Infania Pimentel

Human Factors Engineer · Interaction Systems · Physical UX
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Education

TUFTS UNIVERSITY, Medford, MA — May 2026
Master of Science in Human Factors Engineering
Thesis: Designing a wearable interaction system using glanceable visual signals to influence real-world social behavior.

UNIVERSITY OF NEW MEXICO, Albuquerque, NM — May 2021
Bachelor of Arts in Chemistry; Bachelor of Science in Psychology
Minor: Computer Science — Cum Laude

Experience

CENTER FOR ENGINEERING EDUCATION AND OUTREACH, TUFTS UNIVERSITY, Medford, MA

SociaLIGHT — Embedded Systems & Human Factors Lead (Master's Thesis) 2024–Present

- Designed a wearable interaction system using color-based visual cues to reduce friction in real-world social interaction.
- Defined system behavior across embedded hardware, NFC interaction, and feedback cues to make system state legible without a screen.
- Led architecture decisions, transitioning from BLE/WiFi to NFC to reduce pairing friction and improve reliability.
- Designed and executed an IRB-approved study, translating behavioral findings into iterative system refinements.

Embedded Systems Engineer — Componentize Platform 2024–Present

- Developed a modular system for connecting hardware and browser interfaces through reusable, real-time components.
- Defined component architecture enabling interaction across BLE, WebSocket, and serial-connected devices.
- Designed for usability, translating developer feedback into clearer interaction patterns and system abstractions.
- Integrated AI-assisted tooling to support debugging and system configuration.

Embedded Systems & Human Factors Engineer — Smart Playground Initiative 2024

- Designed and implemented a proximity-based device pairing system using RSSI signal strength, replacing traditional UI selection with physical interaction.
- Developed LED-based feedback cues to communicate system state (scanning, selection, pairing) without a screen.
- Built a distributed embedded system across multiple ESP devices with defined roles and real-time communication.
- Translated user behavior and testing insights into interaction flows and system logic.

BRAY LABS MACHINE SHOP, TUFTS UNIVERSITY, Medford, MA

Machine Shop Fabrication Technician 2023–2024

- Trained students on mills, laser cutters, waterjet systems, and additive manufacturing equipment.
- Advised on manufacturability, material selection, tolerances, and machining strategies for prototype development.
- Translated CAD models into manufacturable parts, identifying design constraints early in the design process.

UNIVERSITY OF MASSACHUSETTS AMHERST, Amherst, MA

Polymer Engineering & Physics Research Assistant Summer 2021

- Designed and fabricated experimental systems to study programmable polymer mechanics at macro scale.
- Developed Python-based 3D simulation tools to model self-assembling structures and analyze kinematics.

Skills

Embedded Systems & Hardware: ESP32 (C3/C6), Raspberry Pi, BLE, NFC, Serial Communication, Embedded Sensors, Motors, Cameras, LED Systems
Human Factors & Validation: Usability Testing, Ergonomic Analysis, IRB Study Design, Statistical Analysis, Failure Mode Identification
CAD & Fabrication: Onshape, SolidWorks, Figma, Laser Cutting, Waterjet, Additive Manufacturing, DFM, Milling
Programming: Python, MicroPython, JavaScript, HTML/CSS, WebSocket, PyScript, MATLAB, R
Systems & Interaction: System Architecture, Hardware–Software Integration, Interaction Design for Embedded Systems, Feedback System Design
Languages: English (Fluent), Spanish (Reading/Writing)