

## David P. Larson

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### Education

<b>University of California San Diego</b> , La Jolla, CA Ph.D., Mechanical Engineering Advisor: Carlos F. M. Coimbra	in progress
<b>University of California San Diego</b> , La Jolla, CA M.S., Mechanical Engineering	2014
<b>University of California Merced</b> , Merced, CA B.S., Mechanical Engineering	2012

**Citizenship:** United States

### Research Experience

<b>University of California San Diego</b> , with Carlos F. M. Coimbra Developed solar power forecasting methods for large-scale photovoltaic power plants. Designed low-cost, solar-powered wireless sensor networks.	2012–present
<b>University of California Berkeley</b> , with Robert Dudley <i>Visiting UC LEADS Scholar</i> , Cal NERDS Program Evaluated the effects of turbulence on hummingbird flight dynamics.	Summer 2011
<b>University of California Merced</b> , with Carlos F. M. Coimbra <i>UC LEADS Scholar</i> Assisted in the development of an experiment for studying insect flight aeroelastics.	Summer 2010

### Journal Publications

**D. P. Larson** and C. F. M. Coimbra (2018) “Direct power output forecasts from remote sensing image processing”, *Journal of Solar Energy Engineering* 140(2), 02111. doi: 10.1115/1.4038983

**D. P. Larson**, L. Nonnenmacher and C. F. M. Coimbra (2016) “Day-ahead forecasting of solar power output from photovoltaic plants in the American Southwest”, *Renewable Energy* (91), pp. 11–20. doi: 10.1016/j.renene.2016.01.039

### Technical Reports

R. Ferrera, T. Marvin, **D. P. Larson**, T. Lindsay, and D. Falk (2017) “Battery Energy Storage in Florida: Value, Challenges, and Opportunities”. [http://gps.ucsd.edu/\\_files/research/battery\\_energy\\_storage\\_in\\_florida.pdf](http://gps.ucsd.edu/_files/research/battery_energy_storage_in_florida.pdf)

### Teaching Experience

<b>Instructor</b> , ENG 10: Fundamentals of Engineering Applications	Winter 2018
<b>Instructor</b> , ENG 10: Fundamentals of Engineering Applications	Fall 2017
<b>Instructor</b> , ENG 10: Fundamentals of Engineering Applications	Spring 2017
<b>Instructor</b> , ENG 10: Fundamentals of Engineering Applications	Winter 2017
<b>Instructor</b> , ENG 10: Fundamentals of Engineering Applications <i>University of California San Diego</i>	Fall 2016

Lectured on engineering mathematics, applications, and design.

**Teaching Assistant**, ENG 3: Orientation to Engineering III Spring 2016  
**Teaching Assistant**, ENG 3: Orientation to Engineering III Spring 2015  
**Teaching Assistant**, ENG 3: Orientation to Engineering III Spring 2014  
*University of California San Diego*

Lectured on project management, engineering as a profession, and engineering ethics.

**Teaching Assistant**, ENG 2: Orientation to Engineering II Winter 2016  
**Teaching Assistant**, ENG 2: Orientation to Engineering II Winter 2015  
**Teaching Assistant**, ENG 2: Orientation to Engineering II Winter 2014  
*University of California San Diego*

Lectured on career planning, professionalism, resume development, and presentation skills.

**Teaching Assistant**, ENG 1: Orientation to Engineering II Fall 2015  
**Teaching Assistant**, ENG 1: Orientation to Engineering II Fall 2014  
**Teaching Assistant**, ENG 1: Orientation to Engineering II Fall 2013  
*University of California San Diego*

Lectured on academic planning, time management, and study habits.

## Research Mentoring

### Undergraduate students

Jeremy Orosco (currently Ph.D. student at UC San Diego) 2012–2014  
 Alex Corliss 2012–2013  
 Marina Fernandez (UC LEADS program) 2012–2014  
 Khari Rockward (UCSD STARS program) 2012–2014  
 Ciara Dooley 2013  
 Jocelyn Lu 2013–2014  
 Jonathan Perez Summer 2014  
 Jessica Mart 2014–2015  
 Renn Darawali 2014–2015  
 Lorenzo Page 2013–2016  
 Stuart Sapia (currently M.S. student at UC Berkeley) 2015–2017  
 Mark Lozano Summer 2015  
 Jessica Medrado (currently Ph.D. student at UC San Diego) 2016  
 Mai Nong 2016–2017  
 Joshua Mumford 2017–2018

### High School students

Leah Harvey Summer 2015  
 Madeline Song Summer 2015  
 Miya Coimbra Summer 2015  
 Varkey Alumootil Summer 2015  
 Bruce Markman (MAP program) Summer 2017  
 Danial Beg Summer 2017  
 Harris Beg Summer 2017  
 Delara Aryan (MAP program) 2017–2018  
 Daniel Pak (MAP program) 2017–2018  
 Anthony Nguyen (MAP program) 2017–2018

## Outreach and Community Service

**Center for Energy Research: Outreach Council**, Volunteer 2014–present  
*University of California San Diego*

Presented renewable energy demonstrations at events in the San Diego area that target traditionally underrepresented student populations, including the San Diego High Tech Fair and the Expanding Your Horizons (EYH) annual conference.

**Center for Energy Research: Diversity Committee, Co-Chair** 2016–present  
*University of California San Diego*

Helped coordinate diversity initiatives by members of the Center for Energy Research.

**SWEET Workshop Series, IDEA Student Center** 2015–present  
*University of California San Diego*

Co-developed a set of technical workshops for undergraduate engineers.

Taught workshops on programming (Python and Matlab), Data Science, Deep Learning, CAD (Solidworks), numerical methods, time-series analysis, image processing, machine learning, 3D printing, and microcontrollers (Arduino).

**Engineering Graduate & Scholarly Talks, IDEA Student Center** 2016–present  
*University of California San Diego*

Taught workshops on programming (Python), Data Science, Deep Learning, and technical document preparation (LaTeX).

**Student Panelist** 2013–present  
*University of California San Diego*

Served as a panelist for a range of events focused on graduate school, undergraduate research, and first-generation and traditionally underrepresented students.

## Professional Activities

### Paper Reviewing

Solar Energy, Renewable Energy, AMS Journal of Applied Meteorology and Climatology, ASME Journal of Solar Energy Engineering, IEEE Transactions on Industrial Informatics

## Affiliations

**Bouchet Graduate Honor Society, 2017–2018 Scholar**

**American Society of Mechanical Engineers (ASME), Student Member** 2009–present

**Society of Industrial Applied Mathematics (SIAM), Student Member** 2017–present

**UC LEADS, Scholar and Alumni** 2010–present

## Technical Skills

**Data Science:** machine learning, numerical optimization, convex optimization, data visualization, statistical data analysis, image processing, time-series analysis and forecasting

**Software:** Python (NumPy, SciPy, Pandas, scikit-learn, Jupyter), MATLAB, Mathematica, C, Go, Julia, MySQL, shell scripting, Git, Microsoft Office (Word, Excel, Powerpoint), LaTeX, Solidworks, Pro/ENGINEER, command-line tools (vim, ssh, etc.), PyTorch, TensorFlow, Keras

**Hardware:** Arduino, Beaglebone, Raspberry Pi, XBee/ZigBee, analog and digital sensors, I<sup>2</sup>C, SPI, UART, machining (mill, lathe, CNC), rapid prototyping (3D printing, lasercamm)

**Platforms:** Mac, Linux, Windows