Jeff Breugelmans, PhD

XR & AI PRODUCT LEADERSHIP · HUMAN-CENTERED DESIGN

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jeffxr.com/chat — ask my AI agent about my work

Human Factors PhD who ships products that engage, enable, and empower. **10+ years** turning technical knowledge and applied research into **XR and AI systems**. Published spatial computing solutions for the HoloLens and Meta Quest, peer-reviewed research at Microsoft, and local LLM agents running on owned hardware. Now building for the next wave of ambient computing using AI smart glasses. Equally credible in a research lab, a code environment, or a stakeholder meeting.

CORE SKILLS

Research & Development (R&D): Human-Centered Design · Embodied & Multimodal Interaction Design · Inclusive and Adaptive Design · Design of Experiments · Qualitative & Quantitative Research · Lab & Field Experiments · System Usability Testing (SUS) · Heuristic Evaluation · Statistical Analysis · Rapid Prototyping
Mixed Reality (XR): Spatial Computing (Microsoft HoloLens, Meta Quest, XREAL Project Aura, smart glasses) · Azure Kinect · Unity · Godot · Android Studio · ShapesXR · Multiuser Networking · OpenCV · OpenGL · WebXR · Generative 3D (Tripo3D, Marble) · 3D CAD & Real-Time Rendering (SketchUp, Twinmotion)
Artificial Intelligence (AI): Human-AI Interaction · LLM Agents · Prompt Engineering · Retrieval-Augmented Generation · Local LLM Inference (Ollama) · Guardrails & AI Governance · Human-in-the-Loop Systems · Agentic Workflows · MCP Servers & APIs · Parallel Computing · Python, C++, CUDA, NCCL
Sensing & Simulation: Eye & Hand Tracking · Body Tracking · 6-DOF Tracking · Sensor Fusion · Biosensors · Computer Vision · Projection Mapping · Photonics · 3D Printing · Voice Interfaces · Wearables & Smart Rings · Driving Simulators & Driver Assistance (ADAS)
Product Strategy: Voice of Customer (VOC) · Personas & Wireframes · Competitive Analysis · Feasibility Assessment · POC / MVP / ODP Definition · KPIs
Leadership: Product Roadmap Ownership · Interdisciplinary Team Management · Agile Delivery · Stakeholder & Investor Alignment · Technical Writing & Public Speaking

EXPERIENCE

AFTERNOW

Co-Founder & Head of Product — Dec 2020 – Present

- Pivoted the company through the pandemic from an internal AR utility to a commercial XR platform; owned the call, the roadmap and the design direction.
- Shipped AfterNow Prez from a single codebase to Microsoft Store (HoloLens), Meta App Lab (Quest), as well as desktop and mobile — **1,500+ acquisitions**.
- Designed a codeless authoring model and networking layer, to democratize the building and hosting of immersive presentations for non-technical users.
- Led a globally distributed **team of 10** software engineers and 3D artists through the shift from flat UI conventions to embodied spatial interaction.
- Instituted dogfooding and structured UX studies with early adopters, to ensure the release scope followed validated behavior rather than internal assumption.
- Demonstrated end-to-end immersive content creation in under five minutes: web upload, timeline management, in-headset asset placement, and live test.
- Adopting latest trends in AI and everyday wearable smart glasses: published an Even Realities G2 deep dive (custom AI proxies, Terminal Mode); **10K+ views**.

Spatial User Experience Designer — Feb 2020 – Dec 2020

- Designed storyboards and 3D assets for immersive presentations; learned about optical passthrough for AR headsets, including lighting, materials, and shaders.
- Prototyped interactions and user interface designs for HoloLens and Quest: designed universal control schemes to work for both hand tracking and controllers.
- Authored a Spatial OS white paper; a seven-layer stack covering: agency, interaction, interface, application, operating system, hardware, and the AR cloud.

MICROSOFT · Applied Systems R&D Consultant (contract via AfterNow) — Jul 2021 – Jun 2025

- Led optical computing research at Microsoft Cloud Operations + Innovation attacking the von Neumann bottleneck in AI clusters using photonic computing.
- Applied systems thinking and designed the approach end-to-end; taking the project through POC and MVP using only COTS hardware (CUDA, NCCL, C++).
- Demonstrated high-speed **error-free** photonic computing, targeting data center energy-efficiency; paper **accepted in principle at *Nature Communications***.
- Consulted Microsoft Research on Project Malta, targeting equity and inclusion in hybrid meetings. Authored a 4D framework mapping 48 hybrid configurations: (X) Embodiment, (Y) Space ownership, and (Z) Interface type, against (Node Color) implementation feasibility; built in ShapesXR, presented in VR using Prez.
- Built an AR hardware-training system from concept to on-site deployment, using Azure Kinect for body tracking, projection mapping, and 3D-printed components; enabling technicians to rehearse server repairs without risk of bodily injury or equipment damage. Validated with technicians and managers.

UXS DESIGN · Founder — Jan 2017 – Present

- Designed and published **two productivity apps** for Even Realities smart glasses: HUDs that deliver information to enrich daily life, not distract from it.
- Built JB Proxie, a retrieval-augmented generation (RAG) agent with clear guardrails, ready to answer questions about my experience and design philosophy; Qwen3.6 35B on Ollama + FastAPI, self-hosted on an NVIDIA DGX Spark; self-critical, it flags knowledge gaps by messaging me for human-in-the-loop updates.
- Delivered VR walkthroughs and 3D renders that turned skepticism into sign-off for clients including Hauser & Wirth, Great Wolf Resorts, Ellen Digital Ventures.
- Conducted R&D on pediatric rehabilitation technology for hospital playground; extending doctoral work on accessible design and adaptive multimodal interfaces.

SECOND STUDIO · VP of Product — Sep 2016 – Jan 2020

- Built an enterprise SaaS product for Git-style collaborative design in VR from **zero to one**; prototyped interaction schemes and UI elements directly in Unity.
- Proved the working product by demoing **live remote collaboration** between Los Angeles and San Francisco for the HTC Vive X Accelerator program.
- Authored the multiuser roles and permissions framework (2017) that anticipated the creator/observer models that VR collaboration tools shipped years later.

EDUCATION

Northeastern University

PhD, Industrial Engineering (Human Factors) · 2014

Award-winning dissertation on rehabilitation technology: multimodal adaptive interface combining eye- and hand-tracking, demonstrated utility and usability in IRB-supervised trials with arthritis patients. Helped secure **$400K NSF grant**.

Eindhoven University of Technology

MSc, Human-Technology Interaction · 2011

Studied psychology and brain plasticity using the Rubber Hand Illusion; Thesis: *Antecedents of System Trust: The Influence of Competence and Shared Values.*

HONORS, AWARDS & PUBLICATIONS

- Finalist, Android XR Hackathon for XREAL Project Aura at AWE USA 2026.
- Winner, 2020 **Oculus Launch Pad Grant**: 1 out of 10 teams in $250K pool; Selected for Oculus Start and special feature on the Meta Developer blog.
- First place, Northeastern **RISE:2012** Interdisciplinary research, plus the *Excellence in Research* special award which came with a $1,000 grant.
- Featured in *The Boston Globe* and NEU's $1.4B *Empower* funding campaign.
- **7 peer-reviewed publications**, incl. various conferences, the *International Journal of Human-Computer Studies*, *Intelligent Data Analysis*, and accepted in principle at *Nature Communications*. — Google Scholar