



Robert Daniel Love



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QUALIFICATIONS

- **Ph.D. Aerospace Engineering**, University of Florida (2011)
- **M.S. Aerospace Engineering**, University of Florida, (2009), GPA: 3.25, **GRE**: Quant/Qual: 740/600
- **B.S. Aerospace, Materials Engineering**, Auburn University, (2007), Magna Cum Laude, GPA:3.61
- **High School**, Episcopal High School, GPA: 4.06, **SAT**: Math/Verbal: 760/660
- Active DoD Secret Clearance: Started: 7/2014

INTERESTS

Aircraft Design, Aeroservoelasticity, Structures, System Identification, Control, Adaptive Materials, Robotics, Computer Vision, Signal Processing, Composites, Actuators, Sensors, Nanostructures

EXPERIENCE

- **Airframe Design Engineer**, *General Atomics-Aeronautical Systems Inc.* (10/11-Present)
Aircraft configuration/structural design, Composite structure/tooling design, Ground support equipment, Computer aided design/Finite element analysis (FEA), 2D/3D Computational fluid dynamics (CFD), Business development
- **Graduate Research Assistant**, *Flight Control Lab, University of Florida* (5/07-8/11)
AFOSR MURI: "Biologically-Inspired Anisotropic Flexible Wing for Optimal Flapping Flight"
- System identification/control for flexible flapping and morphing wings
AVID Aerospace: Aeroservoelastic model validation for design codes
System Dynamics International: Phase II SBIR: "Controlling Micro Air Vehicles and Micro Munitions with Macro Fiber Composite Piezoelectric Actuators": Actuator characterization
- **Technical Intern**, *F-2 Program, Lockheed Martin Aeronautics* (5/06-8/06)
Rotation of Materials & Process, Manufacturing, Quality and Design Engineering
- Reviewed leading edge composite spar layup process, proposal to save 6 hr/spar, drill alignment mechanism design sketches, fastener statistical process control
- **Research Assistant**, *Materials Engineering Labs, Auburn University* (1/03-5/06)
DOE-INEEL: "Joining of Ferritic Oxide Dispersion Strengthened Steels"
- Sample manufacture, metallography, heat treatment, bonding, creep testing
GammaMetPX: Sample manufacture, metallography, high temp. tensile/oxidation tests
NASA Glenn/Boeing Rocketdyne: "Materials for Nuclear Electric Propulsion"
- Compiled superalloy property database, shear testing
AFRL: "Biomimetic Underground Payload Emplacement": Metrics for Fossorial Organisms
NASA GRC: "Transient Liquid Phase Bonding of Sheet TiAl Alloys"
- Hot-stage light microscopy wettability studies with image analysis
- **Research Assistant**, *Adaptive Aerostructures Lab, Auburn University* (8/04-5/05)
"Pitch Divergence Suppression of a Subscale Wing in Ground Effect (WIG) Aircraft"
- Manufacture/test WIG aircraft with pitch divergence suppression system
- **Counselor**, *Kanakuk Kamps* (5/04-7/04), **Tennis Teaching Assistant**, *Myrtle Beach Tennis Center* (6/03-7/03), **Dental Assistant**, *William L. Love D.D.S.* (5/00-8/00, 5/01-8/01, 5/02-8/02)

COMPUTER/LANGUAGE SKILLS

- Programming: Matlab/Simulink, Python, Java, C (AVR Studio), Fortran
- Software: Creo/Pro-Engineer/Mechanica/Mechanism/Simulate/Windchill, RDSwin, Digital DATCOM, XFLR5, XFOIL, Altair: Hypermesh, Acusolve, Acuconsole, Solid Edge, Solid Works, AutoCAD, Nastran/Patran, ImagePro, Maya/MotionBuilder





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PROFESSIONAL DEVELOPMENT/CONTINUING EDUCATION

- Aircraft Conceptual Design, Daniel Raymer, 10/20-24/2014
- Altair Engineering: Introduction to AcuSolve/AcuConsole, Stuart Walker, 1/27-29/2014
- Kansas University: Airplane Preliminary Design, Willem Anemaat, 11/11-15/13
- Kansas University: Aircraft Performance, Jan Roskam/Mario Asselin, 1-6/1-30/13
- Kansas University: Structural Composites, Max Kismarton, 9/17-21/12

