

Innovative designer, engineer, and cross-functional leader with demonstrated success delivering breakthrough products and driving organizational growth. Passionate about bridging design, science, and operations, I lead strategic initiatives that bring cutting-edge solutions from concept to commercialization and scale processes and facilities to meet evolving business demands.

Key Achievements

- 2024** • Patent WO2024112896A1: Additively-manufactured substrate for vibratory conveying, which addressed global shortage of vibratory brush solutions.
- 2024** • Patents pending for 3 mascara brush designs, targeting next-gen and precision product segments, using geometries not possible with traditional manufacturing methods
- 2023** • Recipient of OPT Triumph award for employees “who make critical contributions to key initiatives which have a demonstrable impact on operations or technology development.”
- 2022** • Led production of 1M+ 3D-printed COVID-19 swabs and doubling of production capacity.

Professional Experience

OPT Industries Medford, MA

Additive manufacturing and design company specializing in roll-to-roll microfabrication

Senior Design & Process Engineer

Aug 2023 - Feb 2025

- **Computational Design:** Led PolyBrush Gen 2 brush design and process improvements, extending durability 50x and yielding \$300K+ in first-year sales.
- **Product & Process Development:** Collaborated with a global cosmetics leader to design and develop mascara microstructures and materials, generating \$1M+ in revenue.
- **Design Process Engineering:** Measured and documented workflows from CAD to print to ensure design fidelity, improving internally developed design platforms, slice engines, and machine firmware.
- **Polymer Innovation:** Led design of test geometries and methods, collaborating with polymer engineers to drive development for 3+ novel resin formulations.
- **Metrology & Calibration:** Developed ISO/ASTM 52902 calibration methods and First Article Inspection specimens; trained engineers and directors in quality monitoring.
- **Equipment & Process Prototyping:** Programmed and fabricated custom test equipment to validate mascara brushes, vibratory conveyor brushes, and other customer projects.
- **Technical Leadership:** Provided technical mentorship in statistical analysis, metrology, and additive manufacturing.
- **Team-building and Design Advocacy:** Led internal “Design Talk” forums and regular team-building initiatives, fostering collaboration between departments.

Process Development Specialist

Feb 2023 - Aug 2023

- **Prototyping & Large-Scale Design:** Designed parametric-driven car dashboard panels for a leading luxury car brand; contributed to cross-functional product and process development.
- **Design of Experiments:** Optimized PolyBrush print/post-process parameters, enabling 2X print speed; developed test specimens for material property analysis (hysteresis, friction, tear/tensile strength).
- **Test Methodology:** Developed test methods, reducing PolyBrush validation time from 2 weeks to 5 minutes and making the test feasible for production quality inspection.
- **Training & Knowledge Sharing:** Trained engineers on machine calibration, resin characterization, and production processes.

Supply Chain Manager

May 2022 - May 2023

- **Inventory & Scaling:** Implemented a Kanban production system, scaling warehouse capacity 4x.

- **Forecasting and Planning:** Implemented and led Sales & Operations Planning process, developed production forecasts and schedules in collaboration with commercial and operations teams.
- **Cost Optimization:** Negotiated vendor contracts, reducing supply chain costs by over 15%.
- **Systems Integration:** Led MRP and eQMS system integrations for operational efficiency.

Production Manager

Sep 2020 - May 2022

- **Team Leadership:** Managed a team of 5, producing over 1M+ COVID-19 swabs and other engineered products.
- **Process Efficiency:** Increased production efficiency 10x through improved post-processing techniques and barcode tracking.
- **Quality & Compliance:** Implemented QMS documentation and control processes (ISO 13485, 9001, FDA 21 CFR Part 820) and led auditing/inspection readiness.
- **Operations Expansion:** Scaled manufacturing capacity twice through new printer builds and facility expansions.

Formlabs Somerville, MA

Facilities Administrator

Nov 2018 – Jan 2019

- Facilitated engineering facility expansion, doubling operational space.

Engineering Facilities Support

Apr 2018 – Oct 2018

- Coordinated procurement, facility improvements, and safety checks.

Beam Center Strafford, NH and Brooklyn, NY

Program Coordinator

Summer 2016 & 2017

- Managed curriculum & budgets for visiting instructor program; oversaw makerspace operations.

Education

University of Rochester Rochester, NY

Computer Science & Studio Art

Sep 2015 - Jun 2017

Prince Street scholarship for artistic excellence, ACE Mentorship scholarship for Architecture & Engineering

Skills

Core Competencies:

Strategic Planning • Process Optimization
Stakeholder Engagement
Data-Driven Decision Making
Communication & Collaboration
Budgeting & Forecasting
Leadership & Team Management

Project Management:

Smartsheet • Notion • Asana • Jira
Microsoft Office • Google Docs

Design and CAD Tools:

Grasshopper (Rhino) • Fusion 360 • Onshape
Blender • nTop • Adobe Suite

Programming and Analysis:

Python • C/C++ • JavaScript • HTML/CSS
Arduino • Raspberry Pi
JMP Statistical • JMP Scripting Language • SQL

Digital Fabrication:

3D printing • CNC, laser, vinyl, water jet cutting • circuitry

Manual Fabrication:

Electromechanical assembly, optimization • 3D print post-process • woodwork • facilities maintenance, repair

Instrumentation:

Metrology systems • Universal Testing Machines (UTM)
Thermal and visual cameras • Measurement and monitoring systems • UV-Vis • FTIR • lab equipment