JOSETTE VIGIL

Flagstaff, AZ
209-259-9985
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SUMMARY

Focused individual with academic research and industry experience. Strong interest in biomechanics, experimental design, medical device creation, and materials science. A collaborative worker with a strong foundation in research methods. Always seeking opportunities to learn new skills and grow within the biotechnology field.

SKILLS

- MATLAB
- Stratasys Connex Objet260 3-D Printing
- Rheometer and Instron Testing
- Technical writing
- Microsoft Office
- Histological preparation and analysis
- Fluoroscopic analysis

EDUCATION

BACHELOR OF SCIENCE: MECHANICAL ENGINEERING — Expected 05/2023

Northern Arizona University, Flagstaff, AZ

- 3.74 GPA
- Dean's List (2019-2022)
- Society of Women Engineers Member (2020-present)
  - Social and Volunteer Events Coordinator (2021-22)
- American Indian Science and Engineering Society (2019-present)
  - Treasurer/Vice President (2020-2021)

EXPERIENCE

BIOENGINEERING DEVICES LABORATORY
Flagstaff, AZ

Undergraduate Researcher — 12/2020-current

- Secured Urdea (2021-2023) and E3 (2021-2022) undergraduate research grants for funding research supplies and labor (total: $13,840)
- Used TA Instruments Hybrid Rheometer to characterize mechanical qualities of polymers, fluids, and tissues for comparison with one another and existing physical models
- 3-D printing of biomaterial polymer samples to enhance physical properties of a bench-top flow model to present at NAU's Undergraduate Research Symposium
- Constructed and optimized the frame for a bench-top flow model designed to mimic human vasculature in simulated surgeries
- Partnered with United Biologics and Imperative Care to build toward the body of evidence on devices to further FDA approval processes and marketing
- Prepared and analyzed histological slides from human vasculature to assess mechanical damage caused by rheometer testing
- Attending and presenting at five conferences to collaborate with and receive feedback from clinicians, scientists, and graduate students

EXPERIENCE

MEDTRONIC PLC
Boulder, CO

Summer Intern 06/2022-08/2022

- Conducted feasibility analyses on different product lines to support manufacturing and inform project progression
- Assisted with design verification testing using Instron equipment and software to assess product performance
- Reported qualitative and quantitative findings using industry-standard documentation methods
- Gained experience with design optimization tactics through material selection and tool design projects

INSTITUTE FOR TRIBAL ENVIRONMENTAL PROFESSIONALS
Flagstaff, AZ

Student Worker/Intern 08/2020-05/2021

- Advanced STEM participation in indigenous communities through citizen science and coordination with reservation public schools and libraries
- Experimented with particulate matter sensing hardware to analyze the efficacy of air quality testing mechanisms for use on tribal lands and rural communities
- Successfully coded, constructed, and created asynchronous course material for Arduino air sensing equipment designed for middle school learners
- Collaborated with environmental professionals to host culturally relevant indigenous community outreach events, such as videos, seminars, and panel discussions

NORTHERN ARIZONA UNIVERSITY
Flagstaff, AZ

Grader/TA 08/2021-present

- Created online curriculum for upper division Biomaterials courses, to be used for future semesters
- Provided supplemental material and supported Materials Science students for 3 semesters
- Upheld university standards of academic integrity through four semesters of ethical grading practices

PUBLICATIONS & PRESENTATIONS

- **"Design, fabrication, and characterization of 3-D printed multi-phase scaffolds based on triply periodic minimal surfaces"**
  - *Pending publication in Advances in Polymer Technology*
- **“Application of non-destructive mechanical characterization testing for creating in vitro vessel models with material properties similar to human neurovasculature”**
  - *Journal of NeuroInterventional Surgery, 13 (Suppl 1), A61-A62, 2021*
- **“Voxel-based Calculations of Intrasaccular Aneurysm and Device Volume Fill”**
  - *Journal of NeuroInterventional Surgery, 13 (Suppl 1) A42, 2021*
- **"Long-term radiopacity of a polymer aneurysm treatment device: NeuroCURE(R) liquid embolic"**
  - *Journal of NeuroInterventional Surgery, 13 (Suppl 1), A57-A58, 2021*

PUBLICATIONS & PRESENTATIONS

- **"Technical evaluation of beveled tip aspiration compared to flat tip aspiration for acute ischemic stroke treatment"**
  - *Journal of NeuroInterventional Surgery 14 (Suppl 1), A231, 2022*
- **"Evaluation of endovascular catheter push/pull forces and energies within silicone and glass neurovascular models with identical tortuosity"**
  - *Journal of NeuroInterventional Surgery 14 (Suppl 1), A147-A148, 2022*
- **"Development of a mechanical testing regimen for comparing silicone vessel models to human neurovasculature"**
  - *Journal of NeuroInterventional Surgery 14 (Suppl 1), A16-A17, 2022*
- **"3D-Printing of Biomaterials for a Benchtop Stroke Model"**
  - *Northern Arizona Undergraduate Research Symposium, 2022*