Rares-Tiberiu Stoica

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Experience

Software Engineer **Jul. 2022 – Present**
ModuleWorks *Bucharest, RO*

.NET Framework → .NET 10 Migration | C#, WPF, C++/CLI, CMake

- Migrated a large desktop CAD/CAM visualization component suite from .NET Framework to .NET 10, spanning the managed WPF UI layer and the C++/CLI interop wrappers over a native C++ engine, and extended the CMake build system to produce both variants from a single source tree with the .NET Framework build still supported in parallel.
- Reimplemented plugin isolation after `AppDomain` was dropped in modern .NET, rebuilding the boundary on a custom `AssemblyLoadContext` with its own assembly resolution and cross-boundary object handling, so third-party UI libraries load side-by-side with the host application's own versions instead of conflicting with them.
- Drove integration of the migrated stack into Mastercam, resolving interop, deployment-layout and runtime-loading issues that surfaced only inside the real host process, and validated the result against the existing regression suite.

Rendering & GPU | C++/OpenGL, C#/WPF

- Shipped Pixel Perfect Rendering, a high-quality GPU rendering mode in a CAM verification simulator, exposed behind a single combined automatic/manual control that auto-refreshes on view changes once simulation completes.
- Built the cross-language event pipeline from the native OpenGL renderer up to the WPF MVVM ViewModel with multi-verifier aggregation, and replaced a blocking progress bar with an in-viewport OpenGL overlay so the UI no longer freezes during rendering.
- Eliminated VRAM leaks caused by releasing GL resources off the render thread, moving deallocation to a request-served-in-frame mechanism on the GPU thread.
- Improved rendering performance by **13%** and reduced graphics memory usage by **40%** by right-sizing vertex buffer allocations; cut GPU simulator integration time by **20%** by replacing obsolete data-structure traversal and swapping enum `HasFlag` calls for bitwise checks.
- Diagnosed and resolved multiple deadlocks between the UI thread and the toolpath processing thread using the Visual Studio profiler.

Licensing & Application Features

- Rebuilt the product licensing system after users bypassed activation by renaming their machine: replaced the encryption algorithm and persisted additional hardware fingerprints across sessions, closing the bypass. License renewals grew **28%** over the following six months.
- Shipped Service Packs that back-port the new licensing to older application versions, extending anti-fraud coverage to legacy installations.
- Delivered UI features across C#/WPF and MFC: CSV export for collision reports, persistent page layout, dashed or hidden toolpath lines, and current cutting-move highlighting.

Projects

Load Balancer | *C* **Apr. 2021**

- Built a consistent-hashing load balancer satisfying a minimal-disruption constraint on node join and leave.
- Implemented the hashring as a linked list rather than a circular array, using **30%** less memory at high key counts, and backed server storage with a hashtable for **20%** faster lookups.

Education

University Politehnica of Bucharest **Oct. 2024 – Jul. 2026**
M.S. in Computer Science, E-Government *Bucharest, RO*

- **Coursework**: Cloud & AWS, Docker, Digital Government Solutions, Big Data, Java, UI/UX, Project Management

University Politehnica of Bucharest **Oct. 2020 – Jul. 2024**
B.S. in Computer Science *Bucharest, RO*

- **Coursework**: Data Structures, Algorithms, Object-Oriented Programming, Operating Systems, Databases, Computer Graphics, Multi-threading & Parallelism, Profiling

Technical Skills

Languages: C++, C#, C, Python, Java

Frameworks & Libraries: .NET 10, .NET Framework, C++/CLI, WPF, MFC, OpenGL, ActiPro

Tools: Visual Studio (incl. Profiler), CMake, Git, GitLab, SVN, Jira, Docker, Octave/Matlab, Figma

Platforms: Windows, Linux, AWS

Spoken: Romanian (native), English (professional working proficiency)