

TIM STOWELL

Rexburg, ID 83440 | 208.201.5591 | stowellt@gmail.com
<https://www.linkedin.com/in/tim-stowell> | <https://portfolio.timstowell.com> | Open to remote

PROFESSIONAL SUMMARY

Software engineer with 25 years of experience across real-time 3D graphics and large-scale production software. Co-built a custom 3D simulation engine from open-source components, developed a standalone Meta Quest 3 application on a source build of Unreal Engine 5, and authored HLSL compute and pixel shaders for a signed-distance-field rendering pipeline. Published author on ten peer-reviewed papers covering engine architecture and simulation for training. Comfortable from the GPU up: C++ and HLSL at the bottom, TypeScript and cloud services at the top.

TECHNICAL SKILLS

Graphics & Rendering: HLSL, shader authoring, signed distance fields, physically based rendering, baked global illumination / lightmapping, GPU profiling

Engines & XR: Unreal Engine 5 (source builds, C++, Blueprint), Unity, OpenXR, Meta Quest 2/3, Meta XR SDK, Ogre3D

Profiling & Tooling: Unreal Insights, RenderDoc, ovrgpuprofiler, Subversion, Git, CMake

Languages: C++, C, C#, Python, TypeScript, JavaScript, HLSL, SQL

Content & DCC: Maya, Cinema 4D, Photoshop, Illustrator, After Effects, 3D modeling, texturing, rigging, animation

Platform & Web: .NET 8 and .NET Framework, React, Angular, Node, REST API design, Docker, AWS (Lambda, API Gateway, S3, ECS), Kubernetes, PostgreSQL, SQL Server

SELECTED PROJECTS

Mirrored Space — Spatial Replay VR Platform | Independent project

Jan 2023 – Jul 2026

- Designed and built a single-user VR classroom prototype for Meta Quest 3 on a source build of Unreal Engine 5 (Oculus fork, UE 5.7) and packaged a shipping standalone APK.
- Wrote a signed-distance-field whiteboard rendering pipeline in HLSL.
- Profiled and resolved GPU and CPU stalls using Unreal Insights, RenderDoc and ovrgpuprofiler: isolated a synchronous GPU completion fence wait and traced a periodic frame hitch to garbage collection during world tick.
- Designed VR whiteboard interaction from first principles: decoupled pen-up/pen-down contact hysteresis, depth-scaled haptic feedback, and smoothed release interpolation.
- Modeled, textured and lit the full classroom environment in Maya.
- Converted the Unreal VR template Blueprint locomotion graph to C++ for teleport and snap-turn movement.
- Ran structured market validation with instructors and students through a university design-thinking course, then wound the product down when the findings contradicted the core thesis.

WORK HISTORY

Senior Staff Software Engineer | NAVEX

Jan 2014 – Present | Remote — Rexburg, ID

- Orchestrated integrations with Microsoft Office and Office Online serving over 100,000 document views daily.
- Built over 10 REST APIs enabling clients to pull data for their own aggregation and reporting.
- Containerized C# services and deployed them on AWS ECS.
- Rebuilt the front-end build pipeline around Webpack, cutting production bundle size by up to 70%.
- Migrated over 50 legacy AngularJS files to modern Angular.
- Served as Scrum Master for a team of three engineers and mentored developers across the organization.

Web Developer / Independent Contractor | M9 Creations & Empower Fitness Studios

Jan 2011 – Jan 2014 | Rexburg, ID

- Built an HTML5 application driving interactive workout stations across a fitness studio floor.

- Converted design mockups into production sites with HTML, JavaScript, AJAX and JSON; maintained the on-site web and database server.

Web Developer | Web Impakt

Jan 2009 – Jan 2011 | Idaho Falls, ID

- Developed application logic against a custom PHP CMS for a diverse client base.
- Converted over 12 graphical layouts from Photoshop to HTML and built 3 interactive Flash applications for product showcases.

Senior Software Engineer / Project Manager | Hazard, Emergency & Accident Training (HEAT), Utah State University

Jan 2006 – Jan 2008 | Logan, UT

- Co-developed a custom 3D simulation engine for emergency-responder training with a team of four, assembled from open-source rendering, physics, audio and networking libraries rather than a commercial engine.
- Implemented the record-and-replay architecture underlying US Patent 8,292,742 (assigned to Utah State University), which stores user input and replays it to drive animated models.
- Evaluated and integrated third-party libraries, debugging tools and rendering techniques; authored or co-authored 10 publications on the resulting engine architecture.
- Worked directly with subject-matter experts, artists and emergency personnel to translate training requirements into simulation content.
- Built and maintained the project Ubuntu server: website, wiki, project management tooling, firewall and Subversion repository.

EDUCATION

Master of Science, Instructional Technology — Utah State University, Logan, UT

Emphasis in creating 3D simulations

Bachelor of Arts, Graphic Design — Utah State University, Logan, UT

Emphasis in 3D modeling and animation

Minor, Computer Science — Utah State University, Logan, UT

SELECTED PUBLICATIONS

- Shelton, B. E., Scoresby, J., Stowell, T., Capell, M., Alvarez, M. & Coates, C. (2010). A Frankenstein approach to open-source: The construction of a 3D game engine as meaningful educational process. *IEEE Transactions on Learning Technologies*, 3(2).
- Stowell, T., Scoresby, J., Coates, C., Capell, M. & Shelton, B. E. (2009). Utilizing readily available and open source libraries to create a 3D game engine. *International Journal of Gaming and Computer-Mediated Simulations*, 1(4), 20–49.
- Stowell, T. & Shelton, B. E. (2008). The challenges, frustrations and triumphs of remixing an open source engine for educational games. *TechTrends*, 52(5), 32–37.

Full publication list (10 items) available on request.