

Dana Lynn Lansigan

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EDUCATION

University of California, Berkeley

B.S., Mechanical Engineering

Dean's List (Fall 2015, Spring 2016, Fall 2016, Fall 2018)

Tau Beta Pi Member

American Physical Society Member

August 2015 - May 2019

Overall GPA: 3.86

RESEARCH EXPERIENCE

Computational Fluid Dynamics Laboratory

Undergraduate Researcher, PI: Philip Marcus

August 2017 - Present

University of California, Berkeley

- Developed proof of concept with 2D airfoils for shape optimization using a Deep Differentiable Shape Layer (DDSL) and a convolutional neural network with Chiyu 'Max' Jiang
- Presented work at the American Physics Society's Division of Fluid Dynamics (APS DFD) Fall 2018 conference
- Coauthored paper on DDSL with Chiyu 'Max' Jiang and submitted to the Thirty-sixth International Conference on Machine Learning
- Ran CFD simulations on vertical axis wind turbines in OpenFOAM

Keck Planet Finder Group

Undergraduate Researcher, PI: Christopher Smith

February 2017 - May 2017

Space Sciences Laboratory

- Designed assembly for laboratory testing of optical and mechanical systems

Wind Tunnel Laboratory

Undergraduate Researcher, PI: John Larue

May 2016 - August 2016

University of California, Berkeley

- Fabricated hot and cold wire sensors with chemical lab equipment
- Operated wind tunnel to collect data for turbulence experiments at moderate Reynolds numbers measuring decay of velocity and temperature fields downstream of an active grid
- Worked with Matlab to implement Wyngaard's power spectrum correction function

Design for Nanomanufacturing Laboratory

Undergraduate Researcher, PI: Hayden Taylor

February 2016 - December 2016

University of California, Berkeley

- Prepared semiconductor chip samples and stamps using a spin coater and UV aligner
- Collected video data for nanoimprint lithography research using Matlab and Thorlabs components

PUBLICATIONS

Jiang, C., **Lansigan, D.L.O.**, Marcus, P., Niessner, M. (under review) DDSL: Deep Differentiable Simplex Layer for Learning Geometric Signals. In *The International Conference on Computer Vision*, 2019.

CONFERENCE PRESENTATIONS

Lansigan, D.L.O., Jiang, C., Marcus, P. (2018, November) "Neural Network Powered Adjoint Methods: Gradient Based Shape Optimization with Deep Learning." Presented at the APS Division of Fluid Dynamics 71st Annual Meeting, Session F32.00002, Atlanta, GA.

INDUSTRY EXPERIENCE

The Aerospace Corporation

May 2018 - August 2018

Computer Aided Engineering Intern

El Segundo, CA

- Developed a Matlab tool for visualizing ignition overpressure (IOP) waves and calculating their resulting forces on launch vehicles during lift-off for the Fluid Mechanics Department
- Developed a rapid-turnaround tool in Python for analysis of launch vehicle ground winds exposure during lift-off for the Fluid Mechanics Department
- Developed post-processing tools of unsteady pressure sensitive paint (uPSP) data for a generic hammerhead launch vehicle configuration for the Fluid Mechanics Department
- Modeled 3D printed parts for prototyping and research applications in SolidWorks
- Designed, 3D printed, and assembled model rocket parts for STEM outreach demonstrations

Microsoft

May 2017 - August 2017

Explorer Intern

Redmond, WA

- Organized spec sheet to manage summer intern project
- Developed C# code to add virtual machine features to teams testing infrastructure
- Presented project to software development team

TEACHING EXPERIENCE

Electrical Engineering 16A

August 2018 - Present

Discussion Teaching Assistant

University of California, Berkeley

- Facilitated two weekly discussions of 50 students each for introductory linear algebra and circuits class
- Presented mini-lectures and explained examples to aid students' understanding of material
- Assisted in review sessions for exams
- Developed exam problems
- Guided students through solutions to questions during office hours

Engineering 98

August 2017 - December 2017

Instructor

University of California, Berkeley

- Taught a weekly class on academic success and career building for incoming engineering students
- Collaborated with co-instructor to plan class syllabus and schedules for the semester
- Conducted one-on-one professional workshops with students

TEAM EXPERIENCE

Aero Design Society of Automotive Engineers (ASAE)

September 2015 - December 2017

Empennage Lead, Webmaster

University of California, Berkeley

- Designed, modeled, and analyzed airplane tail using SolidWorks
- Employed woodworking and machine shop skills to construct model airplane
- Spearheaded new member recruitment and training
- Placed fifth in flight at SAE West international competition

TECHNICAL SKILLS

Concepts

machine learning, CFD, 3D printing

Computer Languages

Python, Matlab, HTML, CSS, jQuery, C#, C++

Software & Tools

Pytorch, Jupyter, XFOIL, OpenFOAM, Paraview, LaTeX, SolidWorks

Operating Systems

Windows, Linux, Ubuntu

AWARDS AND HONORS

Boeing Scholars Scholarship

September 2016

- Awarded to outstanding and passionate engineering undergraduates pursuing a career in aerospace

Banatao Family Scholarship

April 2015

- Awarded to five outstanding Filipino-American students pursuing degrees in the STEM fields