

Curriculum Vitae

Anne Dowling

Environmental Fluid Dynamics Laboratory
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EDUCATIONAL BACKGROUND

Bachelor of Science Wichita State University December 2021
Mechanical Engineering, Minor in Mathematics

HONORS AND AWARDS

- Morrison Merit Scholarship, 2017-2021
- Dean's Honor Roll, Fall 2017, Spring 2018, Spring 2019, Fall 2020
- 2nd Place for Oral Presentations in Natural Sciences and Engineering at the Undergraduate Research and Creative Activity Forum hosted by Wichita State University, 2019
- Undergraduate Engineering Research Stipend, May 2018

PROFESSIONAL EMPLOYMENT

- 01/22 – Pres. Ph.D. Candidate – Civil and Environmental Engineering and Earth Sciences** Environmental Fluid Mechanics Laboratory, University of Notre Dame, Notre Dame, IN, 46556
- Currently preparing for the Grand Banks Field Campaign associated with the Fog and Turbulence Interactions in the Marine Atmosphere (FATIMA) project
 - Teacher's Assistant for the undergraduate Hydraulics course (CE 41450)
- 04/21 – 12/21 Undergraduate Research Assistant – Nanomaterials for Renewable Energy and Environment Laboratory (NREEL),** Wichita State University, 1845 Fairmount, Wichita, KS, 67260
- Conducted research on solar photoelectrochemical cells (PEC) and different materials to use for PEC.
 - Conducted a literature review on the different parameters and history of PEC.
 - Manuscript in Progress
- 08/18 – 12/18 Teacher's Assistant – Biomedical Computer Applications,** Wichita State University, 1845 Fairmount, Wichita, KS, 67260
- Aided in the instruction of LabView, MATLAB and SolidWorks
 - Answered students' questions during class and office hours
 - Helped identify flaws in students' programs and CAD designs
 - Graded homework and projects

RESEARCH AND SCHOLARLY ACTIVITIES

Research Grants/Projects:

April 2021 – Present

Design and Synthesis of a Photoelectrochemical Process for Solar Cells

Role: Co-Author

Project Director/Primary Investigator: Dr. Wei Wei

Laboratory: Nanomaterials for Renewable Energy and Environment Lab at Wichita State University

Aug 2017 – Aug 2019

Implementation of Artificial Neural Networks to Classify Human Forearm Muscle Signals for Individual Finger Movement of a Robotic Hand

Role: Co-Author

Project Director/Primary Investigator: Dr. Jaydip Desai

Laboratory: Neurorobotics Lab at Wichita State University

Proposals submitted to external agencies:

Nov 2018

Rocky Mountain Bioengineering Symposium Conference

Abstract Title: *Artificial Neural Network to Classify Human Forearm Muscle Signals for Individual Finger Movement of a Robotic Hand*

Authors: Desai, J., **Dowling, A.**

July 2018

2018 Biomedical Engineering Society Annual Meeting

Abstract Title: *Artificial Neural Network to Classify Human Forearm Muscle Signals for Individual Finger Movement of a Robotic Hand*

Submission ID: #4166

Authors: Desai, J., **Dowling, A.**

Proposals submitted internally to WSU

April 2019

Undergraduate Research and Creative Activity Forum by Wichita State University

Abstract Title: *Implementation of Artificial Neural Networks to Classify Human Forearm Muscle Signals for Individual Finger Movement of a Robotic Hand*

Authors: Desai, J., **Dowling, A.**

July 2018

Implementation of Real-Time Artificial Neural Network Algorithms to Detect Human Forearm Muscle Patterns for a Prosthetic Hand and a Power Wheelchair.

Wichita State Institutional Review Board WSUIRB#: 4219

Authors: Desai, J., **Dowling, A.**

Other Grant Activities:

May 2018 – Aug 2018 Undergraduate Engineering Research Stipend
Funding Agency: Wichita State College of Engineering
Role: Co-Author
Primary Investigator: Dr. Jaydip Desai
Amount Requested: \$2,714.99
Status: Funded

PRESENTATIONS AT PROFESSIONAL MEETINGS:

National

Oct 2018 Desai, J., **Dowling, A.** 2018. *Artificial Neural Network to Classify Human Forearm Muscle Signals for Individual Finger Movement of a Robotic Hand*. Biomedical Engineering Society Annual Meeting. Atlanta, GA. Poster Presentation.

Local

April 2019 Desai, J., **Dowling, A.** 2019. *Implementation of Artificial Neural Networks to Classify Human Forearm Muscle Signals for Individual Finger Movement of a Robotic Hand*. Undergraduate Research and Creative Activity Forum. Wichita, KS. Oral Presentation.

