David P. Larson

Contact Information

Graduate Researcher
Department of Mechanical and Aerospace Engineering
University of California, San Diego
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Research Interests

Evolutionary methods: genetic algorithms, fluid mechanics of biological locomotion, bio-inspiration, shape optimization

Fractional and variable order methods: non-integer order calculus

Nonlinear chaos dynamics:

Education

University of California, San Diego, La Jolla, CA

Ph.D., Mechnical and Aerospace Engineering, June 2012–present

- Adviser: Professor Carlos F.M. Coimbra
- Area of Study: Fluid Mechanics

University of California, Merced, Merced, CA

B.S., Mechanical Engineering, August 2008–May 2012

- Fluid Mechanics specialization

Professional Memberships

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

Engineers for a Sustainable World (ESW), Member, 2011–present

Service

Recent contributor to several open-source software projects, including:

- Vim-LaTeX suite
- Vimperator and Pentadactyl Firefox extensions
- Git distributed version control system
- Mercurial distributed version control system
- Personal projects archived at `http://hg.tedpavlic.com/`

Hardware and Software Skills

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)

Computer Programming:
- MATLAB, Mathematica, Python, PHP, MySQL, Unix shell scripting, Ruby

Version Control and Software Configuration Management:
- Distributed Revision Control Systems (Git)

MATLAB skill set:
- Linear algebra, Fourier transforms, Monte Carlo analysis, nonlinear numerical methods, polynomials, statistics, N-dimensional filters, visualization
- Toolboxes: genetic algorithm and direct search, signal processing, system identification

Computer Aided Design (CAD):
- Pro/ENGINEER, Autodesk Inventor

Multi-Physics Simulations:
- Pro/ENGINEER Mechanica, COMSOL, Autodesk Multiphysics Simulation

Information/Internet Technology:
- Networking (UDP, TCP), Services (Apache, SQL, POP, IMAP, SMTP)

Productivity Applications:
- TEX (LATEX, BIBTEX), Vim

Operating Systems:
- Mac OS X, Windows, Linux

EXPERTISE

Mathematics:
- Fractional and Variable Order Calculus, Numerical Methods

Fluid Mechanics:
- Biological Locomotion, Particle Image Velocimetry (PIV)

AWARDS

National Science Foundation
- GK-12 Fellowship, 2006–2007
- Graduate Research Fellowship Honorable Mention, 2005

The Ohio State University
- Dean's Distinguished University Fellowship, 2004–2010
- Electrical and Computer Engineering Bradshaw Scholarship, 2002–2004
- Electrical and Computer Engineering Shafstall Scholarship, 2001–2003
- University Scholarship, 1999–2003