# SEAN T. MCBETH

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## SUMMARY

Cross-disciplinary software engineer and project manager. 20 years' experience developing projects on desktop, Web, and mobile, covering Virtual and Augmented Reality, games, simulation, abstract data visualization, audio synthesis and processing, computer vision, P2P networking, Internet-of-Things, hardware prototyping, embedded systems, GIS, and relational database systems. Successfully bootstrapped and deployed multiple VR and AR projects over the last 8 years. Maintains several open-source projects and organizes for a local tech meetup.

## RECENT EXPERIENCE

### DIPLOMATIC LANGUAGE SERVICES (HEAD OF IMMERSIVE SOFTWARE) 07/2019 – 04/2023

As the Head of Immersive Software, I managed and developed projects that improve the teaching and learning experience for DLS' existing one-on-one and small-class foreign language instruction services.

**DLS VR** – a multiuser, multimodal, Web-based VR application for students and teachers to meet virtually and practice foreign language and cultural learning skills. Users interact with each other through synthetic avatars, with spatialized voice chat, shared pointers, and full body language through shared head and hand tracking. Includes a full, online editor, designed for subject matter experts to be able to rapidly create new immersion scenarios, and reports on student activity, including how much and how long they performed the material, as well as how long they directed their attention to each, individual piece of media provided in the scenario.

Built from scratch in tight collaboration with the Language Training Department (LT), I incorporated several experienced instructors and curriculum designers directly into the project planning and development process and spent 2 months taking a language course from one of our instructors to gain first-hand knowledge of the student experience at DLS. The LT department and I worked together to collect the latest research in EdTech and VR for language training to incorporate into the project. I instituted bi-monthly and quarterly meetings pulling all stakeholders together to ensure every voice was heard.

I also managed a fleet of 35 Meta Quest 2 headsets and built VR training labs at each of DLS' three locations. I was heavily involved in developing marketing materials, promoting the project with students and instructors, facilitating training sessions, training new students, instructors, and content developers on using the system, speaking at conferences and webinars to promote VR as a valuable tool for language training, demoing, and selling the system to clients, and searching for business partnerships to sublicense the software.

I had direct supervisor responsibility for one fulltime employee and served as mentor for other employees within the company.

*Keywords: TypeScript, C#, ASP.NET Core, Entity Framework Core, PostgreSQL, Three.js*

### DELOITTE CONSULTING (SENIOR IMMERSIVE ENGINEER) 10/2017 – 06/2019

**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.

*Keywords: Unity3D, Vuforia, C#*

### FREELANCE SOFTWARE ENGINEER 01/2012 – 10/2017

**Sparkstone** (2017) – Gear VR application for teaching multiplication tables to children. Unity3D, C#.

**LiveStocked** (2017) – Bluetooth-compatible RFID reader for tracking cattle on cattle farms. Microcontroller, C++, JavaScript.

**Synthality** (2017) – HTC Vive tour of South Philadelphia real estate. Unity3D, C#.

**Edison Electric Institute** (2017) – HTC Vive demo advocating for "Smart City technology". Unity3D, C#.

**Podium** (2017) – WebRTC-based desktop sharing platform. Electron, Ember, Node.js, JavaScript.

**Haptic Glove** (2017) – Bluetooth glove device sensing hand and finger position, with vibrating motor feedback. Microcontroller, C++.

**AR Business Card Prototype** (2017) – Android AR app displaying brochure information atop business card. Unity3D, Vuforia, C#.

**Dancing Rhythm Game Prototype** (2017) – HTC Vive rhythm game with beat-matching of energetic techno music. Unity3D, C#.

**Plume** (2017) – WebRTC-based Virtual Reality teleconferencing application. Primrose VR, JavaScript.

**VR Arcade** (2016) – Pop-up installation for playing virtual reality games, first on the East Coast. HTC Vive games and refreshments.

**Legend3D/REX** (2016) – WebVR, 360-degree real estate tour application. Primrose VR, JavaScript.

**Sibley Hospital** (2016) – Microsoft HoloLens application testing user-configurable, private spaces data in shared spaces. Unity3D, C#.

**Security Blank-It** (2016) – Computer Vision application for electronic medical record security in doctor's offices. OpenCV, C#.

*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 proficiency-oriented virtual reality scenarios for foreign language training.

Air University: LREC Symposium (10/2022) – Designing proficiency-oriented 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)