

Kenneth Dale Visser

Associate Professor
Department of Mechanical and Aeronautical Engineering
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Education

- Ph.D.** Aerospace Engineering, University of Notre Dame, Notre Dame, Indiana, 1991
“An Experimental Analysis of Critical Factors Involved in the Breakdown Process of Leading Edge Vortex Flows”
- M.S.** Aerospace Engineering, University of Notre Dame, Notre Dame, Indiana, 1988
“An Investigation of the Effects of a External Jet on the Performance of a Highly Swept Delta Wing”
- B.Sc.** Mechanical Engineering, University of Calgary, Calgary, Alberta, Canada, 1986
Senior Project: “An Investigation of a Stepped Suction Surface”

Experience

Clarkson University (1998 – present)

Associate Professor 2004 – present
Assistant Professor 1998 – 2004

Currently teaches senior aircraft design. Research interests include aerodynamics, vortex dynamics, and renewable energy extraction. See www.clarkson.edu/~visser.

America's Cup Challenge 2000 (1997-1998)

Assisted in the design of the keel for the AmericaOne syndicate.

Boeing Commercial Airplane Group (1994-1998)

Computational modeling and wind tunnel testing for high lift development work on the High Speed Civil Transport Program. High speed aerodynamic design of the 767-400ER derivative.

NASA Langley Research Center (1991-1993)

National Research Council Associate at the Basic Aerodynamics Research Tunnel (BART). Studied vortex flows and wind tunnel wall effects using five hole probe measurements.

University of Notre Dame (1986-1991)

Graduate studies to investigate the vortex flow over delta wings. Development of data acquisition for hot-wire and 3-D probe manipulation hardware. Studied the effects of an external jet on the aerodynamic performance using flow visualization and force balance measurements. Developed a vortex core tracking flow visualization technique for use in the wind tunnel.

Designed and wrote, along with other faculty and graduate students a graphics oriented, aircraft design program which currently resides in the Smithsonian Air and Space Museum.

Chevron Canada Resources LTD (Summers 1985-1986)

Reservoir engineer responsible for evaluating physical and economical oilfield potential in northern Alberta via geological surveys and economic analysis codes.

Awards

AIAA Educator Award, 2009

Society for Automotive Engineers, Ralph Teeter Educational Aerospace Teaching Award, 2002

Boeing 2001 Outstanding Educator Award, October 2001

Clarkson University Phalanx Commendable Service Award, April 2000

Professional Membership and Service

Senior Member, American Institute of Aeronautics and Astronautics (AIAA)

Member, American Society for Engineering Education (ASEE)

Member, Society of Automotive Engineers (SAE)

Reviewer

AIAA Journal of Aircraft

ASME Journal of Solar Energy Engineering

Experiments in Fluids

Journal of Fluid Mechanics

Conference Organization

AIAA NE Region 1 Student Conference, April 2008, Clarkson University, Potsdam

AIAA NE Region 1 Student Conference, April 2000, Clarkson University, Potsdam

7th International Symposium on Flow Visualization, Seattle, WA, 1995, co-organizer

Thousand Islands Fluid Mechanics Conference 2006 - 2008, Gananoque, Ontario

Clarkson University

Aeronautical Engineering Curriculum Committee (Chair)

Laboratory and Facilities Committee

Curriculum Committee

Recruitment & Teaching Committee

Clarkson Faculty Senate

Clarkson Center for the Environment – Steering Committee

Clarkson Center for Air Resources Engineering and Science

American Institute of Aeronautics and Astronautics Faculty Advisor

AIAA /Cessna/ONR Design, Build & Fly Advisor

Publications

Journal Articles

Grover, K. and Visser, K.D., "Over-the-Road Tests of Sealed Aft Cavities on Tractor Trailers," *SAE 2006 Transactions Journal of Commercial Vehicles*, No. 2006-01-3529, pp.170, March 2007.

Khan, M.A., Pillay, P., and Visser, K.D., "On Adapting a Small PM Wind Generator for a Multi-Blade, High Solidity Wind Turbine," *IEEE Transactions on Energy Conversion*, Vol. 20, No. 3, September 2005.

