

**Kevin Kochersberger**  
308 Lucas Dr.  
Blacksburg, VA 24060

Email: [kbk@vt.edu](mailto:kbk@vt.edu)

Office: 540-231-5589

Cell: 585-415-7861

**Experience:**

**Virginia Polytechnic Institute & State University, Blacksburg, VA**

Associate Professor, tenure track, Mechanical Engineering, Feb 2011 - present  
Research Associate Professor, Mechanical Engineering, Fall 2006 – Feb, 2011

**Rochester Institute of Technology, Rochester, NY**

Associate Professor, Mechanical Engineering, Fall 2000 – Spring, 2006  
Assistant Professor, Mechanical Engineering, Fall 1997 – Spring 2000  
Visiting Assistant Professor, Mechanical Engineering, Fall 1994 – Spring 1997

**Langley Full-Scale Tunnel, Hampton, Virginia**

Research Scientist and Lead Engineer on Wright 1901 and 1902 full-scale glider tests, Fall 2001 – Summer 2002

**Virginia Polytechnic Institute & State University, Blacksburg, VA**

Instructor, Fall 1992 - spring 1994  
Graduate Research Assistant, Laser Doppler velocimetry for structural dynamic mapping, fall 1989 - spring 1992

**McDonnell Douglas Corp., St. Louis, MO**

Structural dynamicist, F/A-18 and A-12 aircraft, 1986 – 1989

**IBM Federal Systems Division, Manassas, VA**

Associate Engineer, Structural design engineer, shipborne and airborne electronics, 1984 – 1986

**Education:**

**Ph.D., Mechanical Engineering, May 1994**

Virginia Polytechnic Institute & State University, Blacksburg, VA

Dissertation: A Method of Determining Modal Residues Using an Improved Residual Model and Least Squares

Advisor: Dr. Larry D. Mitchell

**M.S., Mechanical Engineering, 1984**

Virginia Polytechnic Institute & State University, Blacksburg, VA

Thesis: An Interactive Program to Support the Optimization Code COPES/CONMIN

**B.S., Mechanical Engineering, 1983**

Virginia Polytechnic Institute & State University, Blacksburg, VA

Graduated *Summa Cum Laude*

**Honors:**

- W.S. "Pete" White Innovation in Engineering Education Award, Virginia Tech, 2016
- Student Engineer's Council Advisor Award, Virginia Tech, 2015
- AIAA Associate Fellow
- AIAA 2004 – 2010 Distinguished Lecture Program Participant
- Civil Air Patrol Aerospace Educator Award, 2004
- Pilot of the Reproduction Wright Flyer, Centennial of Flight Celebration, Kitty Hawk, NC, December 17, 2003
- Aviation Week and Space Technology Aerospace Laureate, 2003
- Soaring Society of America, Paul E. Tuntland Historical Award, 2003
- Society of Automotive Engineers Teetor Educational Award, 1998
- Cunningham Dissertation Year Fellowship, 1991, Virginia Tech

**Funded Research (\$3.6M total since 2007):**

<u>Acct No.</u>	<u>Sponsor</u>	<u>Title</u>	<u>Start</u>	<u>End</u>	<u>Amount</u>	<u>Credit</u>
417249	Hume Center	Tactical electronic warfare test	Mar 1, 2014	Oct 31, 2014	\$34,000	100% Kochersberger
417309	TORC Robotics, LLC	Day/night system for flight path identification	Jan 1, 2014	Dec 31, 2014	\$46,333	100% Kochersberger
458152	Bihrt Applied Research	Railroad track survey via unmanned aircraft	Jan 23, 2014	Dec 31, 2014	\$133,147	100% Kochersberger
458556	Bihrt Applied Research	Vision-based track infrastructure monitoring	Jun 15, 2015	Sep 11, 2015	\$18,525	100% Kochersberger
457864	Astrobotic Technology, Inc	Flight test support for LiDAR and stereo payloads	Mar 11, 2013	July 15, 2013	\$6,000	100% Kochersberger
416447	AVID LLC	Solid state morphing flight control for micro munitions	Nov 1, 2010	Aug 31, 2012	\$80,000	100% Kochersberger
416599	Savannah River National Labs	Unmanned aerial nuclear materials detection and sampling	Jan 1, 2012	Mar 31, 2012	\$104,000	90% Kochersberger, 10% Lynn Abbott.
416599	Savannah River National Labs	Unmanned aerial nuclear materials detection and sampling	May 1, 2011	Dec 31, 2011	\$514,291	90% Kochersberger, 10% Lynn Abbott
415893	Savannah River National Labs	Unmanned aerial nuclear materials detection and sampling	Jul 11, 2008	Feb 16, 2011	\$1,384,136	100% Kochersberger
416118	AVID LLC	Solid state morphing flight control for micro munitions	Jul 10, 2009	Mar 8, 2010	\$15,000	100% Kochersberger
415570	Pacific Northwest National Labs	Unmanned sample retrieval system development	May 10, 2007	Jan 31, 2010	\$150,977	100% Kochersberger
455863	AAI Corporation	RQ-7 Shadow landing gear redesign and joined wing UAS design	Aug 27, 2007	Dec 31, 2008	\$112,777	100% Kochersberger
455753	Rotomotion LLC	Engine/drivetrain enhancements on the SR200 helicopter	Aug 27, 2007	Aug 29, 2008	\$34,964	100% Kochersberger
415571	Pacific Northwest National Labs	Unmanned sample retrieval system development	May 9, 2007	Dec 31, 2007	\$15,000	100% Kochersberger
N/A	ICTAS / VaCAS	Plume source tracking with an unmanned aircraft	Jan, 2009	May, 2009	\$3,990	100% Kochersberger
417464	National Institute of Aerospace	Development of an intercollegiate competition in aerial precision package delivery	Aug 26, 2014	May 31, 2015	\$8,050	100% Kochersberger
458545	Deng Huang	Hybrid aircraft design	Jun 1, 2015	Sep 30, 2015	\$17,983	100% Kochersberger
417534	DCR	Image analysis of cropland for enhanced production	Jan 1, 2015	Jun 30, 2015	\$98,623	40% Kochersberger
417747	NSF I/UCRC	Site addition to the Center for Unmanned Aircraft Systems	Sep 15, 2015	Aug 31, 2016	\$40,000	50% Kochersberger
479465	NSF I/UCRC	Site addition to the Center for Unmanned Aircraft Systems	Sep 15, 2015	Aug 31, 2016	\$64,999	50% Kochersberger

