David Philip Larson dplarson@ucsd.edu

Education

University of California, San Diego
Ph.D. in Mechanical Engineering 2012–present
- Advisor: Carlos F.M. Coimbra

University of California, Merced
B.S. in Mechanical Engineering 2008–2012
- Dean's Undergraduate Research Scholarship (2008–2009)
- Dean's Honor List (Fall 2008, Fall 2011)

Citizenship

U.S.

Research Experience

PhD Student, Coimbra Energy Group 2012–present
University of California, San Diego
- Developing forecasting methods for chaotic time series

Lab Manager, Coimbra Energy Group 2012–present
University of California, San Diego
- Automated detection of remote instrument failures
- Implemented centralized version control for all projects
- Deployed irradiance and weather sensor systems at UCSD and Folsom, CA
- Manage group information infrastructure (computers, servers, databases)
- Oversee research lab safety (15+ personnel)

Visiting UC LEADS Scholar, Animal Flight Lab Summer 2011
University of California, Berkeley
- Host Program: Cal NERDS
- Investigated effects of turbulent flow on hummingbird kinematics and metabolism
- Developed Particle Image Velocimetry (PIV) data analysis scripts for turbulent flow

UC LEADS Scholar, Coimbra Group Summer 2010
University of California, Merced
- Investigated aerodynamic trends of flapping flight

Lab Manager, Coimbra Group 2010–2012
University of California, Merced
- Deployed irradiance and weather sensor systems in CA (Merced, Berkeley, Davis) and WA (Bellingham)
- Manage group information infrastructure (computers, servers, databases)
- Oversaw research lab safety (10+ personnel)

Undergraduate Student Researcher, Coimbra Group 2009–2012
University of California, Merced
- Tested long term degradation of anti-dust glass coating for solar panels
- Analyzed animal flight data to determine underlying aerodynamic trends

Undergraduate Student Researcher, Hirst Group 2008–2009
University of California, Merced
- Investiaged phase separation in lipid tubules

Lab Assistant, MEMS Lab 2007–2008
University of California, Santa Cruz
- Developed prototype printable RF-ID tag for tracking of dragonflies

Teaching Experience

Graduate Student Instructor (TA) 2013–present
University of California, San Diego
- ENG 1: Fall 2013
- ENG 2: Winter 2014
- ENG 3: Spring 2014

Undergraduate Mentoring

MAE 126B (Senior Environmental Engineering Design) 2014
University of California, San Diego
- Atalie Dajani, Kingston Hon, Leighann Huang, Jocelyn Lu (Spring 2014): Self-powered dataloggers for environmental research

MAE 199 (Independent Study) 2013
University of California, San Diego
- Marina Fernandez (Winter 2013): Contrail effects on ground-based solar irradiance measurements
- Jeremy Orosco (Spring 2013): Method for forecasting chaotic time series

UCSD STARS Program 2012–2013
University of California, San Diego
- Marina Fernandez (Summer 2012): Development of a ground-based, high-fidelity solar observatory using a two-degree-of-freedom tracker
- Khari Rockward (Summer 2012): Spatial analysis of high-fidelity solar irradiance data using a ground-based, multi-filter rotating shadowband radiometer
- Khari Rockward (Summer 2013): Development of a compressed air energy storage system

Professional Activities

American Society of Mechanical Engineers
Student Member 2009–present

Engineers for a Sustainable World
Student Member 2011–present

Reviewer
Solar Energy

Technical Skillsets

Software
- Languages: Python, Matlab, Mathematica, UNIX Shell, C
- Version Control: Git
- TeX: LaTeX, Bibtex
- CAD: Pro/ENGINEER, Autodesk Inventor, Solidworks

Rapid Prototyping
- Machining: mill, lathe, and drill press machining
- 3D printing

Instrumentation
- Irradiance and weather sensors
- PIV: high speed cameras, q-switched lasers, wind tunnels

Operating Systems
- Mac, Linux, Windows

Awards

Innovate to Grow Competition May 2012
- 1st Place (tied) People's Choice
- Entry Title: Harvesting Energy from Irrigation Canals
- Authors: D.P. Larson, D. Leong, S. Fleming, S. Isaiah

Distributed Power Generation Project 2011
- Sponsors: ESW, SunEdison/MEMC, Autodesk
- Entry Title: Solar Powered Cargo Ship
- Funding Amount: $8150

CITRIS Big Idea Competition Apr 2010
- Honorable Mention
- Entry Title: Distributed Computing for Open Access Solar Forecasting
- Authors: R. Marquez, D.P. Larson, H.T.C. Pedro
- Award Amount: $1000

ASME Old Guard Oral Presentation Competition Apr 2010
- 5th Place, District D
- Entry Title: Distributed Computing for Open Access Solar Forecasting