-driven communication layer** across microservices using **Amazon EventBridge** and **SQS**, with idempotent .NET consumer workers guaranteeing once processing and fault tolerance during peak traffic.
- **Ended recurring data divergence** by co-engineered a REST sync layer that keeps an AWS RDS source of truth consistent with two on-premises SQL Server instances.

Accounting System Development S.R.L. — Software Engineer

2022 – 2024

- **Delivered a .NET desktop application** (Avalonia UI, EF Core, PostgreSQL) that automated a client's document workflow end to end (ingestion, generation, routing, and reporting), **replacing a process the team had run by hand daily**.
- **Shipped filtering and statistics tooling**, giving the client real-time visibility into document volume and processing status.

PROJECTS

Blockchain Digital Voting System · Solidity, Ethereum, TypeScript, React

- **Architected a 9-contract system** behind EIP-1967 upgradeable proxies for safe in-place upgrades without state migration.
- **Implemented O(1) vote deduplication** with bitwise arrays, cutting on-chain storage **by 96%**.
- **Built an O(log n) Merkle proof pipeline** featuring off-chain generation, on-chain eligibility verification, and a **React dApp** issuing proof-carrying transactions with RBAC-driven UI.

Physics-Informed ML Engine Simulation · Python, PyTorch, NumPy, SciPy

- **Designing a Hamiltonian Neural Network** to learn the dynamics of a multi-body piston-crank engine subsystem.
- **Enforcing energy conservation** in the model's latent phase space via symplectic gradients computed with automatic differentiation, eliminating numerical drift.
- **Integrating the neural surrogate** with SciPy ODE solvers to match finite-element accuracy at a fraction of the runtime.

EDUCATION

Babeş-Bolyai University — M.Sc., Distributed Systems in the Internet

Babeş-Bolyai University — B.Sc., Computer Science (English Section)

Teaching: Private tutor for the UBB CS admission exam — algorithms, data structures, logic

2023 – Present

CERTIFICATIONS

AWS Certified Solutions Architect – Associate (SAA-C03) — *In Progress*