417710	NIA	Development of a variable autonomy sUAS for...	Jul 1, 2015	Feb 29, 2016	\$20,000	100% Kochersberger
417821	NIA	Sensor fusion and state estimation for small unmanned aircraft	Sep 1, 2015	Dec 31, 2016	\$34,203	100% Kochersberger
417040	University of MD / DTRA	Methodologies for Autonomous Radiological and...	Dec 1, 2012	Dec 2, 2016	\$447,166	100% Kochersberger
445324	Various	Capstone Realization of Engineering and Tech...	Feb 13, 2013	Feb 12, 2024	\$106,173	100% Kochersberger
458545	Private	Hybrid aircraft design	Jun 1, 2015	Jul 31, 2016	\$31,378	100% Kochersberger
459123	DuPont	Image analysis of cropland for enhanced production	Apr 1, 2016	Oct 21, 2016	\$45,877	100% Kochersberger
459124	MSI	Remote monitoring project	Mar 1, 2016	Oct 31, 2016	\$27,908	100% Kochersberger
417847	SRNL	Triggering and detecting lightning strikes	Mar 31, 2016	Jul 31, 2016	\$74,999	100% Kochersberger

#### **Books and Chapters:**

1. Kochersberger, K., Light Sport Aircraft Inspection Procedures, Avotek Information Resources, Weyers Cave, VA, 2006. ISBN: 1-933189-06-01
2. Onur Bilgen, Kevin Kochersberger and Daniel Inman, Smart Composites – Mechanics and Design, Edited by Rani El-Hajjar, Valeria La Saponara, Anastasia Muliana, *Chapter 6: Wing Morphing Design Using Macro Fiber Composite*, Taylor and Francis, CRC Press, 2013.

#### **Journal Articles:**

1. Taylor, A., Turovskiy, J., Drew, B., Muelenaer, A., Redican, K., Kochersberger, K., Bickford, L., "A Sustainable Engineering Solution for Pediatric Dehydration in Low-Resource Clinical Environments," *Journal of Humanitarian Engineering* (2016).
2. Christie, G., Kochersberger, K., Abbott, L., and Westman, E., "Image-Based 3-D Reconstructions for Stockpile Volume Measurement," *Mining Engineering*, 67(1), 34 – 37, Jan (2015).
3. Christie, G., Kochersberger, K., Abbott, L., "Fast Inspection for Size-Based Analysis in Aggregate Processing," *Machine Vision and Applications* (2015): DOI: 10.1007/s00138-014-0645-y
4. Kochersberger, K., Kroeger, K., Krawiec, B., Brewer, E., & Weber, T. (2014). Post-disaster Remote Sensing and Sampling via an Autonomous Helicopter, *Journal of Field Robotics* (2014). DOI: 10.1002/rob.21502.
5. Krawiec, Bryan, Kevin Kochersberger, and David C. Conner. "Autonomous Aerial Radio Repeating Using an A\*-Based Path Planning Approach." *Journal of Intelligent & Robotic Systems* (2013): 1-21. DOI: 10.1007/s10846-013-9853-3
6. Torok, M., Golparvar-Fard, M., and Kochersberger, K., "Image-Based Automated 3D Crack Detection for Post-Disaster Building Assessment," *J. Comput. Civ. Eng.* (2013) DOI: 10.1061/(ASCE)CP.1943-5487.0000334
7. Towler, J., Krawiec\*, B., and Kochersberger, K., "Radiation Mapping in Post-Disaster Environments Using an Autonomous Helicopter," *Remote Sensing*, 4(7), 1995 – 2015, Jul (2012), DOI: 10.3390/rs4071995.
8. Stefanik, K., Gassaway\*, J, Kochersberger, K. and Abbott, L., "UAV-based Stereo Vision for Rapid Aerial Terrain Mapping," *GIScience and Remote Sensing*, 48(1), 24 – 49, Mar (2011), DOI: 10.2747/1548-1603.48.1.24.

