Adam O. Bebko, PhD

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Professional Summary

I am an engineering manager and software architect with 15+ years in software and 7+ years leading teams in 3D and real-time systems. I set engineering strategy and architectural direction while staying hands-on. My work spans real-time 3D rendering, live tracking, multiplayer, XR, and backends on AWS, Azure, and Google Cloud. I have taken products from an empty repository to launch, and legacy platforms onto modern engines. I also lead AI enablement across an engineering department, where I have built autonomous AI engineering "employees", proved them in production, and taught engineers to build their own.

Core Skills

- **Engineering Leadership & Strategy:** Engineering strategy and roadmap, team building, hiring, and onboarding, performance and career development, mentorship and coaching, cross-functional partnership with Product, UX, and executive stakeholders.
- **Architecture & Innovation:** Software architecture and system design, service-oriented and decoupled design, scalability and performance standards, shared services and API integration, event-driven messaging, legacy modernization and technical-debt reduction.
- **3D & Real-Time Systems:** Unity (2D, 3D, XR) expert (9+ years), real-time rendering and GPU optimization, 3D graphics pipelines, real-time multiplayer and authoritative servers, editor tooling and Addressables asset pipelines, AR/VR/MR; familiar with Unreal and Godot.
- **Real-Time Tracking & 3D Integration:** Optical motion capture (OptiTrack), depth-camera capture (Intel RealSense), ultra-wideband tracking, and body, face, and object tracking with OpenCV and AR SDKs (ARKit, ARCore); fusing live tracking data into real-time 3D scenes, avatars, and rendering pipelines.
- **AI Enablement:** Company-wide adoption programs for engineering departments, autonomous AI engineering "employees" that run the full software-development lifecycle and open pull requests for human review, agent guardrails, adoption measured from source control, operating manuals for AI agents, Model Context Protocol; applied machine learning (convolutional neural networks, TensorFlow).
- **Cloud & DevOps:** AWS, Azure, and Google Cloud (SQL and NoSQL stores, managed authentication, Lambda/Cloud Functions, serverless); CI/CD pipelines, automated testing, release management, infrastructure-as-code, GitHub Actions, delivery and quality KPIs, agile delivery with Jira and Confluence.
- **Languages & Platforms:** C#, Python, Java, R, Matlab; .NET with Roslyn source generators; Windows and macOS desktop, iOS and Android, WebGL; familiar with C++ and Node.js.

Professional Experience

Engineering Manager and Technical Lead — Big Viking Games, Toronto, ON Apr 2025 – Present
Joined as founding engineer on the rebuild of a long-running social MMO, from Flash to Unity 6 WebGL.

- Set engineering strategy and owned architecture for the Unity client, realtime server, and serverless Azure backend. Took it to a July 2026 beta that players scored 4.6/5 on excitement to return next session.
- Built and led a 14-person team (frontend, backend, art, QA), hiring and onboarding every member. Drove performance and career growth through code reviews and knowledge sharing.
- Led AI enablement for the company's engineering department, taking AI-authored or AI-assisted pull requests from 0% to 52% of merges in four months. Brought 8 developers from no AI usage to shipping production code, backed by a repo-wide operating manual for engineers and AI agents.
- Built and operated an autonomous AI engineering "employee" with its own workstation, Jira, and Slack accounts. Capabilities included listening to team channels, raising its own tickets, writing and testing fixes, and opening pull requests for human review. It diagnosed 277 tickets and wrote 68 merged pull requests end to end, removing triage and first-draft fixes from engineers' workload.

- Established coding standards, agile workflows, CI/CD, automated testing, and infrastructure-as-code, giving the team a predictable delivery cadence with staged promotion to production. Directed the modernization of a decade-plus of legacy Flash content through a documented migration pipeline.
- Continuously monitored, prioritized, and improved real-time performance across avatar rendering, 2D animation, and Cinemachine camera handling in the WebGL client.

Career Break — Parental Leave, Toronto, ON Mar 2024 – Apr 2025

Senior Unity Developer — Forma Vision, Seattle, WA (Remote) Apr 2023 – Mar 2024

Led development on real-time 3D meeting-room clients rendering users as volumetric holograms, used by Accenture, Fidelity, Stanford Medicine, and Cisco. Role ended with the company's wind-down.

- Architected a multi-platform delivery model so features were built once and shipped to desktop, mobile, and six XR platforms (Meta, Magic Leap 2, Apple Vision Pro, Snapdragon Spaces, XReal, OpenXR).
- Optimized real-time rendering and GPU performance for volumetric hologram playback.
- Built 3D transformation and calibration systems that aligned multiple synchronized Intel RealSense depth cameras to a virtual scene, calibrated on-site for customers.
- Led legacy refactoring initiatives to improve decoupling, consistency, and testability.
- Mentored junior developers on software architecture and best practices.
- Ran customer demos of holographic collaboration and drove designer and stakeholder consensus on UX.

Lead Developer — Wizards of the Coast, Toronto, ON Nov 2021 – Apr 2023

Led the build of a Peppa Pig mobile educational app. The project was later sold to Netflix Games.

- Owned software architecture from inception through alpha release and managed the development team.
- Architected the remote content and localization pipeline on Unity Addressables, Localization, and Cloud Content Delivery, so new content and languages shipped without a client release.
- Built a custom localized voice-over system on Unity Timeline and Playables, adopted company-wide.
- Built reusable internal libraries for animation, rigging, and scene management, shared across products.
- Won management backing for long-term code-infrastructure investment, introducing test-driven development, automated testing, and CI/CD from pull request to store builds.
- Authored the technical design documents that aligned artists and developers on each system.

Lead Developer and Research Associate — York University, Toronto, ON Sep 2018 – Nov 2021

Led development at York's Centre for Vision Research, building immersive VR and AR tools used worldwide.

- Shipped two open-source Unity SDKs used by vision-science labs worldwide: **bmlTUX**, an experiment framework peer-reviewed in *i-Perception*, and **bmlSUP**, a statistical body-avatar (SMPL-X) toolkit.
- Built real-time body-matched self-avatars driven by OptiTrack motion-capture, a tracking-to-rendering pipeline, and multiplayer server fleets on AWS with authoritative Unity DOTS NetCode.
- Built a multi-user AR app on ARKit face and body tracking with OpenCV, matching avatar expressions live. Added a 3D parallax effect that gave depth inside flat screens.
- Set up CI/CD pipelines and a private package-manager server for the lab.
- Ran multi-day workshops training researchers worldwide to build VR studies from scratch.

GIS Developer and Drone Pilot — Orangutans Kutai Project, Bontang, Indonesia Sep 2009 – Nov 2018

- Applied machine learning to drone and satellite imagery to classify habitat using novel methodology.
- Built Python packages for spatial-data analysis and visualized simulation results in 3D with Unity.
- Authored peer-reviewed papers and a Cambridge University Press chapter on spatial-analysis techniques.

Education

- **Ph.D., Psychology** — York University, Toronto, 2018. Developmental Science stream. Applied advanced spatial statistics and machine learning to behavioural modelling.
- **M.A., Psychology** — York University, Toronto, 2012.
- **B.Sc., Specialized Honours in Psychology** — York University, Toronto, 2009 (Dean's Honour Roll).