

Chris Bieneman

GitHub: @llvm-beanz

Email: chris.bieneman@me.com

EDUCATION

- **DePaul University** Chicago, IL
Bachelor of Science Aug 2004 – May 2008

EXPERIENCE

- **Ecma International** Remote, USA
Chair of Technical Committee 57 Dec 2025 – Present
 - **Founding chair of TC57:** Led the formation of the committee, drafted the committee process documentation and directed committee operations.
 - **Specification editor and author:** Drafted specification language for HLSL and worked with TC57 to edit and integrate language into the draft specification.
- **LLVM Foundation** Remote, USA
Treasurer Sep 2024 – Present
 - **Non-profit Business Development:** Led the finance committee through budgeting for foundation operations. Prepared the annual budget and reports on financials to the board.
Director Sep 2022 – Present
 - **Open-source Community Leadership:** Primary author of the LLVM Project's governance model. Volunteer as the election proctor for community elections.
- **Microsoft Corporation** Remote, USA
Principal Software Engineer Sep 2021 – Present
 - **Technical Lead for HLSL:** Established technical and product direction for the HLSL programming language, compilers and associated tools.
 - **DirectX Feature Development:** Worked with the DirectX3D team and external hardware partners to design and implement new HLSL features for DirectX3D to expose GPU hardware features.
 - **HLSL DirectX Linear Algebra:** Lead for the HLSL design and multi-vendor alignment for the HLSL language extension to expose accelerated matrix multiplication and accumulation operations utilizing hardware acceleration for ML workloads.
 - **Collaboration With The Khronos Group:** Led the internal push to increase collaborations with The Khronos Group. This includes driving plans to adopt SPIR-V for DirectX and ongoing collaborations around shading languages and tools.
 - **Quality-focused Engineering:** Designed, prototyped and brought to production an open-source, multi-API, multi-vendor, multi-compiler testing infrastructure for GPU program execution.
- **Apple Inc** Cupertino, CA
OS Build Special Projects Nov 2020 – Aug 2021
 - **RealityOS Platform:** Worked with release engineering to coordinate engineering teams during productization of RealityOS for the Apple Vision Pro.
Lead LLVM Compiler Engineer Jan 2017 – Nov 2020
 - **Unreleased JIT Compiler:** Led the development of a security focused JIT implementation and programming language for sharable asset scripting.
 - **JIT Security:** Worked with kernel engineers to refine controls for kernel memory permission management and sharing to enable security-sensitive JIT designs.
LLVM Compiler Engineer Apr 2013 – Jan 2018
 - **Apple AGX GPU Compiler:** Implemented features, optimizations and code-generation for the early Apple GPU compilers beginning with Imagination PowerVR Series 6 and the first generations of Apple's in-house designs. Worked with Apple's hardware teams to prove out and experiment with new ISA features.
 - **LLVM Contributions:** Contributed extensively to LLVM and many core LLVM components across the compiler stack.
 - **Replaced autoconf:** Led the effort and executed most of the implementation to replace autoconf with CMake allowing the community to align on a single build system.
Development Tools Integration Engineer May 2011 – Mar 2013
- **Robomodo LLC** Chicago, IL
Tools and Release Engineer Nov 2009 – Apr 2011
- **Midway Amusement Games** Chicago, IL
Software Engineer Feb 2008 – Feb 2009
 - Counting video game credits, my Bacon number is 2. I don't have an Erdős number, but it is a life goal.
Production Intern Jun 2007 – Feb 2009

TECHNICAL SKILLS

Languages: C, C++, HLSL, Python, $\LaTeX$, On-topic Memes

Tools: Vim, LLVM, Clang, CMake, Ninja, Git, Unix Shells (fish, bash, zsh...), VSCode, GitHub

Platforms: ARM, Intel, SPIR-V, DXIL, various GPUs, Linux, Unix, macOS, Windows

Feel free to stop reading here... I know I would.