Bennington, M.A. and Visser, K.D., "Aerial Refueling Implications for Commercial Transports," *AIAA Journal of Aircraft*, Vol. 42, No. 2, March–April 2005

Duquette, M.M, Swanson, J. and Visser, K.D., "Solidity and Blade Number Effects on Small Horizontal-Axis Wind Turbines," *Wind Engineering*, Vol 27, No. 4, pp. 299-316, 2003.

Duquette, M. and Visser, K.D., "Numerical Implications of Solidity and Blade Number on Rotor Performance of Horizontal-Axis Wind Turbines," *Journal of Solar Energy Engineering*, Vol. 125, No. 4, pp. 425-432, November 2003.

Visser, K.D. and Nelson, R.C., "Measurements of Circulation and Vorticity in the Leading Edge Vortex of a Delta Wing," *AIAA Journal*, Vol. 31, No. 1, pp. 104-111, January 1993.

Visser, K.D., Nelson, R.C., and Ng, T.T., "Method of Cold Smoke Generation for Vortex Core Tagging," *AIAA Journal of Aircraft*, Vol. 25, No. 11, pp. 1069-1071, November 1988.

Book and Report Chapters

Grover, K.D, and Visser, K.D., "Class 8 Vehicle Fuel Savings using Sealed Single and Dual Open Aft Cavities" *The Aerodynamics of Heavy Vehicles II: Trucks, Buses, and Trains*, Lecture Notes in Applied and Computational Mechanics , Vol. 41, McCallen, Rose; Browand, Fred; Ross, James (Eds.), 2008, XII, 567 p. 465 illus. With CD-ROM., Hardcover, ISBN: 978-3-540-85069-4

Coon, J.D, and Visser, K.D., "Drag Reduction of a Tractor-Trailer Using Planar Boat Tail Plates," *The Aerodynamics of Heavy Vehicles: Trucks, Buses, and Trains*, Lecture Notes in Applied and Computational Mechanics , Vol. 19, McCallen, Rose; Browand, Fred; Ross, James (Eds.), 2004, XII, 567 p. 378 illus. With CD-ROM., Hardcover, ISBN:3-540-22088-7

F.M. Payne, K.D. Visser and R.C. Nelson , "Leading Edge Vortex Flow Studies at the University of Notre Dame: Steady and Unsteady Investigations 1983-2000," Chapter 6 in *Validation and Verification of CFD and Analytical Solutions for the Vortical Flow over Slender Delta Wings at High Incidence.*, RTO-TR-084, Research and Technology Organization, North Atlantic Treaty Organization, Neuilly-sur-Seine, Cedex, France. J. Luckering (Ed.). (to appear in 2007).

Conference Proceedings

Liersch C., Streit T., Visser K, "Numerical Implications of Spanwise Camber on Minimum Induced Drag Configurations", 47th AIAA Aerospace Conference, Orlando, January, 2009.

Streit, T, Visser, K., and Liersch, C., "Minimal Induced Drag for Non-Planar Lifting Surfaces with Moderate and Small Aspect Ratio" 16th DGLR Symposium of STAB International Symposium of the German working Committee of Fluid Mechanics, RWTH Aachen University, Germany, November 3 to 4, 2008

M.A. Khan, S. Zorlu, R. Guan, P. Pillay, K.D. Visser, "An Integrated Design Approach for Small Grid-tied Permanent Magnet Wind Generators", IEEE Power Africa Conference and Exhibition, Johannesburg, South Africa, July 16 – 19, 2007

Brown, M. M., and Visser, K.D., "Optimum Blade Numbers and Solidities for Small HAWTs," AIAA-2007-1370, 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV., January 2007.

Rector, M. C., and Visser, K.D., "Aerodynamic Design of a Small Contra-Rotating HAWT," AIAA-2007-1371, 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV., January 2007.

