# DEREK MINN

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## EDUCATION

**The Johns Hopkins University, Baltimore MD -** BS in Biomedical Engineering *June 2027*
**GPA:** 3.79/4.0 *Dean's List Honoree*

## WORK EXPERIENCE

**Endovascular Model Development Engineer,** *The Jacobs Institute* *June 2025 - August 2025*

- **Led** the 10-week development of a modular peripheral artery disease (PAD) simulation kit for surgical training
- **Established 5 critical design inputs** and conducted a preliminary risk assessment by analyzing the competitive landscape and potential failure modes to define the project's scope
- Developed a Python algorithm to characterize tortuosity of 30 patient scans and enable data-driven modeling of a high-fidelity, representative peripheral vasculature in SOLIDWORKS
- Modeled & printed 30+ lesion training "cartridges" via SOLIDWORKS design families, applying **design for manufacturing** principles to reduce manufacture time by 34%
- Performed **design of experiments** characterizing material properties via instron in engineering artificial lesions
- Utilized FDM, SLA, and PolyJet printing across production of 3 revisions in accordance with **ISO-13485 certified QMS** to present final revision to Kaleida Health & Buffalo General Hospital conference

**BME Design Studio Technician,** *Johns Hopkins University* *August 2024 - August 2025*

- Trained 600+ BME undergraduate body on FDM printers, power tools, laser cutters, and general shop tools
- Serviced & maintained suite of power tools, 3D printers, laser cutters, and machining equipment
- Enabled 40+ undergraduate researchers in manufacturing parts and iterative manufacturing
- Hosted monthly, interactive workshops training 20+ design teams on laser cutting, 3D printing, and rapid prototype ideation

## PROJECTS & ACTIVITIES

**Intuitive Pelvic Floor Neuromodulation Device** *Minimally invasive wearables* *January 2025 - Present*

- Leading **design control** efforts for an optimized TENS device to increase therapy accessibility for pelvic floor disorders (PFD)
- Compiled **design inputs, risk mitigation tables, and root cause analysis** in accordance with 21.CFR.820 CGMP
- Prototype expected to enter informed rapid prototype fabrication, assessment and design validation in spring 2026

**Augmented Breast Cancer Biopsy Device (AutoAspira)** *Interventional diagnostics* *November 2023 - Present*

- Co-developed an interventional biopsy device projected to **increase diagnostic cell yield by up to 50%**, aiming to reduce fine needle aspiration false-negative rates in low-resource clinics across Sub-Saharan Africa
- **Raised $37,000 in non-dilutive funding**, with work awarded to present at 6 international conferences/BPCs
- Navigated **510(k) Class II** device & **FDA pre-submission** pathway with early 2026 **provisional patent** projected
- Defended core mechanical design principles to a board of clinicians and engineers from Hopkins/Uganda across 10+ meetings to facilitate design empathy and secure a final design
- Drove mechanical design via ideation and fabrication of 20+ prototypes and **test fixtures** in PTC Creo & Fusion 360 for clinical studies and design validation
- Curated design file indices, **design master records, and risk mitigation SOP**s for 4 **Design History Files**

## PUBLICATIONS & AWARDS

**Certified *SOLIDWORKS* Associate (CSWA)** *August 2025*
***Engineering E.coli Pyruvate Metabolism to Generate Noncanonical Reducing Power**, ACS Catalysis* *June 2023*

## SKILLS

**CAD/CFD & Electronics:** SOLIDWORKS, PTC Creo, Fusion 360, OnShape Ansys, AutoCAD, Arduino, Mechatronics
**Prototyping & Manufacturing:** Additive Manufacturing (FDM, SLA, PolyJet), Machining (Mill, Lathe), Catheter production (Steeger K80/810A*)* Laser Cutting, Test Fixture Assembly, GD&T, DFM, Instron, Wire EDM
**Software & Data Analysis:** Python, C++, MATLAB, MiniTab, MicroDicom, MeshMixer, Aldec, Microsoft Suite
**Quality & Regulatory:** Risk Management, Design Controls (21 CFR 820), ISO 13485, Grant Writing, Stakeholder Communication