

# ROBERTO ALBERTANI

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## EDUCATION

- Ph.D., Mechanical and Aerospace Engineering Department, University of Florida, 2002-2005.  
Thesis: *Experimental Aerodynamic and Static Elastic Deformation Characterization of Low Aspect Ratio Flexible Wings applied to Micro Aerial Vehicles*. Advisor: Prof. Peter Ifju.
- MS in Aeronautical Engineering at the Polytechnic University of Milan, Italy, 1976-1980.  
Thesis: *Experimental Characterization of the Turbulence in a Diesel Engine Combustion Chamber*. Advisor: Prof. Umberto Ghezzi.
- Technical high school diploma in Aeronautical Manufacturing and Design, Milan, Italy, 1975.  
Senior Project: Construction of a high performance glider.

## PROFESSIONAL EXPERIENCE

March 2013 to present.

- Appointed *State of Oregon representative* for the American Institute for Aeronautics and Astronautics (AIAA)

July 2011 to present.

- *Associate Professor*, Design/Mechanics, School of Mechanical, Industrial and Manufacturing Engineering, Oregon State University. Corvallis, OR.

December 2010 to June 2011.

- Research *Associate Professor*, School of Mechanical, Industrial and Manufacturing Engineering, Oregon State University, Corvallis, OR.

2007 to December 2010.

- *Affiliate Research Assistant Professor*, University of Florida REEF, Department of Mechanical and Aerospace Engineering.
- *Adjunct Assistant Professor*, University of West Florida, Electrical and Computer Eng. Dept.
  - Teaching and mentoring students at graduate and undergraduate levels.
  - Research areas cover aerodynamics and propulsion at low Reynolds number, experimental aeroelasticity for Micro Air Vehicles (MAV), fluid-structure interactions at low Re numbers, controls characterization of UAV in wind tunnel, biological flight, bio-inspired flight vehicles and wind energy.
  - Managing and working on several research grants.

2006-2007.

- *Visiting Professor*, University of Florida REEF, Department of Mechanical and Aerospace Engineering.
  - Duties included teaching, setting up the new Aerodynamic and Structural Characterization lab with a new low turbulence wind tunnel and instrumentation for tests on MAV.

2002-2005.

- *Research Assistant*, Department of Mechanical and Aerospace Engineering, University of Florida.
  - Performed the calibration of a six component micro sting balance for wind tunnel test.
  - Set up of a MAV experimental facility at the existing low turbulence wind tunnel.
  - Set up of a non-intrusive experimental structural analysis based on digital image correlation.

1999-2002.

- *Technical consultant*, Pino Meroni Interiors USA and Van Cappellen USA.
  - Responsible for the sales and installation of high quality composite interiors for luxury yachts in USA.
  - Responsible for the acoustic emissions estimates and treatment design and installation on luxury yachts in USA.
  - Appointed Acting Manager of Engineering at the headquarters in Italy, to assist the organization of the new technical department.

Title	Role	Agency	(\$)	Years
Wind Tunnel Propulsion Characterization for Micro Munitions	PI	AFRL/MNAV	4192	2007
Dynamics of Biologically Inspired Flight of Insects	PI	AFRL/MNGN	104416	2007
Experimental Flight of Insects and Biologically Inspired Vehicles	PI	AFRL/RWGN	104944	2008
Low-speed Wind Tunnel Testing on a Perching Micro Aerial Vehicle	PI	AFRL/RBSA	23166	2008
Experimental Mechanics Procedures for Flexible MAV Structures	PI	AFRL/RBSD	31992	2008
Micro Munition Adaptive Structure Flight Control Technology	PI	SBIR Ph. 1	10000	2008
Damping of Micro Flexible Structures with Elastic Membranes	PI	AFO SR	120119	2009-10
Mechanics and Control Models for Biologically Inspired MAV	PI	AFRL/RWG	105000	2009-10
Micro Munition Adaptive Structure Flight Control Technology	PI	SBIR Ph. 2	50000	2010-12
Design and Control of MAV Using Biomimetic Principles	PI	STTR Ph. 2	119995	2010-12
Technology for Dynamic Characterization of MAVs	PI	SBIR Ph.1	33144	2010-12
Experimental Characterization of Aeroelastic Wings for MAVs	PI	AFRL/RWAV	49866	2010-12
Micro Membrane-Wing Tip Vorticity Estimation using Active Materials	PI	AFO SR	150000	2010-12
A Unique Testbed for the Simulation of Flexible Micro Air Vehicles	PI	US DoD	367217	2011-12
Remote Monitoring of Avian and Bat Interactions with Offshore Renewable Energy	co/PI	US DoE	134651	2011-14
Wing-vortex estimation on wings in unsteady and transitional flight conditions	PI	Politecnico, Italy	157021	2013-15
Hydraulic Turbine with Composite with Natural and Recycled Fiber Reinforcement	PI	Hydro Res. Found	Fellowship	2012-13
Composites Design for Tethered Mooring Power Transmission Cable	PI	DoE	60000	2012-13

1997-1999.

