

ROB LOCKYER

Technical Fellow & Engineering Leader

C++ Systems, Graphics & CI/CD

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PROFILE

Technical Fellow and engineering leader with 18+ years of experience turning complex multidisciplinary problems into working products. Deep expertise in C++, real-time graphics, systems architecture, CI/CD, and advanced visualization. Proven record of de-risking ambitious R&D, defining pragmatic technical direction, and aligning software, hardware, optics, and product teams around the problems that matter most.

CORE EXPERTISE

Technical Leadership: Architecture, R&D risk reduction, rapid prototyping, technical strategy, cross-disciplinary alignment

Graphics & Systems: C++, HLSL, DirectX 12, Vulkan, real-time rendering, ray tracing, simulation, light-field displays

Engineering Productivity: CMake, Conan, Artifactory, Jenkins, automated testing, crash telemetry

PROFESSIONAL EXPERIENCE

Avalon Holographics

St. John's, NL

Technical Fellow

Feb 2025 – Sep 2026

- Set technical direction for Avalon's holographic display platform, advising executive leadership on product architecture, R&D priorities, and long-term technology strategy.
- Defined and built a focused MVP for a high-risk 3D integration, securing stakeholder alignment and establishing the foundation for subsequent development.
- Integrated Conan and Artifactory into the build system, reducing clean build times from approximately two hours to 30 minutes while making dependency management substantially more reliable.
- Made fast debug builds practical across large, complex applications by linking against release-mode third-party dependencies and removing fragile build flags, turning a largely avoided configuration into a useful engineering default.
- Integrated Sentry crash reporting, giving the team actionable field-failure data without relying on detailed user reports and accelerating the identification of production issues.
- Led product demonstrations and represented Avalon with customers, partners, investors, and technical audiences at GTC, SIGGRAPH, I/ITSEC, and RSNA.

Avalon Holographics

St. John's, NL

Managing Director, Engineering

Mar 2023 – Feb 2025

- Led 37 direct reports across software, FPGA, CODEC, optics, mechanical, PCB, production, project management, and IT while maintaining hands-on involvement in architecture and technical strategy.
- Recruited and hired around a dozen engineers and specialists; used regular one-on-ones to strengthen ownership, technical growth, and alignment with company objectives.
- Oversaw seven-figure prototype and R&D spending across compute systems, physical components, tools, and software, balancing technical ambition, delivery risk, and company priorities.
- Partnered with founders and executives on strategic planning, resource allocation, organizational design, and long-term product and technology direction.

Avalon Holographics

St. John's, NL

Systems Engineer

Mar 2020 – May 2023

- Defined system requirements and aligned software, hardware, optics, and production teams around shared architectural constraints, project goals, and delivery priorities.
- Formalized release validation using Xray and automated test-case generation, replacing ad hoc testing with an auditable process that exposed regressions faster and reduced unusable builds reaching stakeholders.
- Expanded validation capacity by training engineering technicians to perform software testing, accelerating feedback without requiring dedicated software engineers for every test cycle.
- Authored requirements for six-figure RTX rendering systems and built cross-team consensus on the compute architecture needed to power flagship display prototypes.
- Served as de facto product owner for core systems, translating stakeholder needs into prioritized technical work.

Avalon Holographics

Senior Software Developer

St. John's, NL

Sep 2015 – Mar 2020

- Proved that ray tracing offered fundamentally better scaling for light-field rendering than rasterization before dedicated ray-tracing hardware existed; the investigation became pivotal to Avalon's rendering direction once suitable GPUs emerged.
- Enabled interactive light-field rendering that otherwise would have required minutes per frame under rasterization, establishing the technical basis for responsive product demonstrations and applications.
- Implemented VR rendering for Avalon's display simulator, expanding it from basic desktop output to support interactive viewing in a VR headset.
- Acted as the unofficial owner and advocate for build tooling and automation across CMake, Conan, and Jenkins, establishing a build environment recognized internally for its reliability.

HB Studios

Software Engineer / Technical Lead

Nova Scotia

Aug 2013 – Aug 2015

- Provided technical and project leadership for a five-engineer team and owned the PC and macOS releases of *R.B.I. Baseball* on Steam.
- Built a dynamic in-game camera system and animated front-end experiences; resolved native matchmaking issues on next-generation consoles.
- Contributed to *Madden* and helped C++ engineers ramp up on their first C# and Unity project.

Rocket City Studios

Software Engineer

St. John's, NL

May 2011 – Jun 2013

- Developed 3D viewport interactions and scene-management tools for the *Second Chance Heroes* level editor, enabling designers to build complex environments efficiently.
- Implemented server-side game logic, scripting systems, and client-server interfaces for the production game stack.

Electronic Arts

Associate Software Engineer

Vancouver

Jan 2010 – Dec 2010

- Developed and supported a shared multi-platform networking SDK, including automated-test infrastructure and GUI tools for manual API validation.
- Delivered bug fixes, product maintenance, and integration support for internal game teams.

Memorial University of Newfoundland

Associate Software Engineer, AIF Small-Craft Simulation Project

St. John's, NL

Jan 2008 – Aug 2009

- Built real-time simulation software involving 3D graphics and spatial audio; evaluated engines, developed particle effects, prototyped functionality, and mentored new team members.

PATENTS

Layered Scene Decomposition CODEC with Asymptotic Resolution

US11330244B2

High-Performance Light Field Display Simulator

US10924727B2

Layered Scene Decomposition CODEC Systems and Methods

US20190373265A1

TECHNOLOGIES

Languages & APIs: C++, C#, HLSL, DirectX 12, Vulkan

Engines: Unreal Engine, Unity

Platforms: Windows, Linux, macOS, iOS, Android

Build, CI & Delivery: CMake, Conan, Artifactory, Jenkins, Azure DevOps, Sentry, Xray

AI-assisted development: Codex, Hermes

EDUCATION

Memorial University of Newfoundland

St. John's, NL

Bachelor of Engineering, Computer Engineering