Grover, K. and Visser, K.D., "Over-the-Road Tests of Sealed Aft Cavities on Tractor Trailers," SAE Commercial Vehicle Engineering Congress and Exhibition, Rosemont, IL, Oct/Nov 2006.

Lazos, B. S., and Visser, K.D., "Aerodynamic Comparison of Hyper-Elliptic Cambered Span (HECS) Wings with Conventional Configurations," AIAA-2006-3469, 25th AIAA Applied Aerodynamics Conference, San Francisco, CA., June 2006.

Rector, M. C., and Visser, K.D., "Solidity, Blade Number, and Pitch Angle Effects on a One Kilowatt HAWT," AIAA-2006-0608, 44th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV., January 2006.

Visser, K.D., Ferrero Ferrero, M. del Carmen, and Nelson, R.C., "Physical Considerations of Leading Edge Flows," CEAS/KATnet Conference, Bremen, Germany, June 2005.

Visser, K.D., Ferrero Ferrero, M. del Carmen, and Nelson, R.C., "Physical Considerations of Leading Edge Flows," AIAA 2004-5083, 22nd Applied Aerodynamics Conference, Providence, RI, August 2004.

Bennington, M.A. and Visser, K.D., "Flow Field Characteristics of an Optimized Multi-Bladed Horizontal Axis Wind Turbine", 11th International Symposium on Flow Visualization, August 9-12, 2004, University of Notre Dame, Notre Dame, Indiana, USA

Humiston, C. and Visser, K.D., "Full Scale Results of Solidity, Blade Number and Pitch angle, on the Aerodynamics of Small Horizontal-Axis Wind Turbines," Wind Energy Conference South Africa, November 2003.

Maragno, D. and Visser, K.D., "Experimental Optimization of Non-Ventilated Aft Cavities for Tractor Trailer Drag Reduction," 2003 SAE International Truck and Bus Meeting and Exhibition. Fort Worth, Texas, November 10-12, 2003.

Duquette, M.M, Humiston, C.J., and Visser, K.D., "Small Wind Turbine Research at Clarkson University," AWEA Windpower 2002, Portland Oregon, June 4-7, 2002.

Gold, N.P. and Visser, K.D., "Aerodynamic Effects of Local Dihedral on a Raked Wing Tip," AIAA-2002-0831, 40th AIAA Aerospace Sciences Meeting and Exhibit, January 14-17, 2002, Reno, NV.

Visser, K.D. "Assessing the Hidden Impacts of an E-Team Student Design Project," ASEE 2001 Annual Conference and Exposition, June 24-27, 2001, Albuquerque, NM.

Visser, K.D., "Aerial Refueling of Commercial Aircraft," AIAA-2001-1001, 39th AIAA Aerospace Sciences Meeting and Exhibit, January 8-11, 2001, Reno, NV.

Griffiths, R.C., and Visser, K.D., "Panel Code Estimates Of Wind Tunnel Wall and Support Interference Effects on the HSCT," 18th AIAA Applied Aerodynamics Conference AIAA-2000-4020, August 14-17, 2000, Denver Marriott Tech Center, Denver, CO.

Visser, K.D. and Washburn, A.E., "Estimation of Surface Properties Using an Off-Body Probe," 7th International Symposium on Flow Visualization, Seattle, WA Sept. 11-14, 1995.

Washburn, A.E. and Visser, K.D., "Evolution of Vortical Structures in the Shear Layers of Delta Wings," 12th Applied Aerodynamics Conference, AIAA-94-2317, June 20-23, 1994 Colorado Springs, CO.

Visser, K.D. and Washburn, A.E., "Transition Behavior on Flat Plate Delta Wings," 12th Applied Aerodynamics Conference, AIAA-94-1850, June 20-23, 1994 Colorado Springs, CO.

Krist, S.L., Washburn, A.E., and Visser, K.D., "A Computational and Experimental Investigation of a Delta Wing with Vertical Tails," 11th AIAA Computational Fluids Dynamics Conference, July 6-9, 1993.