*Director of Engineering*, Tencara Advanced Composites, Montedison Group, Venice, Italy.

- Developed **production methodologies** for sailboats using high-technology composites materials
- Developed the **design and manufacturing** for high speed trains body parts, helicopters components and Ferrari and Lamborghini cars parts.
- Technical assistance in proposals for new products using composites materials.
- Teaching graduate level seminars at the University of Modena in composites design and manufacturing techniques.

1994-1997.

*Director of Engineering*, Intermarine USA, Montedison Group, Savannah, GA, USA.

- Production support of Mine Hunters 850 tons **fiberglass ships** for the US Navy fleet.
- Design and production of high speed **composites Rigid Inflatable Boat (RIB)** for the US Special Operations Command (SOCOMM).
- Developed production drawings and assisted the production of **composites luxury Megayachts**.
- Technical assistance in proposals for new projects including large wind turbine blades, components for US Navy submarines, modular barge system for US Army and High Speed Patrol Boat for a joint program with US and Turkish Navy.
- Technical assistance to the US Navy for live explosion test on an instrumented ship at the Aberdeen US Army Proving Ground in Maryland.

1995-1996

- Member of the Italian Sailing Team for the **1996 Olympic Games** in Atlanta as technical support for the training base in Savannah, GA, USA.

1992-1994.

*Project Manager*, Tencara Advanced Composites, Montedison Group, Venice, Italy.

- Construction of fast sailboats (Tag Heuer, Orsa Maggiore).
- Design and production development for large wind turbine blades.
- Head of the structural tests on composites parts at the Stress Analysis Laboratory.
- Coordinator for the dismissing of the America's Cup company base in San Diego, CA.

1989-1992.

*Head of the Performance Group*, IL MORO DI VENEZIA USA Inc., **Italian Challenger for the 28th America's Cup**, Montedison Group.

- Assistant to the technical coordinator for special projects.
- Towing tank tests program coordinator, water tunnel boundary layer tests coordinator.
- Development of the on board electronics and sea trials data acquisition system and post processing.

- Scientific coordination of the sea trials during the campaigns in Venice (Italy), Palma di Maiorca (Spain) and San Diego (CA, USA) performing experiments design and analysis for speed tests, structural tests and racing evaluations.
- Technical liaison between the design team led by German Frers in Italy and the sailing team led by the skipper Paul Cayard.

1986-1989.

*Technical Manager*, Axial/Eneo, Milan, Italy, Lugano, Switzerland, Fort Worth, TX, Palm Springs, CA, USA.

- Developed a series of large axial industrial fans.
- Installation, testing and design optimization of large horizontal axis wind turbines.
- Developed an international sales program for axial fans.

1981-1986.

*Senior Aerodynamics of Propulsion Engineer*, Technical Department, Aermacchi Aerospace SPA, Varese, Italy.

- Design and full scale testing of jet engine air inlet for military aircraft.
- Transonic wind tunnel tests of air inlet and afterbody for military aircraft.
- Aircraft and engine intensive flight tests data analysis.
- Assigned to the Applied Aerodynamic Office of the research and Development Department.
- Design and tests of aircraft systems including split flaps and smoke generation for the Italian Air Force Aerobatic Team.
- Technical support to the 1987 America's Cup team *Italia* developing computer codes to predict sails deformation.
- Design of the oil cooling system of a company vintage aircraft in collaboration with Ferrari.
- Subsonic wind tunnel tests for engine-gun interference on military aircraft.

#### **ACTIVITIES RELATED TO GRANTS AND PROPOSALS**

- PI in grants for a total of \$ 906,455 (see Table above).
- Co-writer of the proposal "Anisotropic Flexible Flapping Wing Flight with Minimal Power Consumption," BAA 06-028, Topic #17 on Biologically Inspired Flight for Micro Air Vehicles.
- Team member in AFOSR grant/DURIP on Rapid Prototyping, Aerodynamic Characterization & Hardware in the Loop Simulation for Small Autonomous Vehicles.
- Co-writer of a University of Florida proposal to DARPA for a nano air vehicle (NAV) in 2005.
- Performed active project management in commercial and DoD contracts.
- Directed the Engineering Department involved in commercial projects (15 M\$, 3 years) and DoD specifications projects (US Navy, SOCOMM and US Army) for approximately \$ 12 billions from 1987 to 1997.
- Involved in writing proposal for private customers and DoD of three countries (US, Italy and Turkey).
- Attended as Technical Director to monthly technical and production review meetings with US Navy.