9. Bilgen, O., De Marqui, C., Kochersberger, K., and Inman, D., "Macro-Fiber Composite Actuators for Flow Control of a Variable Camber Airfoil," *SAGE Journal of Intelligent Material Systems and Structures*, 22(1), 81 – 91, Jan (2011), DOI: 10.1177/1045389X10392613
10. Bilgen, O., Kochersberger, K., Inman, D. J., and Ohanian, O.J., "Lightweight High Voltage Electronic Circuits for Piezoelectric Composite Actuators," *SAGE Journal of Intelligent Material Systems and Structures*, 21(14), 1417 – 1426, Sep (2010), DOI: 10.1177/1045389X10381657
11. Bilgen, O., DeMarqui, C., Kochersberger, K., and Inman, D., "Piezoceramic Composite Actuators for Flow Control in Low Reynolds Number Airflow," *SAGE Journal of Intelligent Material Systems and Structures*, 21(12), 1201 – 1212, Aug (2010) DOI: 10.1177/1045389X10381656
12. Bilgen, O., Kochersberger, K. B., Inman, D. J., and Ohanian, O. J., "Macro-Fiber Composite Actuated Simply-Supported Thin Morphing Airfoils," *IOP Journal of Smart Materials and Structures*, 19(5), May (2010), DOI: 10.1088/0964-1726/19/5/055010
13. Bilgen, O., Kochersberger, K. B., Inman, D. J., Ohanian, J., "Novel, Bi-Directional, Variable Camber Airfoil via Macro-Fiber Composite Actuators," *AIAA Journal of Aircraft*, 47(1), 2010, 303 – 314. DOI: 10.2514/1.45452
14. Bilgen, O., Kochersberger, K., Inman, D. J., "Macro-Fiber Composite Actuators for a Swept Wing Unmanned Aircraft", *Special issue on Flight Structures Fundamental Research in the USA*, Aeronautical Journal (publication of *Royal Aeronautical Society*), 113(1144), 385 – 395, June (2009).
15. Kochersberger, K., Landman, D., Player, J., Hyde, K., "An Evaluation of the Wright 1902 Wright Glider Using Full Scale Wind Tunnel Data," *Journal of Aircraft*, 42(3), 710 – 717, May – Jun (2005), DOI: 10.2514/1.6955
16. Kochersberger, K., Ash, R., Britcher, C., Landman, D., and Hyde, K., "An Evaluation of the Wright 1901 Glider Using Full Scale Wind Tunnel Data," *Journal of Aircraft*, 40(3), 417 – 424, May – Jun (2003), DOI: 10.2514/2.3122.

#### **Conference Papers:**

1. Chaudhry, H., Smith, E., Kochersberger, K., "Real Time Detection and Tracking of Linear Visual Features for Aircraft Guidance," AIAA-2016-1253, San Diego, CA, Jan, 2016.
2. G. Christie, L.J. Stiltner, K. Kochersberger, M. McLean, W. Czaja, "Synchronous Radiation Sensing and 3D Urban Mapping for Improved Source Identification," SPIE, Sensing Technologies + Applications, Baltimore, U.S.A., May 2014.
3. Christie, G., Stiltner, L., Kroeger, K., Kochersberger, K., "3-D Scene Understanding from Image-based Reconstructions Using a Small Unmanned Aircraft," AIAA-2014-1166, AIAA SciTech, National Harbor, MD, Jan 15 – 17 2014.
4. Turner, H., Stiltner, L., Mohan, S., Kochersberger, K., and White, J., "A Feasibility Study of Using Cellular Data Modems for UAV Tracking and Control," AIAA-2013-4821, AIAA Infotech@Aerospace, Boston, MA, Aug 19 – 22, 2013.
5. Ohanian, O. J., David, B., Taylor, S., Kochersberger, K., Probst, T., Gelhausen, P., Climer, J., "Piezoelectric Morphing versus Servo-Actuated MAV Control Surfaces, Part II: Flight Testing," AIAA ASM, Grapevine, TX, Jan 8 – 11, 2013.
6. Probst, T., David, B., Kochersberger, K., Ohanian, O. J., "Design and Flight Test of a Morphing UAV Flight Control System," AIAA ASM, Grapevine, TX, Jan 8 – 11, 2013.
7. Krawiec, B., and Kochersberger, K., "A Methodology for Autonomous Radio Repeating Based on the A\* Algorithm," AIAA-2012-2416, AIAA Infotech@Aerospace 2012, Garden Grove, CA, Jun 19 – 21, 2012.
8. Ohanian, O. J., Hickling, C., Stiltner, B., Karni, E., Kochersberger, K., Probst, T., Gelhausen, P., Blain, A., "Piezoelectric Morphing versus Servo-Actuated MAV Control Surfaces", AIAA Paper 2012-1512, 20th AIAA/ASME/AHS Adaptive Structures Conference, Honolulu, Hawaii, Apr 23 – 26, 2011.