Nelson, R.C. and Visser, K.D. "Breaking Down the Delta Wing Vortex /The Role of Vorticity in the Breakdown Process," AGARD Symposium on Vortex Flow Aerodynamics, 1-4 October 1990, Scheveningen, The Netherlands.

Visser, K.D., Nelson, R.C., and Ng, T.T., "A Flow Visualization and Force Data Evaluation of Spanwise Blowing on Full and Half Span Delta Wings," AIAA-89-0192, AIAA 27th Aerospace Sciences Meeting, January 9-12, 1989 Reno, NA.

Visser, K.D., Iwanski, K.P., Nelson, R.C., and Ng, T.T., "Control of Leading Edge Vortex Breakdown by Blowing," AIAA-88-0504, AIAA 26th Aerospace Sciences Meeting, January 11-14, 1988 Reno, NV.

Patents

Pending

Visser, K.D., "Sealed Aft Cavity Drag Reducer," Patent Submission, November 2006.

Visser, K.D., Grover, K, Marin, Luis E., Kane, John M. Kane, Valitsky, Joseph, "Aft Cavity Drag Reducer," Patent Submission, November 2006.

Visser, K.D. and Pillay, P., "Contra-Rotating Axial Field Wind Turbines," Provisional Patent Submission, October 2005.

Visser, K.D., Passmore, T.N. and Bingham, A., "Compressive Tidal Energy Extractor," Provisional Patent Submission, May 2004.

Visser, K.D. and Passmore, T.N., "Tidal Energy Harnessing Device," Provisional Patent Submission, May 2004.

Granted

Herrick, L.L., Bays-Muchmore, B., Hoffman, M.S., LeGrand, L., Ogg, S.S., Paul, B.P. Jr., Visser, K.D., and Wells, S.L. "Blunt Leading-Edge Raked Wing Tips," Patent Number 6089502, Issued July 18, 2000.

Invited Presentations

19th Annual Great Lakes Research Consortium, "An Introduction to Small Wind Turbine Technology", SUNY ESF, Syracuse, NY, March 13, 2009

Building a Greener Adirondacks Educational Symposium, " An Introduction to Small Wind Turbine Technology", Tupper Lake, NY, Oct, 2008

CNY Sustainable Speaker Series, “Wind Energy in the North Country” K.Visser, P. Marzocca, Syracuse, NY, Oct 2008

8th Annual Symposium on Environmental and Energy Systems, “Wind Energy R & D Technology Transfer at Clarkson University”, Syracuse Center of Excellence, Syracuse, NY, Sept, 2008

Point Pleasant Resort, USVI, “Wind Turbine Feasibility Study”, Jan, 2008, Virgin Islands

The Aerodynamics of Heavy Vehicles II: Trucks, Busses, and Trains, Engineering Conferences International, (*August, 2007*), “Class 8 Vehicle Fuel Savings Using Sealed Single and Dual Open Aft Cavities” Lake Tahoe, CA.

Deutsches Zentrum für Luft- und Raumfahrt, Braunschweig, Germany, (*July 2007*), “Effects of Spanwise Cambering on Induced Drag”, Braunschweig, Germany.

Technical University of Delft, (*April 2007*), “Drag Reduction of Tractor Trailers Using Open Aft Cavities”, Delft, The Netherlands.

Deutsches Zentrum für Luft- und Raumfahrt, (*November 2006*), “Drag Decomposition, Spanwise Cambering, and Clarkson University”, Braunschweig, Germany.

CEAS/KATnet Conference , Visser, K.D., Ferrero Ferrero, M. del Carmen, and Nelson, R.C., (*June 2005*), “Physical Considerations of Leading Edge Flows,” Bremen, Germany.

SAE International Truck and Bus Meeting and Exhibition, (November 2003), “Experimental Optimization of Non-Ventilated Aft Cavities for Tractor Trailer Drag Reduction.”

NASA Langley Research Center (*July 2003*) “Aerodynamic Implications of Wingtip Dihedral.”

1000 Islands Fluids Mechanics Meeting, (*May 2003*) “Drag Reduction of Tractor Trailers,” Gananoque, Ontario.

Lawrence Livermore National Labs (*May 2003*) “Drag Reduction of Heavy Vehicles.”

