Ben Forbes
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EDUCATION

Northwestern University Anticipated Graduation: March 2024
Robert R. McCormick School of Engineering and Applied Science
Major: B.S./M.S Mechanical Engineering GPA: 3.70
Skills: Comfortable with 3D printing, laser cutting, CNC machining, injection molding, soldering, mill, and lathe. Experienced with MATLAB, CREO, SolidWorks, C, Python, NX, HTML, ANSYS.
Relevant Coursework: Advanced Mechatronics, Mechanics of Materials, Control of Feedback Systems, Mechanical Design and Manufacturing, Machine Dynamics, Computer Integrated Manufacturing.

PROFESSIONAL EXPERIENCE

Northwestern University Segal Design Institute *June 2022 - September 2022*
Design Engineering Intern *Evanston, Il*

- Conducted field research for Winnebago to provide insights on the "towable of the future"
- Manufactured polished multiple biomedical products to be used in infant video fluoroscopy, gait training, and diabetes management
- Gained quick feedback on ideas through rapid prototyping (3D printing, laser cutting, CAD)
- Project lead in charge of communicating with clients, ordering parts, and updating supervisors

WAGIC, Inc. *June 2021 - September 2021*
Product Design Engineer *Remote via Fresno, CA*

- Tested a product entering the American market and made suggestions improving user safety
- Communicated safety concerns to clients by providing convincing data for design changes
- Remodeled the product with necessary considerations for safety and injection molding
- Efficiently utilized CREO to turn 3-D models into 2-D drawings for use in manufacturing
- Quickly modified complex CAD models to match changes in part dimensions

COURSE PROJECTS

Thesis Project – Northwestern's Center for Robotics and Biotechnology. *Summer, 2023*

- Investigated the effect of coupling electroadhesive clutches with a capstan for mechanical amplification in high force, high displacement actuators
- Derived an equation governing the combined capstan and electroadhesion mechanics
- Created testing rigs and used sound data collection techniques to validate the theoretical mechanical equation

Senior Capstone Project – Northwestern's Advanced Manufacturing Processes Lab *Winter, 2023*

- Designed a novel robot end-effector for the automation of English wheeling sheet metal
- Implemented load cell and properly calibrated for force readout with NI DAQ and LabView
- Programmed reverse kinematics UR5e robot script code toolpath to produce accurate English wheeling trajectory within 5%
- MSEC Student Manufacturing Design Winner for contribution to manufacturing industry

LEADERSHIP EXPERIENCE

Northwestern Swimming and Diving *September 2019 - Present*
Student-Athlete *Evanston, IL*

- Devote 30+ hours per week to rigorous training, preparation, and competition as a NCAA Division I athlete in the Big Ten Conference

Student Athlete Advisory Committee *August 2020 - Present*
Executive Committee Member *Evanston, IL*

- Selected as 1 of 5 representatives to serve as liaison between Northwestern's varsity athletes and upper-level management in the athletic department
- Organized and ran the annual canned food drive, lip-synch battle, and award show (NESPY's)

HONORS & INTERESTS

Honors: 3x Academic All-Big Ten, United States Olympic Trials Qualifier, Big Ten Sportsmanship Award
Interests: Building FPV drones, Chicago sports, yummy Asian food, hiking ridiculously hard trails, and reptiles