#### **POST-GRADUATE COURSES and SUMMER PROGRAMS**

- Wright-Patterson AFB, Dayton, OH Summer Faculty program, Summer 2010.
- AIAA Professional Course on Aircraft and Rotorcraft System Identification, Hilton Head, SC, 2007.
- Seminar on "JMP for Design of Experiments: Empowering the Practitioner", instructor Dr. D. Montgomery, GA Tech, April 2007.
- AIAA Professional Course on Modern Design of Experiment, San Francisco, 2006.
- Certificate of Completion of Graduate Assistant Teaching with Technology Program, The Graduate School and Office of Academic Technology, University of Florida, 2004.
- Labview basic and advanced course at National Instruments Inc., Melbourne, FL, 2003.
- Course on Project Management, Montedison Corporation, Italy and Spain, 1990.
- Course on Aerodynamics of Propulsion, ONERA, France Space Agency, Toulouse, 1983.
- Lecture series on Numerical Methods for Flows in Turbomachinery Bladings, Von Karman Institute for Fluid Dynamics, Bruxelles, Belgium, 1982.

#### **TEACHING AND LECTURES**

- School of Mechanical, Industrial and Manufacturing Engineering, Oregon State University.
  - ME499, Introduction to Aerospace Engineering, **NEW** class, coordinator and co-Instructor
  - ME 583, Composite Materials, Instructor
  - ME 497/498, Capstone Design, Design/Build & Fly, Faculty Advisor
  - ME 420/520, Applied Elasticity, Instructor
  - ME 317, Intermediate Dynamics, Instructor

- ME 406, Special Project Class, Aerodynamic Design, Instructor.
- MFGE 438/538 Composites Manufacturing, **NEW** class, Instructor.
- ME 451 Introduction to Instrumentation and Measurement Systems, Instructor.
- ME 405 Independent Study, Aerodynamic Design, **NEW** class, Instructor.

• University of Florida (UFL) and University of West Florida (UWF).

Lecturer in the following classes:

- EML 5714 Intro to Compressible Flow, Fall 2006.
- EAS 4200 Aerospace Structures, Fall 2006.
- EML 4920 Professional Development, Fall 2006.
- EAS 4700 Aerospace Design 1, Fall 2006.

Instructor or Mentor:

- EGM 2500, Engineering Mechanics Statics, UWF, Fall 2010, instructor.
- EGN 4411, UWF: Energy Consumption Optimization of a Wind tunnel, UWF, Senior Project, Fall 2009 / Spring 2010, mentor.
- EAS 6905 Design and Experimental Validation of a Multi-Component Micro-Force Balance, UFL, Individual Study Class, Fall 09, instructor.
- EEL 4930 Experimental Methods for Engineering and Science, new class, Spring 2009, UWF, instructor.
- EGM 6905 Response Surface Methods (RSM) and Bio-inspired Optimization Techniques, UFL, Independent Study Class, Spring 09, instructor.
- EGN 4411, UWF/UFL: Hardware in the Loop Simulation Applied to an UAV in the Wind tunnel, UWF, independent study class, Spring 2008, mentor.
- EAS 6939 Special Topics in Aerospace Engineering: Experimental Dynamic Structural Response of Micro Air Vehicle Wings, UFL, Summer 2007, instructor (4.88 average evaluation score).
- EAS 6939 Special Topics in Aerospace Engineering: Wind Tunnel Free Flight Technique Applied to Micro Air Vehicles, UFL, Summer 2007, instructor.
- EAS 6939 Ground Testing on air vehicles: Structural, Aerodynamic, Propulsion and Data Management Considerations, UFL, Spring 2007, instructor, UFL.