The Aerodynamics of Heavy Vehicles: Trucks, Buses and Trains, United Engineering Foundation, (*December 2002*) “Drag Reduction of a Tractor-Trailer Using Planar, Non-Ventilated Cavities,” Monterey-Pacific Grove, CA.

SAE World Aviation Congress, Phoenix (*November 2002*), “Raked Wing Tips: Experimental Studies and Design Implications.”

Rensselaer Polytechnic Institute (*March 2001*) “Are Winglets Obsolete? Design Implications of the Raked Wingtip.”

Smithsonian Museum, Washington DC (*2001*) “Truck Drag Reduction” sponsored by the National Collegiate Inventors and Innovators Alliance.

DLR, Braunschweig, Germany (*October, 2000*) “Design Advantages of Raked Wing Tips.”

Fairchild Dornier Aircraft Company, Oberpfaffenhofen, Germany (*October, 2000*) “Design Advantages of Raked Wing Tips.”

Boston University (*March, 1999*) “Where are the Winglets? Aerodynamic Design Considerations of the 767-400ER.”

Department Reports

David Olson– “*Performance Modeling of a Contra-Rotating Vertical Axis Wind Turbine,*” Report No. MAE-3xx, May 2009.

Chad Southwick – “*Feasibility Study of Implementing a Commercial Size Wind Turbine to Supplement the Power Consumption of Clarkson University,*” Report No. MAE-388, Dec 2008.

Mark Czajkowski – “*Feasibility of a Unique Wind Powered Home Heating System,*” Report No. MAE-387, May 2008.

Kevin Grover – “*Over the Road test of Sealed Aft Cavities on Tractor Trailers,*” Report No. MAE-3xx, May 2007.

Curtis Rector – “*Feasibility Study of a Small Contra-rotating Horizontal Axis Wind Turbine,*” Report No. MAE-382, May 2007.

Matthew Brown – “*Optimum Blade Numbers for Small Horizontal Axis Wind Turbines,*” Report No. MAE-381, May 2007.

Timothy Deschenes – “*The Study of the Effect of a Gap Seal on the Aerodynamic Drag of Tandem Vehicles,*” Report No. MAE-380, October 2006.

Xiaoliang Weng – “*A Numerical Study of Juncture Flow with a Dillet,*” Report No. MAE-3xx, July 2006.

Keith Jackson – “*Feasibility Study of a Ring Support Structure for Large Horizontal-Axis Wind Turbines,*” Report No. MAE-378, February 2006.

Curtis Rector – “*The Effect of Blade Pitch Angle on Small Multi-Bladed Horizontal-Axis Wind Turbines,*” Report No. MAE-377, November 2005.

David Maragno – “*A Numerical Study of Non-Planar, Span-Reduced Wingtips,*” Report No. MAE-373, June 2005.

Christopher Humiston – “*Full Scale Aerodynamic Effects of Solidity and Blade Number on Small Horizontal Axis Wind Turbines,*” Report No. MAE-372, December 2004.

Brian Clark – “*The Importance of Wind Velocity and Directional Variability on Power Production of a Small Horizontal Axis Wind Turbine,*” Report No. MAE-370, Sept. 2004.

Matthew A. Bennington – “*Solidity, Blade Number, and Pitch Angle Effects on an Untwisted Constant Chord Small Horizontal Axis Wind Turbine Using Flow Visualization Techniques,*” Report No. MAE-368, August 2004.

Timothy N. Passmore – “*Quasi-Static Tidal Energy Extraction,*” Report No. MAE-369, June 2004.

Maria del Carmen Ferrero Ferrero – “*Investigation of Shear Layer Vortex Structures on Delta Wings,*” Report No. MAE-366, July 2003.