9. Probst, T., Kochersberger, K., Stiltner, B., Hickling, C., Ohanian, O., Karni, E., Olien, C., "Smart Material Actuators as a Means of UAV Flight Control," AIAA-2012-0486, AIAA ASM 2012, Nashville, TN, Jan 9 – 12, 2012.
10. Krawiec, B., McCabe, B., Bromley, M., Gassaway, J., Kroeger, K., Stefanik, K., Towler, J., Kochersberger, K., "Post Detonation Autonomous Robotic Response System," ANS EPRRS – 13<sup>th</sup> Robotics and Remote Systems for Hazardous Environments, Knoxville, TN, Aug, 2011.
11. Bilgen, O., Friswell, M. L., Kochersberger, K., and Inman, D. J., "Surface Actuated Variable-Camber and Variable-Twist Morphing Wings Using Piezocomposites," Proceedings of the 52<sup>nd</sup> SDM et. al. Conference, Denver, CO, Apr 4 – 7, 2011.
12. Rose, M., McCabe, B., Kochersberger, K., "Development of a Helicopter Deployable Robotic System for Survey and Ground Sampling," AIAA-2011-1557, AIAA Infotech@Aerospace 2011, St. Louis, MO, Mar 29 – 31, 2011.
13. Kroeger, K., Kochersberger, K., Torok, M., "Assessment of ground robot tele-operation using vision systems for terrain mapping," AIAA-2011-1549, AIAA Infotech@Aerospace 2011, St. Louis, MO, Mar 29 – 31, 2011.
14. Ohanian, O. J., E. Karni, C. Olien, E. Gustafson, K. Kochersberger, P. Gelhausen, B. Brown, "Piezoelectric Composite Morphing Control Surfaces for Unmanned Aerial Vehicles", SPIE Paper 7981-203, Proceedings of SPIE Smart Structures Conference, San Diego, CA, Mar 7-10, 2011.
15. Short, N., Lanier, P., Kochersberger, K., and Abbott, L., "Modal-based camera corrections for large baseline stereo imaging," ASPRS 2010 Annual Conference, San Diego, CA, Apr 26 – 30, 2010.
16. Bays, M., and Kochersberger, K., "Tracking of a Plume Source using a priori Models and Nonlinear Filtering," AIAA Infotech@Aerospace Conference, Atlanta, GA, Apr 19 – 22, 2010.
17. Collins, T., Kochersberger, K., "Constrained Layer Damping Test Results for Aircraft Landing Gear," Proceedings of the XXVIII International Modal Analysis Conference, Jacksonville, VA, Feb 2010.
18. Lanier, P., Short, N., Kochersberger, K., Abbott, L. "Modal-Based Camera Correction for Large Pitch Stereo Imaging," Proceedings of the XXVIII International Modal Analysis Conference, Jacksonville, VA, Feb 2010.
19. Bilgen, O., De Marqui, C., Kochersberger, K. B., Inman, D. J., "Flow Control via Piezoceramic Actuators with an Application to a Variable-Camber Airfoil via MFCs," 20th International Conference on Adaptive Structures and Technologies, Hong-Kong, China, Oct 20-22, 2009.
20. Bilgen, O., Kochersberger, K. B., Inman, D. J., "Piezoceramic Actuated Variable-Camber Airfoils: Design, Modeling and Testing," Presentation at the 1<sup>st</sup> Annual Center for Intelligent Material Systems and Structures (CIMSS) Conference, Blacksburg, VA, Aug 20, 2009.
21. Bilgen, O., Ohanian, J.O., Kochersberger, K.B., Inman, D. J., "Novel, Bi-Directional, Variable Camber Airfoil via Macro-Fiber Composite Actuators," AIAA 2009-2133, 50th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Palm Springs, California, May 6, 2009.
22. Rose, M., Kochersberger, K., Franklin, A., Saleh, M., "An Assessment of Vision Systems for Tele-Operated Ground Robot Navigation," AIAA Infotech Conference, Seattle, WA, Apr 2009.
23. Gallimore, C., Kochersberger, K., "Constrained Layer Damping Treatment Design for Aircraft Landing Gear," Submitted to the 27<sup>th</sup> International Modal Analysis Conference, Orlando FL, Feb 9 – 12, 2009.
24. Bilgen O., Erturk, A., and Inman, D.J., Kochersberger, K. B., 'Macro-Fiber Composite Actuated Thin Clamped-Free Benders and Thin Simply-Supported Morphing Airfoils,' *19th International Conference on Adaptive Structures and Technologies*, Oct 6-9, 2008, Ascona, Switzerland.

