Dana Lynn Lansigan

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EDUCATION

University of California, Berkeley *August 2015 - May 2019*
B.S., Mechanical Engineering Overall GPA: 3.85
Dean's List (Fall 2015, Spring 2016, Fall 2016, Fall 2018)
Tau Beta Pi Member

RESEARCH EXPERIENCE

Computational Fluid Dynamics Laboratory August 2017 - Present
Undergraduate Researcher, PI: Philip Marcus *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 February 2017 - May 2017
Undergraduate Researcher, PI: Christopher Smith *Space Sciences Laboratory*

- Designed assembly for laboratory testing of optical and mechanical systems

Wind Tunnel Laboratory May 2016 - August 2016
Undergraduate Researcher, PI: John Larue *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 February 2016 - December 2016
Undergraduate Researcher, PI: Hayden Taylor *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 *Thirty-sixth International Conference on Machine Learning*, 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 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 discussion 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
- 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