Athomas Goldberg

Animation
Systems Architect
Creative Director
Real-Time Performance
Specialist

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Montreal, QC

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Core Platforms

Unreal Engine 4/5

VR/XR

Real-Time Systems

Motion Capture

Performance Capture

Game Engines

Key Expertise

Animation Architecture

Character Systems

Gameplay Animation

Procedural Animation

Systems Design

Technical Direction

Recognition

Numix Prize – Best XR Experience (2024)

SIGGRAPH – Real-Time Live Audience Choice Award (2021)

Computer Graphics World – Innovation Award (2000)

Patents

Player Avatar Movement Assistance in Virtual Environments (US9421461B2)

Creative technologist and systems architect with 30+ years of expertise in real-time animation, interactive character design, and immersive experience development. Deep experience building animation systems for AAA studios, founding commercial ventures, advancing research in interactive technology, and creating live XR performances that merge cutting-edge technology with authentic human storytelling.

Lifelike & Believable Animation Design
2014–Present

Founded independent consulting studio providing real-time animation architecture, systems design, and technical direction to game studios, XR developers, and cultural institutions worldwide. Expertise spans character systems, gameplay animation, motion capture integration, performance optimization, and team mentorship across all major subsystems that touch character performance.

Shocap Entertainment
2020–Present

Co-founded creative venture producing live XR performances and immersive experiences merging motion capture, real-time animation, and theatrical storytelling. *Carry Me Home* won Numix Prize (2024) for Best XR Experience; secured Epic Mega Grant funding for innovative immersive entertainment.

Pepper's Ghost New Media & Performing Arts Collective
2015–Present

Co-founded new media and performing arts collective creating live performances integrating real-time motion capture, interactive technology, and theatrical storytelling. Portfolio includes *Mamaawi: Together Through the Fire*, *Press Play*, and *Glass Dance*.

PROFESSIONAL EXPERIENCE

Technical Animation Director   2011–2014

Microsoft / The Coalition

Led gameplay animation development for AAA action title. Contributed foundational features to Unreal Engine 4 including State Machine Conduits (later integrated into UE4 core). Advised Xbox One hardware optimization for real-time animation. Co-invented patent for Player Avatar Movement Assistance in Virtual Environments.

Technical Animation Director   2010–2011

Relic Entertainment

Defined animation architecture and pipeline for *Warhammer 40,000: Space Marine* (critical and commercial success). Worked with animation, gameplay, and engineering teams to create believable motion systems for armored warriors and diverse enemy types, balancing weight, momentum, and emotional authenticity.

Product Manager, Animation & Physics   2005–2009

Electronic Arts, EA Tech

Transformed ANT (Animation Toolkit) from FIFA-specific engine into modular, extensible framework serving all EA studios. Synthesized requirements from 15+ game teams across diverse genres into unified animation architecture. Championed quarterly release cycles and internal open-source strategy. Founded annual EA animation conference bringing 100+ animators and engineers together.

Senior Software Engineer   2003–2005

Sun Microsystems, Games Technology Group

Developed Java-based gaming APIs and SDKs for mobile devices during pre-smartphone era. Consulted globally with mobile operators and device manufacturers on gaming platform development. Built expertise in resource-constrained real-time graphics and emerging platform ecosystems.

Co-Founder & CTO   1999–2003

Improv Technologies

Co-founded company with Dr. Ken Perlin to pursue commercial applications of real-time animation technology. Raised $8M in venture funding; grew to 40+ employees developing three flagship products: *Orchestrate 3D* (non-linear animation editor for Maya/SoftImage/3D Studio Max), *Catalyst* (PlayStation 2 real-time middleware), and *Fusebox* (peer-to-peer artist workflow framework). Won Computer Graphics World Year 2000 Innovation Award.

