Orion Jusuf

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EDUCATION

Northwestern University   Anticipated June 2024
B.S. Biomedical Engineering w/ Computer Science Minor, *M.S.* Mechanical Engineering   GPA: 3.97/4.00
Relevant Courses: Mechatronics, Machine Dynamics, Biomechanics, Materials Science, Human Computer Interaction, AI

EXPERIENCE

Shirley Ryan Ability Lab   **Chicago, IL**
Biomechanics Research Intern   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   **Niles, IL**
Medical Device Development Intern   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 improves 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   **Palo Alto, CA**
Research Intern   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

ACTIVITIES

Northwestern Theme Park Engineering and Design Group   **Evanston, IL**
Treasurer   March 2022 - Present
- Fundraised over 20,000 dollars for club projects; Implemented new club purchasing guidelines and financial records systems

Design Engineer | **Toronto Metropolitan Thrill Design Invitational (Formerly Ryerson)**   June 2022 – November 2022
- Solved theme park attraction design challenges in a group of five 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

Technical Director | **Sensory Space and Haunted House Projects**   March 2022 - Present
- Led over 30 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

Mechanical Lead | **ISU Ride Engineering Competition**   January 2021 - March 2022
- Led a subteam of over 20 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 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.

Northwestern Biomedical Engineering Society   **Evanston, IL**
President   May 2022 - Present
- Led an overhaul of executive board structure including the introduction of 5 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

Treasurer   May 2021 – May 2022
- Reconciled student organization debit card and financial accounts; Managed club funding, purchasing, and reimbursements

Wheelchair Luggage Carrier and Adaptive Violin Bow Projects   **Evanston, IL**
Design Engineer   January 2021 - June 2021
- Ideated and constructed products in a team to meet client design needs over two 10-week periods
- Documented product requirements, managed team workflow, and conducted user prototype testing during the pandemic
- Communicated with clients and users and presented solutions to stakeholders through presentations and a product design report

SKILLS

Languages: 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