

ARVIN ABADILLA

PRODUCT DESIGN · CAD + DFM · PHYSICAL-TO-DIGITAL UX

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SCAN FOR PORTFOLIO

EXECUTIVE OVERVIEW

Hands-on industrial and product designer taking hardware from concept through mass production, across medical devices, life-sciences instruments, connected consumer products, and rugged field hardware. Expert in SolidWorks, with deep design-for-manufacturing experience across injection molding, tooling, and CDMO production. I design to real human anatomy, working from 3D scan data into CAD, and I prototype in my own shop: large-format SLA, engineering and biocompatible resins, 3D scanning, and laser cutting. My work spans smart autoinjectors and an intrathecal research device at Eli Lilly, the QuantStudio 5 PCR instrument at Thermo Fisher, CPAP therapy systems for Philips, connected fitness hardware at Liteboxer, and client products now in retail distribution at Walmart. I also run two product brands of my own, owning the full lifecycle from design through global supply chain, and I design the digital half of connected products, from companion-app UX to sensor dashboards.

PROFESSIONAL EXPERIENCE

Industrial Design & UX Consultant · Eli Lilly & Co.

OCT 2024 - MAR 2026

- **Device CAD & UX/UI:** Owned the 3D SolidWorks CAD and industrial design for two next-generation connected autoinjector tiers, and proposed the on-screen device UI flows and on-device status-LED interaction.
- **Intrathecal R&D Device:** Led mechanical development for an intrathecal research device, integrating sensor payloads to quantify fluid delivery dynamics for high-viscosity molecules under strict patient safety protocols.
- **Risk & Human Factors:** Partnered with human factors, quality, and engineering teams on task analysis and use-related risk analysis, driving design decisions inside a regulated drug-delivery environment.

Founder & Principal Consultant · OpenGlass Studio

2013 - PRESENT

- **3D Scanning & Anatomy-Driven CAD:** Capture human geometry with a Revopoint 3D scanner and reverse-engineer it into CAD, designing grips, applicators, and body-contact products to real anatomy rather than idealized models.
- **Oral & Dental Device Design:** Designed Pul, a line of ergonomic tools for removing and installing clear orthodontic aligners, engineered around the hand-to-oral interface. Carried from concept through mass production and now in retail distribution at Walmart.
- **Own Product Brands:** Design, engineer, and commercialize two brands of my own, OpenGlass Van Mods and Eli & Ali, owning industrial design, mechanical engineering, tooling, global supply chain, and operational lifecycle from concept through retail-ready mass production.
- **Field-Deployed Rugged Hardware:** Designed and validated overlanding and RV hardware for high-vibration, weather-exposed use, applying structural safety validation from SLA prototyping through production retail hardware.
- **Topical Delivery & Applicators:** Designed, engineered, and patented topical applicators and dosing mechanisms intuitive for populations with limited manual dexterity.
- **Additive Manufacturing for End-Use Parts:** Design and produce additively manufactured parts sold to consumers, including high-heat automotive thermal adapters, ergonomic camera grips, and an RV airflow diverter. Have 3D printed PEEK with vendors, and print biocompatible resins in-house.
- **IoT Product Design & Connected App UX/UI:** Led industrial design and mechanical/DFM integration for Sensa, an autonomous closed-loop water sanitizer; defined the PCA layout envelope and designed the companion app dashboard that made its real-time sensor data legible.
- **In-House Shop:** Operate a professional SLA shop (Formlabs Form 4L large-format, Form 4, Form 3, with full wash and cure), a Revopoint 3D scanner, and a laser cutter, printing engineering and biocompatible resins for functional models, fit checks, and end-use parts.

Director of Product Design (hands-on) · Liteboxer / Litesport

JUL 2019 - JAN 2023

- **Hardware & Structural Design:** Owned industrial design, packaging, and mechanical engineering from concept through mass production, including the metal structures for the wall-mounted and free-standing units, engineered to absorb repeated high-energy impact without failure or fatigue.
- **Electromechanical Integration:** Electromechanical Integration: Designed the force-sensing sensor stack-up and the internal arrangement of the electronics inside the impact structure, iterating the mechanical tolerances until the stack delivered a signal the firmware team could turn into reliable readings.
- **Connected App UX/UI:** Designed the end-to-end user journey and mobile interaction models for the companion app, owning the information architecture across music selection, real-time performance metrics, and user profile curation, and the physical-to-digital loop with the wrist-worn punch sensors.
- **Spatial / VR Design:** Translated the physical boxing experience into VR and defined new workout modalities purpose-built for the medium, prototyping in Gravity Sketch, refining 3D assets in SolidWorks, and defining the UX that developers shipped to production.
- **Hardware-Software Prototyping:** Led the interaction design and gameplay mechanics for Liteboxer Go, wrist-worn punch sensors, translating accelerometer data streams into low-latency, gamified mobile UI feedback.