## **STUDENT ADVISING / MENTORING**

- School of Mechanical, Industrial and Manufacturing Engineering, Oregon State University
  - Andrew Miller, Master Student, 2013-15
  - Joshua Wilcox, Master Student, 2013-15
  - Joshua Wilcox, Undergraduate Honor College Thesis, 2013
  - Ina Betz, Master visiting student from Technische Universität Kaiserslautern, Germany, 2012
  - Jeremy Flowers, Master student, 2012-14
  - Marc Whitehead, Master student, 2012-13
  - Brian Hrywnak, Master student, 2011-12
  - Trenton Carpenter, PhD student, 2011-13
  - Tyler Wilson, Master student, 2011-12
  - Cody Ray, Co-Advisor, PhD, 2011, 12.
  - Jasmine Chuang, Master student, Co-Advisor, 2011, 12.
  - Victor Dang, Undergraduate student, 2012.
  - Sean Vanhatten, Undergraduate student, Physics.
  - Brian Hrywnak, Jeff Delany, Composites Lab Team, Mentor, 2011.
- University of Florida (UFL) and University of West Florida (UWF)
  - Sarah Witt, graduate student and OPS, University of Florida, 2010.
  - Matt Goettl, undergraduate engineering, University of West Florida, OPS University of Florida, 2010-2011.
  - Boris Bataille, PhD committee member, thesis title “Conception de Microdrone a Voilure Fixe Capable de Vol Stationnaire et de Vol rapide”, Ecole Nationale Supérieure de l’Aéronautique et l’Espace (SUPAERO), Toulouse, France, 2009.
  - Michael Sytsma, PhD Committee Co-Chair, UFL, 2009-2010.
  - Adam Fralic, Joshua Martin, Senior Design Project “Wind Tunnel Power Consumption Optimization”, Electrical and Computer Engineering, University of West Florida, 2009-10.
  - Tullan Bennet, Jayme Broadwater, Senior Design Project “Hardware in the Loop Simulation Applied to an Unmanned Aerial Vehicle (UAV) in a Wind Tunnel”, Electrical and Computer Engineering, University of West Florida, 2007-09.

- Bret Stanford, special committee member, PhD thesis on “Highly Flexible Micro Air Vehicle Wings: Modeling, Experimental Characterization and Optimization“, University of Florida 2006-2008.
- Frank Boria, special committee member, Master thesis on “Morphing Wings Optimization”, University of Florida, July 2007.
- Chinnapat Thipyopas, PhD committee member, thesis title “Optimisation Aerodynamique de Configurations de Micro-Drones a Voilure Fixe: effet biplan, voilure souple et interaction aeropropulsive”, Ecole Nationale Supérieure de l’Aeronautique et l’Espace (SUPAERO), Toulouse, France, June 2007.
- James Davis, special committee member, Master thesis on “Measurement of Flexible Wing Deformations in Flight“, University of Florida, Fall 2006.

## INVITED PRESENTATIONS AND WORKSHOPS

- Albertani, R., Ray, C., Batten, B., “Tip Vorticity and Membrane-Strain Analysis on a MAV Elliptical Pliant Membrane-Wing,” Presented at the *6th AIAA Theoretical Fluid Mechanics Conference*, Honolulu, Hawaii, June 27-30, 2011.
- “Conceptual Design of a Dual-Wing 3-DOF Flapping Test Rig,” Summer Research Fellowship Program, Wright-Patterson AFB, Dayton, OH, July 23, 2010.
- “Unsteady Aerodynamics & Aeroelastic Analysis of Fluid-Structures Interactions in MAV and Biological Flyers,” Winter Seminar Series, Mechanical Industrial Manufacturing Engineering Department, Oregon State University, Corvallis, Oregon, April 23rd, 2010.
- Albertani, R., “Experimental Estimation of the Rotary Damping Coefficients of Micro Air Vehicles Pliant Wings,” Presented at the *Application of High-Performance Computing to Study and Design of Micro Air Vehicles (MAVs) Workshop*, Wright Patterson AFB, Ohio, February 18-19, 2010.
- Albertani, R., Martin, J., “Damping of Microflexible Structures with Elastic Membrane”, Poster Session for 2009 Structural Mechanics Grantees/Contractors Meeting, Air Force Office for Scientific Research, Dayton, Ohio, July 27-28, 2009.
- Summer Invited Faculty, Aerodynamic and Propulsion Department, Institute Supérieure de l’Aeronautique et de l’Espace, Toulouse, France, 2009.
- Panel member on a NATO/RTO Exploratory Team (ET-098) entitled “Characterization of Bio-Inspired Micro Air Vehicle Dynamics”.
- Co-organizer of the 2<sup>nd</sup> NWF MAV08 Workshop, UFL-REEF, Shalimar, May 27-29, 2008.
- Seminar on “Aeroelastic and Aerodynamic Experimental Characterization of Micro Aerial Vehicles at the University of Florida REEF”, Ecole Nationale Supérieure de l’Aeronautique et l’Espace (SUPAERO), Toulouse, France, June 2007.
- Co-organizer and point of contact for academia for the “North West Florida MAV Workshop and Flight Demo 2007”, REEF, Shalimar and Eglin AFB, Florida.
- Presentation of “Aerodynamic and Structural Tests on Micro Air Vehicles with Flexible Wings,” MAV-06 2<sup>nd</sup> US-European Competition Workshop on MAVs, Sandestin, FL, Oct 30 – Nov 2<sup>nd</sup>, 2006
- Presentation “Sailing the America’s Cup: the Race and the Technology,” North West Florida AIAA Event, Fort Walton Beach, FL, October 28, 2006.
- Presentation “Wind Tunnel Database Development and Nonlinear Modeling Applied to Powered Micro Aerial Vehicles with Flexible Wing,” *AIAA Atmospheric Flight Mechanics Conference*, Keystone, CO, August 21-24, 2006.
- Graduate level seminar “Micro Air Vehicles Research at the University of Florida,” Polytechnic University of Milan, Italy, Spring 2004 and 2005.
- Graduate level seminar “Technical and Fabrication Challenges of Advanced Composites,” Graduate School for Engineering and Management of Modena, Italy, 1997/98.
- General audience seminar “Racing Sailing,” Natural Science Museum, Tybee Island, GA, 1996.
- A series of five seminars on “Composites Yachts Design and Building,” Savannah College of Art and Design (SCAD), 1995.

