VICTOR CIURA

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I'm a *Principal Engineer* at CAPHYON, *Technical Lead* on the Advanced Installer team and a Microsoft MVP (Developer Technologies).

I'm a regular guest at the Computer Science Department of my *Alma Mater*, University of Craiova, where I give student lectures & workshops on using modern C++, STL, algorithms and optimization techniques.

Since 2005, I've been designing and implementing several core components and libraries of Advanced Installer. Currently, I spend most of my time working with my team on improving and extending the repackaging and virtualization technologies in Advanced Installer IDE, helping clients migrate their traditional desktop apps to the modern Windows application format: MSIX.

One of my hobbies is tidying-up and modernizing (C++20) the aging codebase of Advanced Installer and I've been known to build tools that help this process: Clang Power Tools.

Technical skills

- C++20, STL, Boost
- MSVC, MSBuild, WinDbg
- Clang/LLVM, clang tooling (clang-tidy, sanitizers)
- CMake, Ninja
- Cath2, Google Test
- Google Bench, Intel VTune
- Linux, POSIX, bash
- PowerShell
- Rust, Cargo
- Haskell, Cabal/Stack
- Obj-C, Swift
- Windows Thread Pool, PPL, libdispatch
- Win32, ATL, WTL, MFC
- COM, ADSI, WMI
- CppWinRT
- ETW, NT Services, WinSock, WinInet, WinHttp
- Windows GDI, GDI+
- Windows Installer (MSI), SCCM, App-V, UWP, MSIX
- Microsoft Hyper-V instrumentation (WMI provider SDK)
- VMware Workstation/vSphere instrumentation (VIX SDK)
- Apache ANT
- SVN, GIT, GitLab, JIRA, Jenkins, GitHub

Job History

CAPHYON, Romania (EU)

Company description: https://www.caphyon.com
Independent software company developing two flagship products: **Advanced Installer** (Windows Installer package authoring suite) and **Advanced Web Ranking** (SEO / web ranking analytics tool).
Projects: **Advanced Installer** https://www.advancedinstaller.com
Advanced Installer is a powerful, yet easy to use, Windows Installer authoring tool which helps developers create MSI installs, App-V and UWP MSIX packages.
Advanced Installer is an **IDE** targeting Windows developers that need to build deployment packages for their products. Aside from serving as a developer IDE, closing the ALM loop, Advanced Installer is also a comprehensive **sys-admin suite** helping thousands of IT workers in their repackaging and infrastructure deployment needs.
Advanced Installer is built almost entirely in **C++** as a **Win32/WTL** GUI desktop application. Small parts of it are built using HTML5 or C# and it makes use of some third-party open-source C/C++ libraries, such as: Boost, Expat, HTMLayout, LZMA codecs, Scintilla, SQLite, WTL, zlib, CppWinrt.
It's a fairly large code base, with over **4 million** lines of C++ code, which produces over 160 DLL and EXE modules (most of them are customer deployed, others are internal tools).

Oct 2005 – Jul 2008   **Senior C++ Developer**

Jul 2008 – Sep 2014   **Team Lead**

Sep 2014 – present   **Technical Lead**, **Advanced Installer**

Sep 2017 – present   **Principal Software Engineer**

My current contribution during the development cycle of Advanced Installer is:
 - technical design & implementation of new features
 - implementation of software infrastructure libraries (our core foundational libraries, language evolution, code modernization, code analysis, automatic checkers, etc.)
 - adopting the LLVM compiler infrastructure and tools to modernize, transform and improve the code quality of our production software, while maintaining cross-compiler compatibility with Visual C++ (our production toolset).
 - perform code reviews
 - mentorship to team members
 - perform developer performance reviews
 - collaborate with PM to consolidate product strategy and functional specifications
 - collaborate with technical support engineers to get customer feedback and improve product quality

Highlights of the Advanced Installer features, components and core-technologies I've worked on over the years:
 - Internal core libraries (product platform, foundational classes, OS layer)
 - Package UI editor & renderer
 - ODBC drivers, data sources and translators
 - IIS ASP.NET automatic app configuration
 - LZMA compression for installers (codecs for streaming compression for packages)
 - Installation Smart Repackager (process monitor, file & reg system scanner)

- Integrate virtualization technologies such as Microsoft Hyper-V and VMware vSphere into repackaging workflows
- COM/ATL support & interop layers
- Javascript <> C++ bridge (data marshalling, object mapping & invokable actions)
- Desktop Bridge setup converter for UWP MSIX packages
- WinRT bindings for modern system APIs (Winmd language projections, CppWinrt)

In early 2017, I started an experiment to port our 14+ year old codebase from MSVC to **Clang/LLVM**. The intent was not to move away from the VisualC++ toolchain, rather to make our codebase ISO C++ conformant, to have a second CI/CD build toolchain & target for our projects and ultimately, to leverage the power of Clang tooling to perform *automated refactorings at scale*. It was an interesting journey… with the most exciting of surprises my team and I had along the way; we learned a lot during this experiment. We didn't realize this at that time, but this was just the first leg of our great journey; next we decided to hop on the clang-tidy train and set out to *modernize* our aging code base and find hidden bugs along the way with the clang-tidy *static analyzer*. The hard part was getting all our code to compile with Clang, using the correct project settings (synced with MSVC) and all our SDK dependencies. After that, clang-tidy was a breeze to use and we immediately integrated it in our workflow. We were able to perform large scale code transformations with its 'modernize' modules and uncover subtle latent bugs and UB with its static analyzer and 'cppcoreguidelines' checks.