Industrial Design Consultant · Thermo Fisher Scientific

AUG 2018 - MAY 2020

- **Instrument Design:** Designed the enclosure for the QuantStudio 5 Real-Time PCR system, an Applied Biosystems benchtop genomics instrument.
- **CAD & Functional Prototyping:** Led industrial design of a transmitter / data-acquisition hardware unit through CAD modeling and functional prototyping, establishing a design language that carried into follow-on instrument programs.

- **Product Visualization Systems:** Directed 3D icon development and a portfolio animation video for the BioSciences thermal cycler line - including the ProFlex, SimpliAmp, MiniAmp, Veriti, and Automated Thermal Cycler - producing marketing-ready visual assets that translated complex instrument function into clear product narrative.

Senior Industrial Designer · DD Studio

JUN 2013 - OCT 2015

- **Medical Device Development:** Conceptualized and executed industrial design for various medical devices, fitness products, and specialized mobility assistance platforms.
- **Narrative Filmmaking:** Developed video and product storytelling methodologies, creating cinematic narratives to communicate design intent and product value to stakeholders.
- **3D Visualization & Technical Animation Lead:** Directed and produced high-fidelity 3D animated explainer videos to communicate complex product architecture, internal mechanisms, and user workflows for cross-functional stakeholders and marketing campaigns.

Industrial Designer · Essential / PA Consulting

SEP 2010 - MAY 2013

- **CPAP Product Development:** Designed next-generation CPAP clinical therapy systems and patient-contact mask components for Philips, with clinical design validation and a focus on fitting rigid hardware to individual facial anatomy. Designed a bedside CPAP mask sanitizer system.
- **Autoinjector Development:** Led the design of a new autoinjector product architecture and user experience for Genentech/Roche, guiding the patient with on-device UI through pre-injection, live injection status, and injection completion.

Industrial Design Intern · BMW Designworks USA & RIDGID Power Tools

SEP 2008 - AUG 2009

- **Mechanical Architecture (Ridgid):** Collaborated on the industrial design execution and technical development for the professional AC/DC tools team, utilizing rapid prototyping to validate ergonomics. Authored initial design concepts and developed robust, production-ready 3D CAD geometry in SolidWorks across marketing and engineering departments.
- **Cross-Functional Design (BMW):** Executed rapid visual communication, form development, and high-fidelity product renderings for advanced transportation and product design teams.

CORE COMPETENCIES

DESIGN & HUMAN FACTORS

- Cross-Functional Work (Engineering, Quality, Regulatory, Manufacturing)
- SolidWorks / 3D CAD (Expert)
- Industrial Design, Concept to Production
- 3D Scanning & Scan-to-CAD
- Ergonomics, Human Factors & Use-FMEA

MANUFACTURING & PROTOTYPING

- Design for Manufacturing (DFM)
- Injection Molding & Tooling
- CDMO Coordination & Global Supply Chain
- Additive Manufacturing for End-Use Parts

HARDWARE + DIGITAL

- Mechanical & Structural Design
- PCA Layout & Component Envelope Definition
- Companion App UX/UI & Information Architecture
- Connected / IoT & Spatial (VR) Design

PATENTS

Soap Swivel Caddy (Utility)
US12504118B1 · Dec 2025

Soap Swivel Caddy (Design)
USD1069450S1 · Apr 2025

Cream Dispenser / Applicator
US20200138165A1 · Nov 2021

Cream Applicator Adapter
US20190133296A1 · Filed Feb 2020

Mobility Assistance Device
US20170071815A1 · Dec 2019

Interactive Exercise and Training System
US10124227B1 · Nov 2018

Wearable Augmented Reality Display
USD805122S1 · Dec 2017

Gaming System Interface
US20160093143A1 · Mar 2016

Smart Vaccine Refrigeration Unit (Trumed Systems)
USD747366S1 · Jan 2016

C-PAP Sanitizing Machine
USD719673S1 · Dec 2014

Speakerphone (Revolabs)
USD714249S1 · Sep 2014

Method & Apparatus for an Infant Safety Seat
US8702169B2 · Apr 2014

Adjustable Patient Forehead Support (CPAP mask)
EP2707070A1 · Mar 2014

Vacuum Sealer (Jarden FoodSaver)
USD694793S1 · Dec 2013

CubeGuard Speedcube Holster
Patent Pending · 2026

TOOLS & SHOP

- **Software:** SolidWorks (Expert), Adobe Creative Suite, Figma, Vizcom, Gravity Sketch (VR), Claude Code, Claude Design
- **Prototyping:** Formlabs Form 4L (large-format SLA), Form 4, Form 3; Form Wash + Form Cure
- **Materials:** Engineering resins (Tough 1500, Tough 2000, Rigid 10K) + biocompatible resins.
- **Scanning & Fabrication:** Revopoint Metro Y 3D scanner, xTool laser cutter, Soft goods & sewing

EDUCATION & HONORS

- **B.S., Industrial Design** (Magna Cum Laude) · University of Houston (2010)
- **Awards:** IDSA Merit Award Winner (2010) · President, IDSA Student Chapter (2008)