25. Kochersberger, K., Abbott, L., Klomparens, D., Culhane, A., Sharkasi, A., and Smart, J., "Human Supervisory Control of an Autonomous VTOL using LIDAR and Stereovision," AUVSI Unmanned Systems North America, San Diego, CA, Jun 10 – 12, 2008.
26. Bilgen, O., Kochersberger, K., Inman, D. J., "A Novel Aerodynamic Vectoring Control Airfoil via Macro-Fiber-Composite Actuators," AIAA-2008-1700, 49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Schaumburg, Illinois, 7-10 Apr, 2008.
27. Bilgen, O., Kochersberger, K., Inman, D., "An Experimental and Analytical Study of a Flow Vectoring Airfoil via Macro-Fiber-Composite Actuators," SPIE Smart Structures / NDE, San Diego, Mar, 2008.
28. V.L. Parnell, S. Boedo, M. Kempfski, K. Kochersberger and M. Haselkorn, "SAE 2007-01-4190: Health Monitoring of LAV Planet Gear Bushings using Vibration Signature Analysis Techniques," SAE 2007 Commercial Vehicle Engineering Congress and Exhibition, Chicago, IL, Oct, 2007.
29. Bilgen, O., Kochersberger, K., Diggs, E., Kurdila, A., Inman, D., "AIAA-2741: Morphing Wing Aerodynamic Control via Macro-Fiber-Composite Actuators in an Unmanned Aircraft," AIAA InfoTech@Aerospace Conference, Rohnert Park, CA, May, 2007.
30. Bird, J., Culhane, A., Sharkasi, A., Kochersberger, K., "AIAA-2755: Low-Cost Compact Instrumentation, Control and Aerial Surveillance Payload Support for Small UAVs," AIAA InfoTech@Aerospace Conference, Rohnert Park, CA, May, 2007.
31. Bilgen, O., Kochersberger, K., Diggs, E., Kurdila, A., Inman, D., "Morphing Wing Micro-Air-Vehicles via Macro-Fiber-Composite Actuators," 48<sup>th</sup> AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Honolulu, HI, Apr, 2007. *2007 ASME/Boeing Best paper award.*
32. Diggs, E., Bilgen, O., Kurdila, A., Kochersberger, K., Inman, D., Vignola, J., "Structural Characteristics via SLDV for a Class of Morphing Micro-Air-Vehicles," SPIE Defense and Security Symposium, Orlando, FL, Apr, 2007.
33. Kochersberger, K., and Abe, C., "A Novel, Low Reynolds Number Moment Balance Design for Micro Air Vehicle Research," *AIAA Applied Aerodynamics Conference*, Toronto, ON, Jun, 2005.
34. Ralston, J., Kochersberger, K., Britcher, C., and Hyde, K., "1903 Wright Flyer Simulation for Flight Support and Training," *AIAA Atmospheric Flight Mechanics Conference*, Providence, RI, Aug, 2004.
35. Kochersberger, K., Britcher, C., Crabill, N., Dominguez, K., and Hyde, K., "Flying Qualities of the Wright 1903 Flyer: From Simulation to Flight Test," *AIAA 42<sup>nd</sup> Aerospace Sciences Conference*, Jan, 2004.
36. Britcher, C., Landman, D., Ash, R., Kochersberger, K., Hyde, K., "Predicted Flight Performance of the Wright 'Flyer' Based on Full- Scale Tunnel Data." *AIAA 42<sup>nd</sup> Aerospace Sciences Conference*, Jan, 2004.
37. Kochersberger, K., Robinson, R., and Anderson, M., "Gender Issues in Aerospace Education," *National Congress on Aerospace Education*, Cincinnati, OH, Apr, 2003.
38. Kochersberger, K., Ash, R., Landman, D., Player, J., Hyde, K., "An Evaluation of the Wright 1902 Wright Glider Using Full Scale Wind Tunnel Data," *AIAA 41<sup>st</sup> Aerospace Sciences Conference*, Jan, 2003.
39. Kochersberger, K., Ash, R., Britcher, C., Landman, D., Sandusky, R., Hyde, K., "An Evaluation of the Wright 1901 Glider Using Full Scale Wind Tunnel Data," Paper No. 2002-1134, *40<sup>th</sup> Aerospace Sciences Meeting and Exhibit*, AIAA, Reno, NV, Jan, 2002.
40. Kochersberger, K., Nye, A., Torok, J., and Kostyshak, J., "An Innovative, Hands-on, Vehicle Dynamics Laboratory Class," *ASEE Regional Meeting, St. Lawrence Section*, Rochester, NY, Mar, 2001.

41. Kochersberger, K., Hyde, K., Emens, R., Parker, R., "An Evaluation of the 1910 Wright Vertical Four Aircraft Engine," Paper No. 2001-3387, 39<sup>th</sup> *Aerospace Sciences Meeting and Exhibit*, AIAA, Reno, NV, Jan, 2001.
42. Kochersberger, K., Wald, Q., and Hyde, K., "An Experimental and Analytical Evaluation of the 1911 Wright Bent End Propeller," Paper No. 2000-4122, 18<sup>th</sup> *Applied Aerodynamics Conference*, AIAA, Denver, CO, Aug 14 – 17, 2000.
43. Kochersberger, K., and Sherman, K., "A Structure for a Multidisciplinary Design Course," *American Society of Engineering Education St. Lawrence Section Annual Meeting*, Montreal, Quebec, Apr 16 – 17, 1999
44. Kochersberger, K., and Lund, L., "Identification of Fan Noise Sources in an Isolated Laser Facility," *Proceedings of the 14th International Modal Analysis Conference*, Dearborn, MI, Feb 12 - 15, 1996.
45. Kochersberger, K., and L.D. Mitchell, "The Use of an Improved Residual Model and Sine Excitation to Iteratively Determine Mode Vectors," *Proceedings of the 12th International Modal Analysis Conference*, Honolulu, HI, Jan. 31 - Feb. 3, 1994.
46. Kochersberger, K., and L.D. Mitchell, "A Method for Determining Modal Parameters Using FRF Curve-Fitting and Off-Resonance Sine Dwell," *Proceedings of the 10th International Modal Analysis Conference*, San Diego, CA, 757 – 763, Feb. 3-7, 1992.
47. Kochersberger, K., L.D. Mitchell, and A.L. Wicks, "An Efficient Method for Determining Magnitude and Phase from Laser Velocimeter Data," *Proceedings of the 10th International Modal Analysis Conference*, San Diego, CA, pp. 375-381, Feb. 3 – 7, 1992.
48. Kochersberger, K., L.D. Mitchell, and A.L. Wicks, "Structural Angular Velocity Extraction Using DFT-IDFT Techniques," *Proceedings of the 9th International Modal Analysis Conference*, Florence, Italy, pp. 657 – 663, Apr 15-18, 1991.
49. Mitchell, L.D., K. Kochersberger and R.L. West, "Measurement of a One-Dimensional Mobility Using a Laser-Doppler Velocimeter," *Proceedings of the Society of Experimental Mechanics Spring Conference*, Milwaukee, WI, Jun 10 – 13 1991.
50. Wicks, A.L., K. Kochersberger, and L.D. Mitchell, "Laser Structural Imaging," *Proceedings of the 2nd USAF/NASA Workshop System Identification and Health Monitoring of Precision Space Structures*, California Institute of Technology, Pasadena, CA, pp. 24 – 42, Mar 27 - 29, 1990.