All of this was done live on an *actively developed* codebase, while delivering features & improvements to our customers, on a monthly cadence.

Going forward, over the years we built *custom tooling* on top of Clang and we performed large-scale transformations on our codebase (code modernizations, internal API changes, refactorings, code guideline enforcements and more).
In two of my conference presentations, I shared our experiences from this journey with the broader C++ community. See the CppCon & C++OnSea conference video recordings below:
https://www.youtube.com/watch?v=Wl-9ozmxXbo
https://www.youtube.com/watch?v=7CnFrn0-2TQ

Open Source
At CAPHYON, I worked with the R&D teams to produce, publish and support open source and open licensed software. Our OSS initiative started in early 2017 with my Clang Power Tools prototype and quickly flourished with several other tools and libraries that our teams developed over time. I also lead the efforts to open source some of our *existing libraries* and IP into the GitHub commons. Currently, I coordinate the OSS efforts at Caphyon and try to push for more development in the open.
See an overview of our OSS contributions, here: https://caphyon.github.io

Internships & Scholarships Mentor
Since 2016, I've managed the Scholarships program of my employer CAPHYON where we select students from our local UNI and support them financially to study and participate at international conferences, contests (eg. ACM, ONIS), workshops and award them for outstanding technical research projects. I'm also one of the *mentors* in this program, every year.
More details about this program on our blog and on the CS Department bulletin board.
https://www.caphyon.ro/burse-private

WEB SOFTWARE, Romania (EU)

`Jul 2004 - Oct 2005` **Software Engineer**

Company description: Small startup company, outsourcing Windows programming, web programming, network application development.
I worked on several contract-based projects, on the initial development and, for some of them, I did some follow-up maintenance work.
I worked mostly as a **C++** programmer, being lead-developer on the following projects:
- **pcOfficeMD** (client service for auditing and remotely managing Windows workstations within an enterprise network - a sys-admin tool)
- **Satjam Roof Magician** (custom software for designing roof tile systems: optimal coverage, price calculations, accessory and mounting specifications)
- **RX2 Master Backup** (system configuration and personal files backup application for Windows XP)

Some other **C/C++** projects I contributed to as a developer were:
- **PHttpFilter** (HTTP web filter driver for parental controls)
- **Avalanche Keyword Seeker** (desktop application for SEO keyword management)

I also did some work as a **PHP/MySQL** programmer, mainly on the web backend for the **pcOfficeMD** sys-admin application referenced above.

Conferences, Lectures & Publications

Speaker Professional Conferences
I've been a presenter at conferences, having given several talks/demos & webinars, relating to the product I've been working on for over a decade (Advanced Installer). Those conferences are focused on application infrastructure & deployment (ISVs and IT Pros). Eg. https://appmanagevent.com/index.php/event-information/previous-editions/agenda/leveraging-os-virtualization-for-your-repackaging-and-testing-infrastructure-tech-session

Speaker Developer Conferences
I regularly attend developer conferences and meetups, both local and international. Since 2015, I have also given lectures on topics related to my work and research, mostly with C++. I've given over **70** presentations at international conferences, so far. You can browse a complete list of my lectures & workshops, including abstracts, PDF slides and video recordings: https://ciura.ro/presentations/list.html

University Guest Lectures & Workshops
Computer Engineering Department, University of Craiova
Computer Science Department, University of Craiova
I'm a regular guest at the Computer Science Department of my Alma Mater, University of Craiova, where I give student *lectures & workshops* on using modern C++, STL, algorithms & optimization techniques.
Also, in June-July every year, in collaboration with my friends in academia, I organize and teach a workshop: Open4Tech Summer School for Software.
Please refer to: https://ciura.ro/presentations/list.html for up to date information on my past & future lectures @ UNI.

Community Efforts
In November 2017, I started a local **C++ User Group** in my hometown of Craiova, Romania (EU).
I also co-founded **Romania C++ User Group** - the national umbrella user group for all Romanian C++ user groups. It serves as a central hub for information sharing and representation.
Learn more about regional C++ User Groups, on the dedicated ISO C++ Organization page.
https://ciura.ro/community/list.html

Microsoft MVP
Since 2019, I've been a Microsoft MVP in the *Developer Technologies* category, as recognition for my community efforts in teaching, mentoring and my work in open source. I'm honored to be in such a select company of professionals and take my responsibility in the community seriously.

Education

2001-2006   **University of Craiova**, Romania (EU)
Faculty of Automatics, Computers and Electronics
Department of Computer Engineering (Software)
***Bachelor of Science degree* (B.Sc. *Engr.*)**

1997-2001   ***"Fraţii Buzeşti"* National College**, Craiova, Romania (EU)
Profile: *Mathematics-Physics*