TALKS, PANELS, AND INTERVIEWS

- Turner, Jason and Mathieu Roper, hosts. 2026. "GPU Programming and HLSL with Chris Bieneman." CppCast. May 18. Podcast, Audio and YouTube video, 1:08:28. <https://youtu.be/RHAGn2BOPA4?si=A6gXdJSw9LAgeeaw>.
- Hietala, Tobias, Chris Bieneman, Nicolai Hähnle, Felix Klinge, and Jeremy Morse. "Clang and LLVM in Modern Gaming Platforms." Presented at EuroLLVM 2026, Dublin, Ireland, April 14, 2026. https://youtu.be/1SM_wDUEEUg?si=Y6MITD6BULaFe7W5.
- Rost, Randi, Jesse Barker, Chris Bieneman, Jeff Bolz, Ben Cloward, and Shannon Woods. "Panel Discussion and Open Forum." Presented at Shading Languages Symposium 2026, San Diego, CA, February 13, 2026. <https://youtu.be/r0ZKLOTog0U?si=WbObMk3GwyBCbWSI>.
- Bieneman, Chris and Steven Perron. "HLSL - Decades in the Making." Presented at Shading Languages Symposium 2026, San Diego, CA, February 12, 2026. <https://youtu.be/4zVhKBLvP1o?si=yEav23sisknH4Nct>.
- Bieneman, Chris. "A Better HLSL Compiler: Using the offload-test-suite." Presented at the US LLVM Developers' Meeting, Santa Clara, CA, October 29, 2025. <https://youtu.be/umTaqZYYBIU?si=VOcwU8ifXrnm6ZIA>.
- Bieneman, Chris. "Two Compilers, One Language, No Specification." Presented at the US LLVM Developers' Meeting, Santa Clara, CA, October 23, 2024. <https://youtu.be/sVq5khCXkbw?si=86eKVIFq-fONjuyZ>.
- Bieneman, Chris. "A Proposal for Technical Governance." Presented at the US LLVM Developers' Meeting, Santa Clara, CA, October 11, 2023. <https://youtu.be/4YB6Um7ey8U?si=Yw1PmXJbx41ev4-U>.
- Bieneman, Chris. "Implementing the Unimplementable: Bringing HLSL's Standard Library into Clang." Presented at the US LLVM Developers' Meeting, San Jose, CA, November 8, 2022. <https://youtu.be/DmDsgPLFOZA?si=cemYRN3W0RFbun8R>.
- Barton, Kit and Chris Bieneman. "How to Contribute to LLVM." Presented at the US LLVM Developers' Meeting, San Jose, CA, October 22, 2019. <https://youtu.be/C5Y977rLqpw?si=piVQOC1MrTgwKBN1>.
- Bieneman, Chris. "Developing and Shipping LLVM and Clang with CMake." Presented at the US LLVM Developers' Meeting, San Jose, CA, November 4, 2016. <https://youtu.be/StF77Cx7pz8?si=zUaxXesfr8.Ws0mw>.

WRITING

- Bieneman, Chris. "HLSL of Horror." Abolish CRLF. updated May 14, 2026. <https://www.abolishcrlf.org/horror/>
- Bieneman, Chris. "State of HLSL: February 2026." Abolish CRLF (blog), February 10, 2026. <https://www.abolishcrlf.org/2026/02/10/HLSLState.html>.
- Bieneman, Chris. "Standardizing HLSL." DirectX Developer Blog (blog), February 10, 2026. <https://devblogs.microsoft.com/directx/standardizing-hlsl/>.
- Bieneman, Chris. "An Experimental Approach to printf in HLSL." Abolish CRLF (blog), December 31 2025. <https://www.abolishcrlf.org/2025/12/31/Printf.html>.
- Bieneman, Chris. "State of HLSL: February 2025." Abolish CRLF (blog), February 17 2025. <https://www.abolishcrlf.org/2025/02/17/HLSLState.html>.
- Bieneman, Chris and Cassie Hoef. "DirectX Adopting SPIR-V as the Interchange Format of the Future." DirectX Developer Blog (blog), September 19, 2024. <https://devblogs.microsoft.com/directx/directx-adopting-spir-v/>.
- Bieneman, Chris. "Open Sourcing DXIL Validator Hash" DirectX Developer Blog (blog), July 10, 2024. <https://devblogs.microsoft.com/directx/open-sourcing-dxil-validator-hash/>.
- Bieneman, Chris. "DXC 1.8.2405 Available Now, Including HLSL 202x." DirectX Developer Blog (blog), May 28, 2024. <https://devblogs.microsoft.com/directx/dxc-1-8-2405-available/>.
- Bieneman, Chris. "Opening HLSL Planning." DirectX Developer Blog (blog), October 20, 2022. <https://devblogs.microsoft.com/directx/opening-hlsl-planning/>.
- Bieneman, Chris. "Announcing HLSL 2021." DirectX Developer Blog (blog), December 8, 2021. <https://devblogs.microsoft.com/directx/announcing-hlsl-2021/>.