#### **Other Publications:**

- Kochersberger, K., Pilot Briefing, "Remembering Scott Crossfield," *AOPA Magazine*, Vol. 49, No. 6, June, 2006.
- Kochersberger, K., Input/Output Feature, *Mechanical Engineering Magazine Supplement*, 100 Years of Flight: "Not by the Seat of His Pants," Nov. 2003, p. 40.
- Kochersberger, K., and Hyde, K., "The Wright 1902 Glider," *Soaring Magazine*, Vol. 66, No. 10, October, 2002.
- Kochersberger, K., and Hyde, K., "The 1901 Wright Glider," *Soaring Magazine*, Vol. 66, No. 8, August, 2002.
- Kochersberger, K., "System Design for Beginners: How the Race to First Flight was won with Optimization," National Congress for Aerospace Education presentation supplement, April, 2002.
- Kochersberger, K., "The Wright Wind Tunnel Balance: A Clever Way to Measure Airfoil Lift," National Congress for Aerospace Education presentation supplement, April, 2002.
- Kochersberger, K., "What Does a Wing Do? How to Study Wings Without Ever Leaving the Ground," National Congress for Aerospace Education presentation supplement, April, 2002.
- Kochersberger, K., "Head West Young Man - New grad camps his way from Virginia to Montana," *Private Pilot Magazine*, Vol. 31, No. 6, June 1996, pp. 42 - 44.

## Ph.D. Dissertations Directed

1. Bays, M., Stochastic Motion Planning for Applications in Subsea Survey and Area Protection, Mar 23, 2012, co-advised with Dan Stilwell, Electrical and Computer Engineering, Virginia Tech.
2. Bilgen, O., Aerodynamic and Electromechanical Design, Modeling and Implementation of Piezocomposite Airfoils, Aug 2, 2010, co-advised with Dan Inman, CIMSS, Virginia Tech.

## M.S. Theses Directed *Virginia Tech, 2007 – present*

1. Frauenthal, M., Design and Exploration of a Computer Vision Based Unmanned Aerial Vehicle for Railroad Health Applications, 2015.
2. Radford, S., Real-time roadway mapping and ground robotic path planning via unmanned aircraft, Aug. 2014.
3. Lang, J., Characterization of Oscillatory Lift in MFC Airfoils, Aug, 2014.
4. Rogers, D., Unmanned Aerial System for Monitoring Crop Status, Nov, 2013.
5. Kroeger, K., Design and Evaluation of a Fixed-Pitch Multirotor UAV with a Nonlinear Control Strategy, May, 2013
6. Christie, G., Computer Vision for Quarry Applications, May, 2013
7. Probst, T., Evaluating the Aerodynamic Performance of MFC-Actuated Morphing Wings to Control a Small UAV, Oct, 2012.
8. Fanto, P., Automatic Positioning and Design of a Variable Baseline Stereo Boom, Jul, 2012
9. Bromley, M., Pneumatic Particulate Collection System Analysis and Design, Jul, 2012
10. McCabe, B., Underslung Payload Tension Control from an Autonomous Unmanned Helicopter, May, 2012.
11. Krawiec, B., A\*-Based Path Planning for an Unmanned Aerial and Ground Vehicle Team in a Radio Repeating Operation, May, 2012.
12. Torok, M., Autonomous Sample Collection Using Image-Based 3D Reconstructions, Apr, 2012.
13. Collins, R., Design of a Helicopter Slung Vehicle for Actuated Payload Placement, Apr, 2012.
14. Thomas, S., Design of a Teleoperated Rock Sampling System, Sep, 2011.
15. Gassaway, J., Local Bundling of Disparity Maps for Improved Dense 3D Visual Reconstruction, Jul, 2011.
16. Towler, J., Autonomous Aerial Localization of Radioactive Point Sources via Recursive Bayesian Estimation and Contour Analysis, Jul, 2011.
17. Stefanik, K., Sequential Motion Estimation and Refinement for Applications of Real-time Reconstruction from Stereo Vision, Aug, 2011.
18. Gustafson, E., Design, Simulation and Wind Tunnel Verification of a Morphing Wing Airfoil, Oct, 2011.
19. Couch, M., Pneumatic Particulate Collection System for an Unmanned Ground Sampling Robot, Dec, 2010.
20. May, J., Tethered Payload Control from an Autonomous Helicopter, Oct, 2010.
21. Lanier, P., Stereo Correction Using Modal Analysis, Apr, 2010.
22. Rose, M., Design of a Helicopter Deployable Ground Robotic System for Hazardous Environments, Feb, 2010.
23. Short, N., 3-D Point Cloud Generation from Rigid and Flexible Stereo Vision Systems, Dec, 2009
24. Brewer, E., Autonomous Localization of 1/R<sup>2</sup> Sources Using an Aerial Platform, Dec, 2009.
25. Hager, D., Situational Awareness of a Ground Robot from an Unmanned Aerial Vehicle, Jun, 2009.
26. Gallimore, C., Passive Viscoelastic Constrained Layer Damping Application for a Small Aircraft Landing Gear System, Oct, 2008.
27. Klomprens, D., Automated Landing Site Evaluation for Semi-Autonomous Unmanned Aerial Vehicles, Oct, 2008.



28. Sharkasi, A., Stereovision Based Aerial Mapping Using GPS and Inertial Sensors, May, 2008.
29. Culhane, A., Development of an Obstacle Detection System for Human Supervisory Control of a UAV in Urban Environments, Dec, 2007.