EXPERIMENTAL TEST EXPERIENCE

- **Ground Vibration/Modal Test:** *Laser Doppler Vibrometry* (Membrane, Hobby RC aircraft wings, Piezoelectric unimorph, Aluminum, Carbon-Fiber beam, Rocket), *Impact Hammer/Accelerometer*
- **Geometry/Deflection Test:** *Digital Image Correlation* (Membrane wings, Electro-active polymer)
- **Mechanical Properties Test:** High Temperature Tensile/Creep/Fatigue Machines, Nanoindenter
- **Material/Failure Test:** Scanning Electron Microscope, X-Ray Diffraction, Metallography

FABRICATION EXPERIENCE

- *Mechanical:* Composite Layup/Cure, High Temperature Heat Treatment and Joining (Under Vacuum/Inert Gas), MIG/Arc Welding, CNC Electric Discharge Machining, Injection Molding, 3D Printing, CNC Shop Machines (Drill press, Lathe, Mill, Band saw, Belt sander)
- *Electrical:* Microprocessor and Printed Circuit Board Debugging/Programming, Soldering

JOURNAL PUBLICATIONS

- **Love, R. D.** and Lind, R. "Experimentally-Based Aeroservoelastic System Identification of Flexible Flapping Wings", In Preparation, *AIAA Journal of Aircraft*
- **Love, R. D.** and Lind, R. "Time-Frequency Analysis of Aeroelastic Deformations of Flapping Wings", *International Journal of Micro Aerial Vehicles*, vol. 3, pp. 89-100, 2011
- Aluru, R., Gale, W. F., Chitti, S.V., Sofyan, N.I., **Love, R. D.**, and Fergus, J.W., "Transient Liquid Phase Bonding of Dissimilar Nickel-Base Superalloys - Wettability, Microstructure and Mechanical Properties", *Materials Science and Technology*, vol. 24, pp. 517-528, 2008

CONFERENCE/OTHER PUBLICATIONS

- **Love, R.** and Lind, R. "Experimentally-Based Aeroservoelastic System Identification and Feedforward Control of Flexible Flapping Wings", **Invited Paper**, *AIAA Atmospheric Flight Mechanics Conference*, 2010
- **Love, R.**, Arroyo, A. and Schwartz, E., "Solar Ray: An Autonomous Solar-Powered Biomimetic Flapping-Wing Underwater Vehicle", *Florida Conference for Recent Advances in Robotics*, 2010
- **Love, R.** and Lind, R., "Identification of Aeroservoelastic Models from Experimental Flapping-Wing Deflections," **Invited Paper**, *AIAA Atmospheric Flight Mechanics Conference*, 2009
- **Love, R.**, "Analysis of Aeroelastic Flapping-Wing Signals for Micro Air-Vehicles," *Masters' Thesis*, University of Florida, 2009
- Wu, P., Ifju, P., Stanford, B., Sallstrom, E., Ukeiley, L., **Love, R.**, and Lind, R., "An Experimental Study on Flapping Wing Aeroelasticity in Thrust Production," *AIAA Structures, Structural Dynamics and Materials Conference*, 2009
- **Love, R.**, Lind, R., Wu, P., and Ifju, P., "Time-Frequency Analysis of Aeroelastic Deformations of Flapping Wings," *AIAA Aerospace Sciences Meeting*, 2009
- **Love, R.** and Lind, R., "Time-Frequency Analysis of Aeroelastic Deformations of Flapping Wings," *AIAA Graduate Student Conference*, Melbourne, FL, 2008
- **Love, R.D.**, "Pitch Divergence Suppression of a Subscale Wing in Ground Effect (WIG) Aircraft", *AIAA Student Conference*, Gainesville, FL, 2005
- Aluru, R., Chitti, S.V., Sofyan, N.I., Krishnardula, V.G., **Love, R.D.**, and Gale, W.F., "Diffusion Brazing of Dissimilar Nickel-Base Superalloys: Microstructure, Wettability and Mechanical Properties", *35th International Brazing and Soldering Conference*, 2005