Research Scientist   1994–1999

NYU Media Research Lab

Developed Improv Animation System for real-time character choreography under Dr. Ken Perlin. Published peer-reviewed papers in *Computer Graphics* and other academic journals. Co-invented patent for "Method and System for Scripting Interactive Animated Actors." Presented research at SIGGRAPH, GDC, and international conferences.

Theatrical Lighting & Scenic Designer   1989–1994

NYC Live Performance Industry

Lighting and scenic designer for theater, music, and dance productions. Resident designer for King's County Shakespeare Company and Balinese-American Fusion Dance Company. Early career grounded in live performance, where every moment is live and the audience watches for authentic, responsive reactions—a principle that became foundational for all subsequent work in interactive systems.

NOTABLE CLIENT PROJECTS

Mahaha Music Video
2025

Shocap Entertainment | Creative & Technical Direction

CG animated music video for Inuit throat-singing duo PIQSIQ built in Unreal Engine as both linear music video and immersive VR experience. Weaves traditional Inuit games with folktale of Mahaha the tickling demon. Responsible for character design, level design, VFX, camera work, and bringing lesser-known aspects of Inuit culture to wider audiences.

Mamaawi: Together Through the Fire
2022–2025

Pepper's Ghost / Shocap | Creative & Technical Direction

Live VR dance performance based on Anishinaabe teachings of Seven Fires prophecies exploring conflict and reconciliation. In-venue audiences wear VR headsets in circle; remote audiences join as hummingbird avatars via phones/tablets/PCs. Responsible for all digital content (characters, environments, effects), multiplayer networking, real-time performance capture, VR streaming, and pixel-streaming infrastructure. Toured across Canada; featured at major dance festivals.

Carry Me Home
2022

Shocap Entertainment | Co-Creative Director & Technical Supervisor

Groundbreaking collaboration combining live on-stage music/circus performance with real-time Unreal Engine animation. Multi-channel experiences (on-stage projection, live streaming, immersive VR, interactive pixel-streamed playable experiences) running simultaneously during live performance. Responsible for all Unreal Engine content and multi-channel show-control/distribution framework. Won 2024 Numix Prize for Best XR Experience.

Gloaming
2022

Pepper's Ghost / Shocap | Co-Creative Director

Immersive live VR performance connecting audiences across opposite sides of globe in real-time. Audiences at dawn and dusk experience same ritual simultaneously in temporal opposition. Created characters, environments, and visual effects. Integrated Shocap's mocap broadcast technology for global connectivity. Prototype featured at SXSW 2022.

Project Blackbird
2019–2025

Zenimax Online Studios | Animation Systems Consulting

Provided animation systems consulting for large-scale online game project, contributing expertise in real-time character animation for MMO environments.

Star Wars: Galactic Cruiser
2019–2020

Walt Disney Imagineering | Technical Animation Direction

Provided technical animation direction for interactive in-room valet in unique all-inclusive Star Wars adventure with live performers and interactive storytelling.

ADDITIONAL HIGHLIGHTS

Early VR Pioneers

Helped define animation systems for first-generation consumer VR devices including Oculus Rift and Oculus Quest launch titles

Industry Leadership

Contributor to Unreal Engine 4 core architecture; advisor to Xbox hardware teams; speaker at SIGGRAPH, GDC, and international conferences

First Contact

2016

Oculus / Meta | Technical Animation Design

VR experience designed to introduce new users to virtual reality through interaction with charming robot companion. Built animation systems that made robot feel responsive and emotionally engaging, creating memorable first VR experience for millions of users.

Farlands

2016

Oculus / Meta | Technical Animation Design

VR exploration game for Oculus Rift launch. Players explore alien planet discovering and befriending various alien creatures. Worked on creating believable creature behaviors and responsive animation systems that brought alien wildlife to life in VR.

First Steps & Bogo

2019

Oculus / Meta | Technical Animation Design

First Steps is the introductory experience for Oculus Quest, teaching new users VR interaction through engaging activities. *Bogo* is a virtual pet experience where players care for adorable alien creature with responsive animation systems.