## PATENTS

- U.S. Utility Patent Application No. 10/731,777 for "Bendable Wing for Micro Air Vehicle"
- U.S. Utility Patent Application for “A Wing’s Design with Gust-Alleviating Properties and High Angle of Attack Flying Capabilities”.

## BOOKS

- Mueller, T. J., Kellogg, J.C., Ifju, P.I., Shkarayev, S. V., *Introduction to the design of fixed-wing micro air vehicles*, AIAA Education Series, Reston, VA, 2006. Co-author of the chapter “Flexible Wing Micro Air Vehicles”.

## REFEREED JOURNAL PUBLICATIONS

- Stanford, B., Albertani, R., Parker, G., Walker, R., Curtis, D., “Proper Orthogonal Decomposition of Flexible Clap and Fling Motions via High-Speed Deformation Measurements,” Accepted for publication, *Journal of the Society of Experimental Mechanics*, December 2012.
- Chakravarty, U. K., Albertani, R., “Experimental and Finite Element Modal Analysis of a Pliant Elastic Membrane for Micro Air Vehicles Applications,” *ASME Journal of Applied Mechanics*, Vol. 79, 021004, 2012.
- Chakravarty, U. K., Albertani, R., “Modal Analysis of a Flexible Membrane Wing of Micro Air Vehicles,” *AIAA Journal of Aircraft*, Vol. 48, No. 6, pp. 1960-1982, November-December 2011.
- Babcock, J., Albertani, R., Abate, G., “Experimental Estimation of the Rotary Damping Coefficients of a Micro Air Vehicle Pliant-Wing,” accepted, *AIAA Journal of Aircraft*, October 2011.
- Chakravarty, U. K., Albertani, R., “Energy absorption behavior of a hyperelastic membrane for micro air vehicles wings: experimental and finite element approaches,” *International Journal of Micro Air Vehicles*, Vol. 3, No. 1, pp. 13-23, March 2011.
- Liu, Z., Albertani, R., Moschetta, J. M., Thipyopas, C., Xu, M., “Evaluation of Nano Coaxial Rotors in Hover with a High-Accuracy Five-Component Balance,” accepted for publication, *AIAA Journal of Aircraft*, Vol. 48, No. 1, pp. 220-229, January-February 2011.
- Jagdale, V., Ifju, P., Stanford, B., Albertani, R., “A Bendable Load Stiffened Wing for Small UAVs,” *International Journal of Micro Air Vehicles*, Volume 2, Number 4, pp. 239-253, December 2010, Multi-Science Publishing, ISSN 1756-8293.
- Reich, G. W., Eastep, F. E., Altman, A., Albertani, R., “Transient Post-Stall Aerodynamic Modeling for Extreme Maneuvers in MAVs,” accepted for publication, *AIAA Journal of Aircraft*, June 2010.
- Albertani, R., “A Wind Tunnel Study of Gurney Flaps applied to a Micro Aerial Vehicle,” *AIAA Journal*, Vol. 46, No. 6, pp. 1560-1562, June 2008.
- Albertani, R., DeLoach, R., Stanford, B., Hubner, J. P., Ifju, P., “Wind Tunnel Testing and Nonlinear Modeling Applied to Powered Micro Air Vehicles with Flexible Wings,” *AIAA Journal of Aircraft*, Vol. 45, No. 3, pp. 1025-1032, May-June 2008.
- Stanford, B., Ifju, P.G., Albertani, R., Shyy, W., “Fixed membrane wings for micro air vehicles: Experimental characterization, numerical modeling, and tailoring,” *Progress in Aerospace Sciences*, Vol. 44, pp. 258–294, 2008 Elsevier Ltd.
- Stanford, B., Sytsma, M., Albertani, R., Viieru, D., Shyy, W., Ifju, P.G., “Static Aeroelastic Model Validation of Membrane Micro Air Vehicles Wing,” *AIAA Journal*, Vol. 45, No. 12, pp. 2828-2837, December 2007.
- Albertani, R., Stanford, B., Hubner, J. P., and Ifju, P., “Aerodynamic Coefficients and Deformation Measurements on Flexible Micro Air Vehicle Wings,” *SEM Journal*, Vol. 47, No. 5, pp. 625-635, February 2007.
- Stanford, B., Albertani, R., Ifju, P.G., “Static Finite Element Validation of a Flexible Micro Air Vehicle,” *SEM Journal*, Vol. 47, No. 2, pp. 283-294, January 2007.
- Albertani, R., Hubner, P., Ifju, P., Lind, R. and Jackowski J., “Wind Tunnel Testing of Micro Air Vehicles at Low Reynolds Numbers,” *SAE 2004 Transactions: Journal of Aerospace*, Vol. 113, No. 1, pp. 1474-1486, 2005.
- Viieru, D., Albertani, R., Shyy, W., Ifju, P.G., “Effect of Tip Vortex on Wing Aerodynamics of Micro Air Vehicles,” *AIAA Journal of Aircraft*, Vol. 42, No. 6, pp. 1530-1536, June 2005.