David Maragno, “*The Effects of Narrowing Angle on Drag Reduction of Unventilated Aft Cavities,*” Report No. MAE-365, August 2002

Matthew Duquette – MS: “*The Effect of Solidity and Blade Number on the Aerodynamic Performance of Small Horizontal Axis Wind Turbines,*” Report No. MAE-362, July 2002

Jamison Coon – MS: “*The Effect of Non-Ventilated Plate Cavity Devices on Drag Reduction of Tractor Trailers,*” Final Contract Report Agreement #6436 Trailer Drag Reduction, NYSERDA, Report No. MAE-361, June 2002.

Jamison Coon, “*Investigation of a Convex Boat-tail Cavity Device Drag Reduction on a Tractor Trailer*” Report No. MAE-360, June 2002.

Nili Gold – MS: “*Development and Implementation of a Wake Survey Analysis System for the Study of the Effect of Local Dihedral and Sweep Angle on Raked Wing Tips*,” Report No. MAE-357, January 2002.

J. Wayne Braun, Elizabeth Kenney, “*Passive Alleviation of Trailing Vortices On Large Aircraft*,” Report No. MAE-353, June 2001.

Matthew Allen, Jamison Coon, Matthew Menotti, Matthew Pausley, Anna Sawabini, “*Trailer Drag Reduction*,” Report No. MAE-352, June 2001.

Matthew Allen, “*Flow-Structure Energy Extraction Using an Oscillating Cylinder*,” Report No. MAE-351, June 2001.

Subramini, Balaji – MS “*Effect of Delta Wing Flowfields on Small Wind Turbines*,” Report No. MAE-350, June 2001.

Grants and Contracts Awarded

Fuel-Efficient Active Flow Control for Heavy-Duty Vehicles (PI)

ATDynamics sub from NYSERDA
Amount: \$120,000 May 2009, TBA

Advancement of Intelligent Aerospace Systems (Co-PI)

G. Ahmadi (PI) R. Jha P.Marzocca, J. McLaughlin, B.Helenbrook, E.Bollt, D. Bohl
AFOSR
\$1,741,500 January 2009

Wind Tamer (PI)

Future Energy Solutions, Inc.
\$3,000 May 2009
\$6,000 January 2009
\$13,093 June 2008

Optiwind (PI)

Daniel Valentine, Brian Helenbrook, Pier Marzocca, Douglas Bohl
Future Energy Solutions, Inc.
\$150,000 June 2008

Optiwind (Co-PI)

Daniel Valentine(PI), Brian Helenbrook, Pier Marzocca, Douglas Bohl
Future Energy Solutions, Inc.
\$184,754 January 2008

Rear Drag Technology Commercialization Support (PI)

Advanced Transit Dynamics
\$15,994 May 2007
\$4,083 September 2007

Use of Plasma Actuators to Increase Wind Energy Extraction (PI)

Robert Nelson (Notre Dame)
California Energy Commission, ESIG
\$98,453 February 2007

Development of a Blade Outer Air Seal Geometry Tool (Co-PI)

Kenneth Willmert (PI), Ratneshwar Jha, Brian Helenbrook, Pier Marzocca, John Moosbrugger
Pratt and Whitney
\$120,000 September 2006

Novel Wind Turbine Designs for Commercial Rooftop and Rural Applications (PI)
Pragassen Pillay
Warner Energy, Syracuse, NY
\$149,978 April 2006

Novel Wind Turbine Designs for Commercial Rooftop and Rural Applications (PI)
O'Brien and Gere
Grants for Growth
\$40,000 February 2006

NYSTAR Center for Environmental Quality System (NY-EQS)) (Co-PI)
Philip Hopke (PI), Thomas Holson, John McLaughlin, Goodarz Ahmadi
New York State
\$1,640,000 (\$246,000) October 2005

A Computational Wing Tip Optimization Study on Using Winglets and Raked Tips for Drag Reductions (PI)
NASA Langley Research Center
Applied: June, 2004
Amount: \$20,894 September 2004

Trailer Drag Reduction:Phase 3: Full Scale Road Verification & Conceptual Studies (PI)
New York State Energy and Research Development Association
Amount: \$249,332 February, April 2004

