

Dana Lynn Lansigan

(949) 381-8414 | dlansigan@berkeley.edu | dlansigan.github.io

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. 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

Computer Aided Engineering Intern

May 2018 - August 2018

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

Explorer Intern

May 2017 - August 2017

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

Discussion Teaching Assistant

August 2018 - Present

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

Instructor

August 2017 - December 2017

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)

Empennage Lead, Webmaster

September 2015 - December 2017

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