

Nicholas M. Robles

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EDUCATION

Stanford University

Stanford, CA

- M.S. Mechanical Engineering | Manufacturing and Product Realization Depth 06.2022
- B.S. Mechanical Engineering | B.A. Honors Art Practice 06.2020

SKILLS

Skills: Python, C++, MATLAB, SolidWorks CAD, State-Based Control Design, Design for Manufacturability, Need Finding, Rapid Prototyping, User-Centered Design

Manufacturing: TIG & MIG Welding, Casting, CNC & Manual Machining, Injection Molding, Additive Manufacturing, Sheet Metal Forming, Basic GD&T

WORK EXPERIENCE

Hardware Design Engineer - Research Professional

06.2022 - Present

Stanford Human Performance Lab

- Zero-to-one mechanical design of robotic leg exoskeleton to assist people with knee osteoarthritis that is 5 times more effective at reducing knee forces than existing solutions (Provisional Patent Appl. No. 63/415585).
- Prototyped, tested, and analyzed aluminum components to optimize weight for strength and DFM/DFA, managing vendors for the low-volume initial product manufacturing.
- Constructed and designed a testing rig for an off-body motor emulator that saved \$17,000 compared to the alternative.
- Designed and built hardware using machining and 3D printing for a wearable proof-of-concept demonstration product.
- Wrote a business model and plan for commercializing and scaling the hardware product to be launched as a company.

Facilities Engineering Supervisor

09.2020 - Present

Stanford Product Realization Lab

- Taught design and manufacturing principles to 1000+ students in the machine shop, TIG & MIG welding and sheet forming lab, wood lab, plastics lab, rapid prototyping lab, and foundry; and provided technical advice on projects.
- Created training documentation for staff and class curriculum for student instruction in the lab areas.
- Upgraded sheet metal manufacturing processes through custom designed fixturing for mounting.
- Awarded the John McMordie Spirit Award for dedication and teaching excellence.

Design Engineering Fellow

09.2019 - 08.2020

Stanford Woods Institute

- Led a team of 4 engineers in a 20-week course to improve air quality through more efficient brick kilns.
- Characterized combustion efficiency of coal-fired kilns for brick manufacturing.
- Designed a low cost sheet metal attachment to improve coal combustion in brick kilns, tested to 1000C.
- Traveled to Delhi, India to develop SOP, training materials, and manufacturing plan to build and test our product.

Mechanical Design Intern

06.2020 - 09.2020

Burn Design Lab

- Initiated and designed a remote need finding study with 66 women in Ghana to inform product design for improving shea nut roasters for women's health.