## CONFERENCE PUBLICATIONS and PRESENTATIONS

- Whitehead, M., Albertani, R., “Design and Manufacturing of Hydroelectric Turbines Components with Synthetic and Natural Fiber Reinforcement,” Poster at *Hydrovision International 2013* Conference, Denver, CO, July 23-26, 2013.
- Wilson, T., Albertani, R., “Wing-flapping and abdomen actuation optimization for hovering in the butterfly *Idea leuconoe*,” **FIRST PLACE** graduate student paper at the *AIAA Region VI Student Conference*, Salt Lake City, Utah, March 28-30, 2013.
- Carpenter, T., Albertani, R., “Aerodynamic Load Estimation: Pressure Distribution from Virtual Strain Sensors for a Pliant Membrane Wing,” *54<sup>th</sup> AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Boston, MA, April 8-11, 2013.
- Albertani, R., Goettl, M., Wilson, T., “A Wind Tunnel Investigation of Lepidopterae Flight in Cross-Wind Conditions” *51<sup>th</sup> AIAA Aerospace Sciences Meeting*, Grapevine (Dallas/Ft. Worth Region), Texas.

- Carpenter, T., Ray, C., Albertani, R., “Correlation of Structural Strain to Tip Vorticity and Lift for a MAV Pliant Membrane Wing,” *SEM XII International Congress & Exposition on Experimental and Applied Mechanics*, Costa Mesa, CA, June 11-14, 2012.
- Chuang, J., Ray, C., Albertani, R., “Material Characterization and Modal Analysis of Composite Plates via Digital Image Correlation,” *SAMPE 2012*, Baltimore, MD, May 21-24, 2012.
- Albertani, R., Hubel, T., Swartz, S. M., Breuer, K. S., Evers, J., “In-Flight Wing-Membrane Strain Measurements on Bats”, *2010 SEM Annual Conference & Exposition on Experimental and Applied Mechanics*, Indianapolis, Indiana, June 7 - 9, 2010.
- Chakravarty, U., Albertani, R., “Numerical and Experimental Modal Analysis for Micro Air Vehicles Pliant Wings”, *2010 SEM Annual Conference & Exposition on Experimental and Applied Mechanics*, Indianapolis, Indiana, June 7 - 9, 2010.
- Chakravarty, U., Albertani, R., “Experimental Modal Analysis of Pliant Wings for Micro Air Vehicles Applications,” *51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Orlando, FL, April 12-15, 2010.
- Chakravarthy, A., Albertani, R., Evers, J., “In-Flight Dynamically Adaptive Configurations: Lessons from Live *Lepidoptera*,” *18th AIAA/ASME/AHS Adaptive Structures Conference*, Orlando, FL, April 12-15, 2010.
- Curtis, D., Albertani, R., Stanford, B., Parker, G., Carr, R., Walker, R., Lacore, D., “High Speed Deformation Measurements of the Clap-Fling Motions of a Membrane Wing,” *48th AIAA Aerospace Sciences Meeting*, Orlando, FL, January, 2010.
- Shkarayev, S., Silin, D., Abate, G., Albertani, R., “Aerodynamics of Cambered Membrane Flapping Wings,” *48th AIAA Aerospace Sciences Meeting*, Orlando, FL, January, 2010.
- Babcock, J., Scheffer, R., Albertani, R., “Experimental Data for Micro Air Vehicles with Pliant Wings in Unsteady Conditions,” *27th AIAA Applied Aerodynamic and Atmospheric Flight Mechanics Conference*, Chicago, IL, August, 2009.