RELATED TERM PROJECTS

Fall 2021 *Sand Test Apparatus*
Class: ME 662 Senior Capstone Design
Description: The group was tasked with designing a fully functional sand testing apparatus for small aircraft parts. The project included designing the apparatus, integrating sensors and electronics, analyzing the fluid dynamics of the design, writing a users' manual and a design proposal.

Spring 2021 *Exploration of Microalgae as a Biofuel*
Class: ME 702 Energy and Sustainability
Description: Term project report and presentation on the validity of using microalgae as a source of biofuel as well as exploring the best photobioreactor for producing biofuel. The team also designed a "Red Tide Combine" which is a drone-boat that would harvest red tide algae and deliver it to a refinery so that it could be used as a biofuel.

Spring 2021 *The Design of an All-Terrain Kite Buggy*
Class: ME 439 Mechanical Engineering Design 1
Description: Term project report with literature review, complete CAD design, methodology, static and fatigue analysis as well as Finite Element Analysis.

Fall 2020 *The Design of an Airplane Elevation Mechanism*
Class: ME 339 Design of Machinery
Description: Term project report with design methodology and analysis with 3D prototype and video of proof of concept.

Fall 2020 *Marine Pollution Dispersion and Solutions*
Class: ME 521 Fluid Mechanics
Description: Literary research term paper in which the dispersion of different types of pollution was explored and the possible solutions to cleaning up the pollution in various ways depending on the dispersion behavior. Different numerical models to describe the pollution dispersion was also investigated.

RELATED SOFTWARE SKILLS

- MATLAB / MATLAB Simulink
- SolidWorks / SolidWorks Simulation (Finite Element Analysis)
- LabView
- CATIA
- Flow3D
- Arduino
- Microsoft Office

COMMUNITY SERVICE ACTIVITIES

Service Associated with Delta Delta Delta Sorority:

- 2017-2019 **D-HOP:**
Breakfast food fundraiser spanning three nights benefitting St. Jude Children's Research Hospital.
- 2017-2019 **Putt for a Cure:**
Mini-Golf fundraiser spanning three nights benefitting St. Jude Children's Research Hospital.
- 2017-2019 **Sincerely Yours:**
Fundraiser for St. Jude Children's Research Hospital where members wrote letters to as many contacts as possible asking for donations.
- 2017-2019 Attended other philanthropy events hosted by other sororities and fraternities.
- 2019 **5K in a Day:**
Social Media Fundraiser where members promoted a link on their personal pages for direct donations to St. Jude Children's Research Hospital.
- 2017-2018 **Gown Town:**
Helped run an event at which high school girls find their prom dress from an allotment of donated dresses for free.
- 2017 **Service Day at the Freemasons Lodge in Wichita, KS:**
Members cleaned, washed dishes, and did miscellaneous tasks to help the patients and staff.

Service Associated with St. Paul University Parish:

- 2017- present **Heart to Harvest:**
Yearly fundraising event that students host at which donors have dinner, a silent auction, and a regular auction. All proceeds benefit the students of St. Paul University Parish at Wichita State University.
- 2017- present **Knights of Columbus Ball:**
Fundraiser for the Knights of Columbus at which students plan, set up and attend a formal dance.
- 2017- present **Altar Society:**
Helped clean and decorate the church sanctuary space weekly.

LEADERSHIP

Fulfilled Leadership Roles:

- Sept 2019 – Present **Rite of Christian Initiation for Adults (RCIA) Small Group Leader:**
- Assist with the running of weekly meetings.
 - Assist with education on theology.
 - Facilitate small group discussion.
 - Answer questions members may have.
- Aug 2019 – May 2020 **Student Officer at St. Paul University Parish:**
- Ran a women’s group that promoted sisterhood and fellowship.
 - Helped with fundraising events of other officers.
 - Member on the student council that organized events and made decisions on behalf of the students at St. Paul’s.
- Jan 2018 – Aug 2019 **Delta Delta Delta Mental Health Group Leader**
- Founded and led a mental health group that provided resources as well as monthly events to support the mental health of the chapter members.
- Jan 2018 – Dec 2018 **Delta Delta Delta Music Chair**
- Held music workshops to help members learn the songs of Delta Delta Delta.
 - Led the musical aspects of initiation.
- Jan 2018 – Dec 2018 **Delta Delta Delta Body Image 3D Coordinator:**
- Hosted monthly events that had a talk and activity related to body image.
 - Promoted a positive body image and lifestyle throughout the chapter.

Other Leadership Opportunities

- Jan 2021 **Leadership of Self and Society (Course Number: HP408)**
Successfully completed this leadership course hosted by the Kansas Leadership Center to support undergraduate studies.