NYSTAR Center for Environmental Quality System (NY-EQS)) (Co-PI)
Philip Hopke (PI), Thomas Holson, John McLaughlin, Goodarz Ahmadi,
New York State
\$1,892,000 (\$283,800) April 2003

Design and Development of a Prototype Multi-Bladed Wind Turbine (PI)
New York State Energy and Research Development Association
\$24,057, March, 2003

Trailers Drag Reduction II (PI)
New York State Energy and Research Development Association
\$84,814, September 2002

Analytical Services for Convex Boat-tail Cavity Device (PI)
D. Whitten, Tipp City, OH
\$1,811, November 2001

Investigation of Raked Wing Tips (PI)
Fairchild Dornier Aircraft Company
\$42,252 July 2001

Analytical Services for Raked Wing Tip Investigation (PI)

Fairchild Dornier Aircraft Company
\$1,961, October 2000
\$3,372 December 2000
\$1,805 September 2001

Trailers Drag Reduction (PI)

New York State Energy and Research Development Association
\$50,000, September 2000

Flying Boat (PI)

Barradda Foundation
\$4,000 February 2000

Drag Reduction of Tractor-Trailers (PI)

NCIIA Advanced E-Team Grant
\$15,500 January 2000

Teaching and Advising

Clarkson University (1998 - present)

Aircraft Design I and II (AE450 and AE451)
Stability and Control of Aerospace Vehicles (AE430)
Aircraft Performance and Flight Mechanics (AE429)
Introduction to Aeronautical Engineering (AE200)
Campus Sustainability Issues on Campus - Energy Use and Conservation (HP208, HP210)
Critical Thinking About Energy (HP200)
Advanced Independent Study (AE465)
Integrated Design (ME455) *Advisor*

University of Notre Dame (1989-1991)

Fluid Dynamics (AE/ME 334)
Experimental Aerodynamics Lab (AE 442)

Short Courses

“Experimental Methods in High Alpha Flows,” University of Tennessee Space Institute Short Course Flows on High Angle of Attack / Unsteady Flow Phenomena, July 1993

Graduate Research Advisees, Clarkson University

Balaji Subramini – MS: “*Effect of Delta Wing Flowfields on Small Wind Turbines,*” June 2001
Nili Gold – MS: “*Development and Implementation of a Wake Survey Analysis System for the Study of the Effect of Local Dihedral and Sweep Angle on Raked Wing Tips,*” January 2002
Matthew Duquette – MS: “*The Effect of Solidity and Blade Number on the Aerodynamic Performance of Small Horizontal Axis Wind Turbines,*” July 2002
Jamison Coon – MS: “*The Effect of Non-Ventilated Plate Cavity Devices on Drag Reduction of Tractor Trailers,*” June 2002
Andrew DeSantis - ME : “*Blade Number and Solidity Measurements on Very Small Horizontal Axis Wind Turbines*”, September 2003

Brian Clark - ME (May 2004): *“Turbulence effects on the Production of Energy from Small Wind Turbines”*

Christopher Humiston – MS (Dec 2004): *“Full Scale Study of Solidity, Blade Number and Pitch Angle on the Aerodynamics of Small Horizontal Axis Wind Turbines”*

David Maragno - MS (May 2005): *“The Effects of Tip Shape on the Performance of Lifting Surfaces”*

Xiaolaing Weng - MS (May 2006): *“Minimizing Drag in a Juncture Flow”*

Matthew Brown - MS (May 2007): *“Optimum Blade Numbers for Small Horizontal Axis Wind Turbines”*

Curtis Rector - MS (May 2007): *“Feasibility Study of a Small Contra-rotating Horizontal Axis Wind Turbine,”*

Kevin Grover – MS (May 2007): *“Over the Road test of Sealed Aft Cavities on Tractor Trailers”*

Joshua Butler - MS (May 2008): *“Delta Wing Shear Flows”*

Daniel Hetzel - MS (May 2009): *“Use of Plasma Actuators for Wind Turbine Control”*

Mulwa Kanya - PhD (May 2011): *“An Optimized Energy Based Wind Turbine Design Strategy”*