- Albertani, R., Chakravarthy, A., Gans, N., Evers, J., “Experimental Kinematics and Dynamics of Butterflies in Natural Flight,” *47th AIAA Aerospace Sciences Meeting*, Orlando, FL, 5-8 January, 2009.
- Hu, H., Abate, G., Albertani, R. “An Experimental Investigation on Flapping Flexible Membrane Wings,” *47th AIAA Aerospace Sciences Meeting*, Orlando, FL, 5-8 January, 2009.
- Albertani, R., Khambatta, P., Ukeily, L., Cattafesta, L., Oyarzun, M., Abate, G., “Validation of an Aerodynamic Characterization Facility,” *47th AIAA Aerospace Sciences Meeting*, Orlando, FL, 5-8 January, 2009.
- Reich, G. W., Wojnar, O., Albertani, R., “Aerodynamic Performance of a Notional Perching MAV Design,” *47th AIAA Aerospace Sciences Meeting*, Orlando, FL, 5-8 January, 2009.
- Gans, N., Chakravarthy, A., Albertani, R., “Experimental Analysis of Kinematics and Dynamics of Butterflies in Natural Flight,” Workshop on Visual Observation and Analysis of Animal and Insect Behavior, *19th International Conference on Pattern Recognition (ICPR2008)*, Tampa, FL, December 7th, 2008.
- Gans, N., Chakravarthy, A., Albertani, R., “Analysis of Kinematics and Dynamics of Butterflies in Natural Flight,” *2008 IEEE Multi-conference on Systems and Control*, San Antonio, TX, September 3-5, 2008.
- Albertani, R., Babcock, J., “Analysis of Wind Tunnel Unsteady Aerodynamic Data of Flexible Micro Air Vehicle Wings,” *26th AIAA Applied Aerodynamic Conference*, Honolulu, HI, August 18-21, 2008.
- Albertani, R., Chakravarthy, A., Gans, N., “Visual Flight Data and Frequency-Response Analysis Applied to Butterflies,” poster, *4th International Symposium on Adaptive Motion of Animals and Machines (AMAM 08)*, Case Western Reserve University, Cleveland, OH, June 1-6, 2008.
- Albertani, R., “Experimental Characterization of Microflaps,” *2nd NWF MAV08 Workshop*, University of Florida REEF, Shalimar, May 27-29, 2008.
- Albertani, R., Stanford, B., Sytsma, M. and Ifju, P., “Unsteady Mechanical Aspects of Flexible Wings: an Experimental Investigation Applied on Biologically Inspired MAVs,” *MAV07 3rd US-European Competition and Workshop on MAV Systems & European Micro Air Vehicle Conference and Flight Competition 2007*, ISAE-SUPAERO, Toulouse, France, September 18-21, 2007.
- Stewart, K., Albertani, R., “Experimental Elastic Deformation Characterization of a Flapping-Wing MAV using Visual Image Correlation,” *MAV07 3rd US-European Competition and Workshop on MAV Systems & European Micro Air Vehicle Conference and Flight Competition 2007*, ISAE-SUPAERO, Toulouse, France, September 18-21, 2007.
- Stanford, B., Albertani, R., Ifju, P.G., “Inverse Methods to Determine the Aerodynamic Forces on a Membrane Wing,” *AIAA SDM Conference*, 2007.
- Stanford, B., Albertani, R., Viieru, D., Shyy, W., Ifju, P.G., “Static Aeroelastic Model Validation of Membrane Micro Air Vehicle Wings,” *45th AIAA Aerospace Sciences Meeting and Exhibit*, Reno, NV, January 8-11, 2007.

