

## David P. Larson

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CONTACT INFORMATION	Ph.D. Student Department of Mechanical and Aerospace Engineering University of California, San Diego 9500 Gilman Drive La Jolla, CA 92093-0411 <a href="mailto:dplarson@ucsd.edu">dplarson@ucsd.edu</a>
RESEARCH INTERESTS	Evolutionary Methods, Genetic Algorithms, Shape Optimization, Bio-inspiration, Fluid Mechanics of biological locomotion, Fractional and Variable Order Methods
EDUCATION	<b>University of California, San Diego</b> , La Jolla, CA  Ph.D., <a href="#">Mechanical and Aerospace Engineering</a> , June 2012–present <ul style="list-style-type: none"><li>• Adviser: <a href="#">Professor Carlos F.M. Coimbra</a></li><li>• Area of Study: Fluid Mechanics</li></ul> <b>University of California, Merced</b> , Merced, CA  B.S., <a href="#">Mechanical Engineering</a> , August 2008–May 2012 <ul style="list-style-type: none"><li>• Fluid Mechanics specialization</li></ul>
RESEARCH EXPERIENCE	Graduate Student Researcher 2012–present <ul style="list-style-type: none"><li>• Lab: <a href="#">Coimbra Group</a></li><li>• Location: University of California, San Diego</li><li>• Investigating the application of Fractional and Variable Order Methods to Nonlinear Chaos Dynamics</li></ul> Visiting UC LEADS Scholar Summer 2011 <ul style="list-style-type: none"><li>• Lab: <a href="#">Animal Flight Lab</a></li><li>• Location: University of California, Berkeley</li><li>• Host Program: <a href="#">Cal NERDS</a></li><li>• Investigated effects of turbulent air flow on hummingbird kinematics and metabolism</li><li>• Developed Particle Image Velocimetry (PIV) data analysis scripts for turbulent air flows</li></ul> <a href="#">UC LEADS Scholar</a> Summer 2010 <ul style="list-style-type: none"><li>• Lab: <a href="#">Coimbra Group</a></li><li>• Location: University of California, Merced</li><li>• Investigated aerodynamic trends of flapping flight</li></ul>

	<p>Lab Manager 2010–2012</p> <ul style="list-style-type: none"> <li>• Lab: <a href="#">Coimbra Group</a></li> <li>• Location: University of California, Merced</li> <li>• Oversaw research lab safety</li> <li>• Managed group computer network and servers</li> <li>• Trained group members on proper lab equipment use</li> </ul>
	<p>Undergraduate Student Researcher 2009–2012</p> <ul style="list-style-type: none"> <li>• Lab: <a href="#">Coimbra Group</a></li> <li>• Location: University of California, Merced</li> <li>• Deployed high-fidelity irradiance and weather instrumentation across California and Washington</li> <li>• Tested long term degradation of anti-dust glass coating for solar panels</li> <li>• Analyzed animal flight data to determine underlying aerodynamic trends</li> </ul>
	<p>Undergraduate Student Researcher 2008–2009</p> <ul style="list-style-type: none"> <li>• <a href="#">Hirst Group</a></li> <li>• Location: University of California, Merced</li> <li>• Investigated phase separation in lipid tubules</li> </ul>
	<p>Lab assistant 2007–2008</p> <ul style="list-style-type: none"> <li>• Lab: <a href="#">MEMS Lab</a></li> <li>• Location: University of California, Santa Cruz</li> <li>• Developed prototype printable RF-ID tag for tracking of dragonflies</li> <li>• Trained undergraduates to continue printable RF-ID tag research</li> </ul>
PROFESSIONAL MEMBERSHIPS	<p><a href="#">American Society of Mechanical Engineers</a> (ASME), Member, 2009–present</p> <p><a href="#">Engineers for a Sustainable World</a> (ESW), Member, 2011–present</p>
HARDWARE AND SOFTWARE SKILLS	<p>Computer Programming:</p> <ul style="list-style-type: none"> <li>• MATLAB, Mathematica, Python, PHP, MySQL, Unix shell scripting, Ruby</li> </ul> <p>Version Control and Software Configuration Management:</p> <ul style="list-style-type: none"> <li>• Distributed Revision Control Systems (Git)</li> </ul> <p>Computer Aided Design (CAD):</p> <ul style="list-style-type: none"> <li>• Pro/ENGINEER, Autodesk Inventor</li> </ul> <p>Multi-Physics Simulations:</p> <ul style="list-style-type: none"> <li>• Pro/ENGINEER Mechanical, COMSOL, Autodesk Multiphysics Simulation</li> </ul> <p>Prototyping Tools</p> <ul style="list-style-type: none"> <li>• Computer Numerical Control (CNC) and manual mill, lathe, and drill press machining</li> <li>• 3D printing using a <a href="#">ZCorp ZPrinter 650</a></li> </ul>

Irradiance and Weather Instrumentation:

- [Yankee Environmental Systems](#) (YES) Multi-Filter Rotating Shadowband (MFR-7) and Total Sky Image (TSI-880)
- [Eppley Laboratory](#) Precision Spectral Pyranometer (PSP), Normal Incidence Pyrheliometer (NIP), Precision Infrared Radiometer (PIR), Total Ultraviolet Radiometer (TUVR), and Automatic Solar Tracker (SMT-3)
- [Campbell Scientific](#) CR1000 Data Logger
- [Irradiance, Inc.](#) Rotating Shadowband Radionometer (RSR2)
- [Vaisala](#) Weather Transmitter (WXT520)

Particle Image Velocimetry:

- [LaVision DaVis](#) image software, high speed cameras, q-switched lasers, wind tunnels

Information/Internet Technology:

- Networking (UDP, TCP), Services (Apache, SQL, POP, IMAP, SMTP)

Productivity Applications:

- $\text{\TeX}$  ( $\text{\LaTeX}$ ,  $\text{\BibTeX}$ ), Vim, most common productivity packages (for Mac OS X, Windows, and Linux platforms)

Operating Systems:

- Mac OS X, Windows, Linux

AWARDS

[Innovate to Grow Competition](#)

May 2012

- 1st Place (tied) People's Choice
- Entry Title: Harvesting Energy from Irrigation Canals
- Team Members: David Larson, Daniel Leong, Steven Fleming, Samuel 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
- Award Amount: \$1000

[ASME Old Guard Oral Presentation Competition](#)

Apr 2012

- 5th Place, District D
- Entry Title: Distributed Computing for Open Access Solar Forecasting

[University of California, Merced](#)

- Dean's Undergraduate Research Scholar, 2008–2009
- 2nd Place Service Learning Final Presentation, Dec 2009
- 1st Place Service Learning Final Presentation, May 2009

- 1st Place Service Learning Final Presentation, Dec 2008