#### **M.S. Theses Directed *Rochester Institute of Technology*, 1996 - 2006**

1. Chambers, J., Longitudinal modeling and control of a powered parachute aircraft, 2006
2. Shreve, J., Modification of a Longitudinal Wind Tunnel Balance for Identification of Micro Air Vehicle Instabilities, 2005.
3. Walter, A., Design, Fabrication and Testing of Longitudinal Wind Tunnel Balances for Micro Air Vehicle Applications, 2004.
4. Abe, Corey, Aerodynamic Force and Moment Balance Design, Fabrication, and Evaluation for use in Low Reynolds Flow Applications, 2003.
5. Kacprzyński, G., Assessing the Condition of Constant Velocity Joints, 2002.
6. Horvath, J., Dynamic Measurement and Correlation of a Gear Hobbing Machine, 2000.
7. Dreese, D., Analysis of a Thick Composite Plate Bolted Joint, 2000.
8. Horvath, J., Dynamic Measurement and Correlation of a Gear Hobbing Machine, 2000.
9. Dunn, C., A Study of Signature Analysis Regarding a Rzeppa Type Constant Velocity Joint, 1999.
10. Egenolf, R., Performance Study of the 1911 Wright Brothers Model B Aircraft and Propeller, 1999.
11. Hildebrand, R., Finite Element Analysis Solution Applications for Photoreceptor Modules, 1999.
12. Brott, H., A Study of Aircraft Lateral Dynamics and Ground Stability, 1998.
13. Lund, L., The use of Axially Loaded Flexures for Vibration Isolation in the OMEGA Laser Facility Target Positioner, 1997.
14. Merle, T., An Experimental Determination of Freeplay and its Effect on Modal Complexity and Damping, 1997.
15. DePasquale, C., A Study of an Under-hood Automotive Air-Conditioning Component for the Purposes of Noise and Vibration Reduction, 1997.
16. Kiefer, J., A Dynamic Analysis of a Sport Utility Vehicle, 1996.

#### **M.S. Projects Directed *Rochester Institute of Technology*, 1996 - 2002**

1. Brown, T., A Comparison of FEA and Experimental Techniques for the Dynamic Analysis of Plastic Components, 2002
2. Hortop, A., Performance Evaluation of the Wright 1910 Vertical Four Engine, 2001
3. Minella, C., A Feedback-Driven Particle Generation System for an Optical Engine PIV, 2001
4. Pai, A., Analytical and Experimental Determination of Sound Transmissibility for a Double Wall Enclosure, 2001
5. Becker, E., Instrumentation of a Vehicle for Dynamic Testing, 2000
6. Eckler, J., Design of a Constant Velocity Joint Testing Machine, 2000
7. Shameem, B., Modal Analysis of the RIT Formula Race Car, 1999
8. Elias, J., An Analytical Study of the Active Control of a Strut Actuator, 1999
9. Gregas, M., A Dynamic Finite Element Analysis and Optimization of a Truck Bed Liner, 1999
10. Steg, T., Optimization of a Frame Structure Using Modal Analysis on a Scale Structure, 1998
11. Wavde, A., A Labview Interface for Wind Tunnel Data Acquisition, 1998
12. Leighton, R., Houdini: A Portable Blood Analyzer Design, 1996

**Senior Mechanical Engineering Design Projects Advised:**

<u>Year</u>	<u>Project</u>	<u>Sponsor</u>
2015 - 2016	Astrobotics competition	VT/SEC/NASA
2015 – 2016	DuPont precision agriculture	DuPont
2015 – 2016	Search and rescue UAV	Harris Corp.
2015 – 2016	Latrine pit desludging	Mzuzu University
2007 – 2014	Autonomous Aerial Robotics Competition	Virginia Tech / NASA
2013, 2014	Rotor downwash rig for the Yamaha RMAX	Boeing
2014	UAV-to-Helicopter docking	Boeing
2013, 2014	Silage production equipment for Senegal Farmers	USAID
2012	Human powered helicopter competition	Altria
2011	Rapid prototyped VTOL quadrotor for surveillance	VT ROTC
2009	UAV landing gear redesign	AAI Corp.
2005	Cycles and Systems: <i>A World in Motion</i> (NSF proposal)	Various
2005	UV water disinfection system for developing nations	Harbec
1995 – 2006	RIT SAE Aeromodeling Competition	Various
1997	Luscombe aircraft redesign	Luscombe Foundation
1998	Visionaire aircraft stabilizer design	Visionaire Aircraft, LLC
1999	All terrain wheelchair for child w/ multiple sclerosis	Individual
1996	1896 Chanute glider replica	NSM

**Senior Aerospace Engineering Design Projects Advised:**

<u>Year</u>	<u>Project</u>	<u>Sponsor</u>
2007	UAV design for the Bureau of Land Management	Windstorm Tech, LLC
2008	100 lb and 500 lb joined wing UAV design	AAI Corporation
2008	Micro air vehicle (MAV) competition	None
2008	Human powered airplane	None

**Senior multidisciplinary design projects – solicited and advised at RIT:**

<u>Year</u>	<u>Project</u>	<u>Sponsor</u>	<u>Amount</u>
1998	Design of a plate compactor	Stone Construction Equipment	\$4,000
1998	Design of an ECI well sorter	Ortho Clinical Diagnostics, Inc.	\$8,000
1998	Pneumatic/hydraulic RR car brake system	Buffalo Brake Beam Co.	\$8,000
1998	Design of a removable brake shoe key	Buffalo Brake Beam Co.	\$8,000
1998	Design of a cable tray for the GMR tool	CVC	\$8,000
1999	Design of a heater installation tool	Husky Injection Molding	\$8,000
1999	Analysis and design of an earth compactor	Stone Construction Equipment	\$5,000
1999	Design of a magnetix flux measuring tool	CVC	\$8,000
2001	Transformer circuit breaker redesign	Ermco	\$8,000
2004	Unmanned air vehicle design	Center for Imaging Science, RIT	\$10,000
2005	Unmanned air vehicle design	Center for Imaging Science, RIT	\$10,000