- Albertani, R., DeLoach, R., Stanford, B., Hubner, J. P, Ifju, P., “Wind Tunnel Database Development and Nonlinear Modeling Applied to Powered Micro Aerial Vehicles with Flexible Wing,” *AIAA Atmospheric Flight Mechanics Conference*, Keystone, CO, August 21-24, 2006.
- Ifju, P.G., Stanford, B., Sytsma, M. and Albertani, R., “Analysis of a Flexible Wing Micro Air Vehicle,” *24<sup>th</sup> AIAA Applied Aerodynamics Conference and Exhibit*, Providence, RI, 16-19 August 2006.
- Stanford, B., Albertani, R., Ifju, P.G., “Static Finite Element Validation of a Flexible Micro Air Vehicle,” *SEM Annual Conference on Experimental and Applied Mechanics*, Saint Louis, MS, USA, June 4-7, 2006.
- Albertani, R., Stanford, B., Hubner, J. P., and Ifju, P., “ Wind Tunnel Characterization Applied to Powered Micro Aerial Vehicles with LAR Fixed Flexible Wings,” *21<sup>st</sup> Bristol International UAV Systems Conference*, Bristol, UK, April 3-5, 2006.
- Stanford, B., Viieru, D., Albertani, R., Shyy, W., Ifju, P.G., “A Numerical and Experimental Investigation of Flexible Micro Air Vehicle Wing Deformation,” *44<sup>th</sup> AIAA Aerospace Sciences Meeting and Exhibit*, Reno, NV, January 9-12, 2006.
- Albertani, R., Stanford, B., Hubner, J. P., and Ifju, P., “ Characterization of Flexible Wing MAVs: Aeroelastic and Propulsion Effects on Flying Qualities,” *AIAA Atmospheric Flight Mechanics Conference*, San Francisco, CA, 2005.
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- Albertani, R., Boria, F., Bowman, S., Claxton, D., Ifju, P., Johnson, B., Lee, K., H., Morton, M., Sytsma, M., “The University of Florida Autonomous Micro Air Vehicle,” *1st US-European Technology Demonstrations and Workshop on Micro-Aerial Vehicles*, Garmisch-Partenkirchen, Germany, 19-22 September, 2005.
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#### **MANUSCRIPTS and ABSTRACTS submitted to JOURNALS and CONFERENCES**

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## **INVITED REVIEWS ACTIVITIES for the following JOURNALS**

- Journal of Nonlinear Dynamics
- American Institute of Aeronautics and Astronautics AIAA Journal.
- American Institute of Aeronautics and Astronautics AIAA Journal of Aircraft.
- American Society of Mechanical Engineers (ASME) Journal of Vibration and Acoustics.
- International Journal of Micro Air Vehicles.
- International Journal for Numerical Methods in Engineering.
- Society of Experimental Mechanics (SEM).
- Experiments in Fluids

## **CONSULTANCY DESIGN PROJECTS FOR PRIVATE SECTOR**

A selection of the projects in which I was involved as independent technical consultant are:

- Design and testing of a power generator installation for US Army Mobile Command Units manufactured by AAR Corporation.
- Design and wind tunnel validation tests of an internal ventilation for motorcyclist helmets manufactured by NAVA.
- Design and testing of a human powered vehicle financed by Enervit SpA, for the 1986 world speed record attempt by Francesco Moser, bicyclist world champion.
- Design and testing of high-speed axial micro fans for appliances manufactured by a Swiss company.
- Designed and built a twin-wing sails catamaran sailboat.
- Design of windsurf fins for Wind Surf German Magazine.
- Structural design of canard control for ultra light aircraft.
- Design, testing and production organization of industrial large axial fans.

## **ADDITIONAL MERITS**

- Granted the NATO and US Navy secret clearances for professional use.
- Appointed as the local representative and technical support for the Italian Olympic Sailing Team, Atlanta U.S. Olympics 1995-1996, Savannah, GA.
- Licensed Boat Captain (Italian license).
- Glider airplane pilot (Italian and US licenses).
- Attended the Italian Air Force Academy.

## **PROFESSIONAL MEMBERSHIPS**

- American Institute for the Aeronautics and Astronautics (AIAA).
- American Wind Energy Association (AWEA).
- Society of Experimental Mechanics (SEM).
- Society for the Advancement of Material and Process Engineering (SAMPE).

## **LANGUAGES**

- Italian, English, French.

## **STATUS**

- European Union (Italian) Citizen and US Permanent resident.