

SEAN T. MCBETH

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SUMMARY

OBJECTIVE

Creative software architect with 20-year cross-disciplinary background in Web, VR/AR, simulation, seeking full-time, remote positions as Full Stack Engineer/Technical Lead building cutting-edge products for small and early-stage companies doing innovative work in XR, image processing, audio synthesis, artificial intelligence, and online collaboration.

SKILLS

Product Management, Project Management, Technical Lead, Software Architecture, Full Stack Engineer, TypeScript, JavaScript, C#, Three.js, WebXR, WebGL, WebAudio, WebRTC, WebWorkers, WASM, Meta Quest 2, ASP.NET Core, Entity Framework Core, PostgreSQL, Unity3D, Vuforia, OpenAI APIs

PROFESSIONAL EXPERIENCE

DIPLOMATIC LANGUAGE SERVICES

07/2019 – 04/2023

HEAD OF IMMERSIVE SOFTWARE DEVELOPMENT

As Head of Immersive Software, developed and managed projects enhancing DLS' foreign language instruction services. Created DLS VR, a web-based immersive language and cultural learning application, including an online editor and student activity reports.

The project was developed in close collaboration with the Language Training Department, incorporating expert instructors and curriculum designers. The user-friendly online editor allowed non-technical subject matter experts to create immersive scenarios, while performance reports tracked student engagement. Product design process included attending a language course to gain first-hand knowledge of the student experience, implementing regular meetings with stakeholders, and surveying latest research in VR UI design.

Established VR training labs across all three DLS locations, provided training for instructors and students, and managed 35 Meta Quest 2 headsets. Involvement extended to marketing, promotion, training, conference presentations, software sales, and business partnership development. Additionally, supervised one full-time employee and mentored others within the company.

Built features supporting desktop, mobile, and VR HMD modalities. P2P multiplayer with WebRTC. Avatars conveying social presence through head and hand tracking with WebXR. Spatialized audio and complex audio graph management with WebAudio. User comfort enhancements with aggressive performance optimization, research-based UI design.

Selected as a finalist for The Language Flagship Technology Innovation Center's LaunchPad 2023 event.

DELOITTE CONSULTING

10/2017 – 06/2019

SENIOR SOFTWARE ENGINEER

Developed augmented reality applications and prototypes in fast-paced, collaborative environment.

- **Exelon AR Tower** – iOS augmented reality application showing video overlays atop large posters.
- **Deloitte University Hub** – iOS augmented reality application demonstrating IoT use cases of AR tech.
- **Hitachi IoT** – Award-winning MS HoloLens application for demonstrating IoT use cases of AR tech.
- **DCIL.Core** – Framework for building Immersive Applications supporting wide variety of hardware modalities.
- **USPS CES Demo** – Live-video, green-screening "photo booth" application.

FOUNDER, PRINCIPAL SOFTWARE ENGINEER

Primrose VR was the world's first JavaScript framework for developing virtual reality applications, beating Mozilla's A-Frame to market by nearly a year. Primrose provided a VR desktop metaphor and an object-oriented API for creating progressively enhanced 3D WebGL applications, supporting VR headsets, mobile devices, and standard 2D desktop interfaces.

FREELANCE SOFTWARE ENGINEER

01/2012 – 10/2017

PRINCIPAL SOFTWARE ENGINEER

Directly interfaced with clients in diverse industries to build wide variety of applications across virtual reality, augmented reality, education, GIS, computer vision, hardware prototyping, games, and teleconferencing.

- **Sparkstone** – Gear VR application for teaching multiplication tables to children.
- **LiveStocked** – Bluetooth-compatible RFID reader for tracking cattle on cattle farms.
- **Synthality** – HTC Vive tour of South Philadelphia real estate.
- **Edison Electric Institute** – HTC Vive demo advocating for “Smart City technology”.
- **Podium** – WebRTC-based desktop sharing platform.
- **Haptic Glove** – Bluetooth glove device sensing hand and finger position, with vibrating motor feedback.
- **AR Business Card Prototype** – Android AR app displaying brochure information atop business card.
- **Dancing Rhythm Game Prototype** – HTC Vive rhythm game with beat-matching of energetic techno music.
- **Plume** – WebRTC-based Virtual Reality teleconferencing application.
- **VR Arcade** – Pop-up installation for playing virtual reality games, first on the East Coast. HTC Vive games and refreshments.
- **Legend3D/REX** – World's first WebVR, 360-degree real estate tour application.
- **Sibley Hospital** – Microsoft HoloLens application testing user-configurable, private spaces data in shared spaces.
- **Security Blank-It** – Computer Vision application for electronic medical record security in doctor's offices.
- **Rieker CARS** – GPS data logging and analysis portal for DOT standards-compliant road signage.

Complete work history available upon request.

REFERENCES

- **Jim Bellas** (CEO/Owner, Diplomatic Language Solutions) – jbellas@dlsdc.com
- **Molly Sampson** (Director of Language Programs, Diplomatic Language Solutions) – msampson@dlsdc.com
- **Raluca Angelescu** (Executive Vice President, Diplomatic Language Solutions) – rangelescu@dlsdc.com

TALKS

- [CALICO Immersive Realities SIG \(02/2023\)](#) – Designing virtual reality scenarios for foreign language training.
- [Air University: LREC Symposium \(10/2022\)](#) – Designing virtual reality scenarios for foreign language training.
- [Virtual Worlds Forum \(11/2021\)](#) – Using WebXR to create environments for foreign language instruction.
- [UMD MAVRIC Conference 2019 \(09/2019\)](#) – Accessibility for immersive applications
- [CDK: VR vs AR: Which Tech Will Win the Battle? \(05/2019\)](#) – State of the Augmented Reality market.
- [UMD MAVRIC Conference 2018 \(10/2018\)](#) -- My experience at the [Fallingwater Immersive Design Residency](#).

Complete list of talks available on website.

EDUCATION

Shippensburg University of Pennsylvania (2002 – 2005)

B.Sc. Computer Science, *cum laude* – Upsilon Pi Epsilon (President), ACM (President), Programming Team (Vice President)