

Orion Jusuf

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EDUCATION

Northwestern University

B.S. Biomedical Engineering w/ Computer Science Minor, M.S. Mechanical Engineering

Relevant Courses: Mechatronics, Machine Dynamics, Biomechanics, Mass Transport, Human Computer Interaction, Fluid Mechanics

Anticipated June 2024

GPA: 3.97/4.00

EXPERIENCE

Shirley Ryan Ability Lab

Biomechanics Research Intern

Chicago, IL

March 2022 - Present

- Collected muscle properties using ultrasound to validate a computational biomechanical model of the arm and hand
- Awarded grant to optimize wrist surgical salvage procedures through simulation and presented work at BMES conference
- Collaborated with OpenSim to detect and resolve 4.4 release bugs and ensure backwards compatibility with lab models
- Collaborating with Meta AI Research to develop more computationally efficient biomechanical models of the hand

Niles Township District for Special Education

Medical Device Development Intern

Niles, IL

June 2021 - September 2021

- Acquired funding to modify diagnostic equipment and develop strengthening devices for students with disabilities
- Spearheaded creation of a novel physical therapy curriculum that improved vocational prospects of special education students
- Produced a database that manages over 500 students, automated assessment forms, and developed a program management guide

Bone Tissue Engineering Lab at Stanford University

Research Intern

Palo Alto, CA

June 2019 - August 2019

- Developed a series of biomaterial formulas, scaffold designs and evaluation methods that optimized the manufacturing conditions of biodegradable multi-material hydrogel scaffolds using an augmented 3D-printer
- Created and distributed Python code packages using OpenCV to streamline tedious image processing tasks

SKILLS

Programming: Python, C, C++, MATLAB; Learning JavaScript, CSS, and HTML

Software: OpenSim, Autodesk Inventor, Solidworks, Microsoft Office, GitHub, Simulink; Learning Blender, Revit

Fabrication: 3D Printing, Laser Cutter, CNC/Manual Mill, CNC Router, Lathe, Sheet Metal, Electronics Prototyping, Arduino

Languages: English (Native), Mandarin Chinese (Professional Working), Spanish (Limited Working)

ACTIVITIES

Northwestern Biomedical Engineering Society

President, Treasurer

Evanston, IL

May 2021 - Present

- Led an overhaul of executive board structure including the introduction of 6 new officer positions and 3 committees
- Established individual/group mentorship meetings and networking events to strengthen the BME community
- Implemented new programs including a biweekly newsletter, medical device design teams, career workshops and student forums

Northwestern Theme Park Engineering and Design Group

Treasurer

Evanston, IL

March 2022 - Present

- Fundraised over 30,000 dollars for club initiatives; Implemented new purchasing guidelines and financial records systems

Head Engineer, Mechanical Subteam Lead | **ISU Ride Engineering Competition**

January 2021 - Present

- Led team of over 30 members through the design, and industrial manufacturing of an amusement park flat ride model, which autonomously operated for 8 hours during competition, maintained high throughput, and satisfied relevant ASTM standards
- Trained team to design mechanical and electronic systems in CAD and utilize shop machinery for rapid prototyping

Design Engineer | **Toronto Metropolitan Thrill Design Invitational (Formerly Ryerson)**

June 2022 – November 2022

- Solved theme park attraction design challenges in a group of five designers and engineers within a short 24-hour time frame
- Presented novel designs for ride vehicles, interactive attractions, and safety devices to a panel of industry experts
- Won distinction in technical skills and recognitions for creative skills and innovation

Technical Director | **Sensory Space and Haunted House Projects**

March 2022 - Present

- Led over 40 members through the design and construction of a sensory space for concert attendees (Spring 2022) and a haunted house for Northwestern students (Summer/Fall 2022)
- Managed event space and equipment contracts, purchased materials, drafted attraction layouts, and developed safety protocols

Design Consultant | **Shedd Aquarium Outdoor Spaces Project**

May 2021 - December 2021

- Pitched the creation of a learning garden environment to the Shedd Aquarium using Unity to educate students about local nature.

Wheelchair Luggage Carrier and Adaptive Violin Bow Projects

Design Engineer

Evanston, IL

January 2021 - June 2021

- Developed products in a team to meet client design needs over two 10-week periods, culminating in a product design report
- Documented product requirements, managed team workflow, and conducted user prototype testing during the pandemic