SIGGRAPH Reflections Demo

2018

Epic Games | Animation Systems Consultant

Real-time ray tracing demonstration showcasing Unreal Engine's cutting-edge rendering capabilities. Pushed boundaries of real-time rendering and animation, demonstrating photorealistic character rendering with advanced lighting and reflections.

Go Big!

2019

Sun Machine Games | Technical Animation Consulting

Family-friendly party game featuring colorful characters and competitive gameplay. Provided animation systems consulting to help create expressive character animations enhancing fun, competitive gameplay experience.

Shape of the World

2018

Hollow Tree Games | Technical Animation Design

Contemplative exploration game where environment responds to player's presence with procedural animation. Consulted on procedural animation systems making world feel alive and reactive.

Gunheart & Evasion

2017–2018

Drifter Entertainment / Archiact VR | Technical Animation Direction

Gunheart: VR sci-fi shooter with co-op gameplay. *Evasion*: VR sci-fi shooter with bullet-hell gameplay. Both featured responsive character and enemy animations maintaining clarity and responsiveness in fast-paced VR combat.

Paragon

2016

Epic Games | Technical Animation Design & Mocap Direction

Free-to-play MOBA featuring beautiful Unreal Engine 4 graphics. Consulted on animation systems for diverse roster of hero characters, contributing to locomotion, combat, and ability animations that needed to be both visually impressive and gameplay-responsive.

ADDITIONAL EXPERIENCE

Creative & Technical Direction

Pepper's Ghost | 2015–Present

Ongoing creative work in live performance with motion capture integration: *Press Play* (juggling with real-time animation), *Re:Verb Written on the Body* (motion capture dance performance), *Glass Dance* (dance with real-time projections), *Connecting Movements* (human connection through dance and digital media), *Canyon Walk VR* (immersive VR nature experience), *Manipulations* (live performances in virtual worlds), *worlds* (immersive exploration of virtual presence).

Consulting & Advisory

NYU Game Center (motion capture studio setup), Reid Farrington's *The Return* (Metropolitan Museum of Art performance), DARPA/UC Santa Cruz Immerse Project (virtual training environments), TEDxEmilyCarrU (poetic juggling performance with motion capture and rendering), Mocap Circus Workshop with Les 7 Doigts (three-day workshop with acrobats, aerialists, jugglers exploring motion capture in live performance).

EDUCATION & RECOGNITION

Education

New York University – Film & Television Production (1989). Additional training in live performance, theatrical design, and motion capture technology across 30+ years of professional practice.

Patents

US Patent 9421461B2 – Player Avatar Movement Assistance in a Virtual Environment (2016, with Jerry Edsall)
US Patent 6285380B1 – A Method and System for Scripting Interactive Animated Actors (1996, with Dr. Ken Perlin)

Publications

Published in peer-reviewed journals including **Computer Graphics** (principal academic journal of the field). Presented research at SIGGRAPH, Game Developers Conference, and international conferences on interactive technology and real-time animation.

Awards & Recognition

Numix Prize for Best XR Experience (2024) – Carry Me Home
SIGGRAPH 2021 Real-Time Live Audience Choice Award – We Won't Forget
Computer Graphics World Year 2000 Innovation Award – Improv Technologies
Epic Mega Grant (2020) – Shocap Entertainment

PROFESSIONAL SYNTHESIS

Three decades of continuous work at the intersection of artistry and technology. Beginning in live performance (where every moment is live and authentic presence is non-negotiable), through research and innovation (NYU, Improv Technologies), AAA game development leadership (EA, Relic, Microsoft), and into current practice: founding consulting studio, co-founding immersive entertainment ventures, and creating live performances that prove technology can be a bridge for genuine human connection. Consistent thread: the pursuit of believable presence in interactive systems. Proven ability to move fluently between technical depth, creative vision, and human-centered design—to ask the right questions, architect elegant solutions, empower teams, and deliver shipped products that resonate emotionally with audiences.