

Helen Zegarra

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Creative Technologist & AI Application Engineer | Physical-Digital AI Experiences

Creative Technologist and AI Application Engineer with 5+ years building human-centered AI systems for global brands at scale. I specialize in one specific problem: taking unpredictable, non-deterministic AI and engineering it into experiences people can trust from RAG pipelines and multi-agent LangGraph architectures to live installations running for tens of thousands of people. Currently pursuing an M.S. in Computer Information Sciences, specializing in AI and Software Architecture.

TECHNICAL SKILLS

Programming Languages: Python, Fast API, Flask, JavaScript, TypeScript, C++, HTML5, CSS3

Libraries & Frameworks: React.js, Next.js, Node.js, Express, RESTful APIs

AI & Emerging Tech: Generative AI, LLMs, RAG Architectures, Vector Embeddings, LangGraph, LangChain, GANs, Prompt Engineering, LLM Application Development

Creative Coding & XR: Three.js, GSAP, p5.js, WebXR, AR/VR/MR

Design & UX/UI: Figma, Adobe Creative Suite, Design Systems, Rapid Prototyping

Hardware & Automation: Microcontrollers, IoT, Sensors, PLC Programming, Industrial Automation, Embedded Systems, Systems Integration

Methodologies: Agile/Scrum, Cross-Functional Leadership, Innovation Strategy, State-Machine Logic

EXPERIENCE

Independent AI Developer | Zentric AI

September 2024 – Present

Building what most health AI gets wrong: a system people can trust.

- Designed a deterministic state-machine architecture over LangGraph to eliminate hallucination paths in high-stakes health conversations because in chronic illness support, an unpredictable AI response is not just bad UX, it is potentially harmful.
- Built a custom RAG pipeline with curated medical knowledge retrieval and context window optimization, translating non-deterministic LLM behavior into clinically consistent, emotionally appropriate responses.
- Engineered full stack end-to-end: Python/Fast API backend, React.js frontend, and seamless state handoff between AI pipeline and conversational UI, the integration layer where most AI products silently break down.

Associate Creative Technologist | Momentum Worldwide — New York, NY

Dec 2021 – June 2025

25+ experiences. Global brands. Live events.

- Oversaw, supported and shipped the Coca-Cola Coke Studio AI Tour, owned on-site technical operations of a real-time generative AI pipeline across four national festivals, designed custom AI-generated assets using Adobe Firefly, and kept the system running for tens of thousands of fans with zero tolerance for downtime.
- Developed and supported the Barbie Stream House, led front-end development and on-site technical operations for a 4-floor real-time physical-digital installation in SoHo, managing a custom reservation system, continuous network diagnostics, and 100% uptime for 5,000+ daily visitors during peak holiday traffic.
- Identified generative AI, AR/VR, and multimodal UX patterns before mainstream adoption and translated them into strategic frameworks for senior leadership, positioning the agency to pitch AI-integrated experiences to clients ahead of market.
- Delivered 25+ cross-platform prototypes in React.js, JavaScript, Python, and WebXR across web, mobile, and physical installations for Coca-Cola, Verizon, American Express, Mattel, and Chevron boosting client engagement metrics by 25–30%.

Creative Technologist Resident & STEAM Education Technologist | The GIANT ROOM — New York, NY

Aug 2021 – Dec 2021

Teaching creative technology and making to the next generation

- Designed and taught hands-on STEAM curriculum for children ages 3–12 integrating coding, robotics, digital fabrication, and game development, increased student participation by 20% through human-centered pedagogy and iterative lesson design.

- Created comprehensive educational content across computer science, circuits, physical computing, and creative technology, improved student project completion by 15% by designing for curiosity first and complexity second.
- Facilitated rapid play-testing sessions and adapted instruction in real time based on student observation developing a user-centered design instinct that now shapes how I approach every interactive experience I build.

Applications Engineer / Solutions Engineer | Precision Peru — Arequipa, Peru Nov 2018 – Aug 2019

Deep hardware and systems integration expertise built under the most demanding industrial conditions.

- Designed complex automation and electrical instrumentation solutions for large-scale mining and manufacturing sectors including hardware selection, sensor integration, and PLC programming for industrial control systems.
- Led systems integration projects across communications protocols and industrial networks, implementing solutions spanning field instrumentation, and data acquisition architectures for mining, water treatment, and manufacturing environments.
- Managed cross-functional teams executing end-to-end automation pipelines under zero-downtime industrial constraints, increased project output by 40% and expanded the regional client portfolio by 30%.

EDUCATION

M.S. Computer Information Sciences | Harrisburg University of Science and Technology, PA

2024 – Present

- In progress, expected May 2027 | Relevant coursework: Machine Learning, AI Systems Architecture, Software Engineering, Data Analysis and Big Data

M.S. Interactive Telecommunications Program | New York University, Tisch School of the Arts

2019 – 2021

- Thesis: Living Heritage — Augmented Reality development for cultural preservation

B.E. Electronics and Telecommunications | Universidad Católica San Pablo, Arequipa

2011 – 2016

- Graduated top third of class | IEEE Student Branch Chairman (2012) | IEEE TISP Champion 2012–2016 | Executive Chair, INTERCON 2014 International Conference

LANGUAGES

Spanish *Native* **English** *Fluent* **French** *C1 — Advanced* **German** *B1 — Intermediate*

CERTIFICATIONS

- Scrum and Agile Methodologies — Pontifical Catholic University of Peru (2021)
- Industrial Networks and Communications Protocols — TECSUP Peru (2015)

HONORS & AWARDS

- IEEE Larry K. Wilson Award 2015 — Outstanding Student Volunteer, Latin America & the Caribbean
- Tisch School of the Arts Scholarship Recipient — New York University (2019)