**Industry/University projects funded via cost share from New York State – Principal Investigator**

<u>Year</u>	<u>Project</u>	<u>Sponsor</u>	<u>Amount</u>
1995	Massaging chair redesign	American Massage Products	\$54,300
1996	Pressurized spray bottle design	Chapin Industries	\$43,100
1996	Tabletop sterilizer design	Joslyn Sterilizer	\$20,000
1996	Brake beam design, analysis and test	Buffalo Brake Beam Co.	\$56,500
1997	Shutter chamber analysis and design	CVC	\$46,000
1997	Abrasive mechanism testing	Abtex Abrasives	\$7,800
1998	Sound isolation enclosure design	Branson Plastic Joining, Inc	\$18,300

**Consulting**

<u>Year</u>	<u>Project</u>	<u>Sponsor</u>	<u>Amount</u>
1996	Shock test fixture for duplexer	Microwave Data Systems	\$300
1997	Balancing process capability evaluation	Goulds Pumps, Inc	\$525
1997	Shock test fixture for lens holder	JML Optical	\$4,544
1997	Copier modal analysis	Xerox Corp	\$4,725
1999	FEA of a heater plate	CVC	\$5,600
1999	Vibration testing	Stone Construction Equipment	\$2,900
2003	EGR test apparatus	Delphi Automotive Systems	\$600
2006	LSA powered parachute FAA certification	Heldeberg Designs, LLC	\$15,000

**Teaching Experience** (\* indicates graduate level course):

- Structural dynamics: vibrations\*, system dynamics, experimental modal analysis and signal processing\*, dynamics
- Design: senior design, multidisciplinary design, computer aided engineering (NX I-DEAS), machine design (co-teach)
- Aerospace: aerostructures, flight dynamics and control, aerodynamics, senior design
- Analytical methods: finite element method\* (ANSYS), advanced computational techniques
- Solid body mechanics: statics, mechanics of materials
- Electrical: ME4005 (mechanical engineering lab), digital signal processing\*
- Labs: aerostructures, system dynamics, vibrations, mechanics of materials
- Project classes: Formula SAE advisor, Virginia Tech; SAE Aerodesign, RIT

**Invited Presentations:**

- Air Force Test Pilot School, Armstrong Flight Research Center seminar series: *The Wright Brothers: Invention, Discovery and Flying in the Aerial Age*, Sept. 18, 2015.
- Plenary Panelist: AIAA Infotech@Aerospace 2012 Conference, Garden Grove, CA, *U.S. Export Control and ITAR: What are the Issues for the UAS Community?* Panel members: Kevin Kochersberger (VT), David Brady (VT), Michael Ferguson (New Mexico State University), Robert Warren (Senior Defense Trade Controls Analyst), Fred Sepulveda (AV, Inc), June, 2012
- Center for Imaging Science Seminar Series, Rochester Institute of Technology, "Remote Sensing in Post-Disaster Environments using an Autonomous Helicopter," Feb 22, 2012.
- Mechanical Engineering and Materials Science Seminar Series, University of Pittsburgh, "Smart Unmanned Aircraft: The New Pioneers of Aviation," Oct 27, 2011.
- Keynote address: Soaring Society of America Annual Convention, "100 Years of Soaring Flight," Philadelphia, PA, Jan 29, 2011.

- AIAA Distinguished Lecturer Series, "The Wright Experience," AIAA/ASME Greenville chapter meeting, Greenville, SC, Nov, 09.
- AIAA Distinguished Lecturer Series, "The Wright Experience," Rose-Hulman Institute of Technology, Terre Haute, IN, Sep, 08.
- AIAA Distinguished Lecturer Series, "The Wright Experience," Northern New Jersey AIAA Section, May, 08.
- AIAA Distinguished Lecturer Series, "The Wright Experience," Oklahoma State University, Stillwater, OK, Sep, 07.
- AIAA Distinguished Lecturer Series, "The Wright Experience," San Gabriel Section of the AIAA, Pasadena, CA, Mar, 07.
- Kochersberger, K., Dietrick, G., Feik, M., Crossfield, S., "Remembering A. Scott Crossfield," Hangar Talk, National Congress on Aerospace Education, Crystal City, VA, Oct, 06.
- Kochersberger, K., Keynote Session: Exploring the Limits – Teach Them to Fly, AIAA Passport to the Future Teacher Workshop, Sacramento, CA, Jul, 06.
- AIAA Distinguished Lecturer Series, "The Wright Experience," University of Central Florida, Apr, 06.
- NASA Dryden Colloquium Series, "The Wright Experience," Edwards Air Force Base, CA, Mar, 06.
- AIAA Distinguished Lecturer Series, "The Wright Experience," Pennsylvania State University and the student AIAA chapter, Oct, 05.
- AIAA Distinguished Lecturer Series, "The Wright Experience," University of Kentucky and the student AIAA chapter, Sep, 05.
- AIAA Distinguished Lecturer Series, "The Wright Experience," St. Louis History Museum and the local AIAA chapter, Mar, 05.
- NASA Langley Colloquium series: "The Recreation of the Wright Flyer and the Centennial Celebration," May, 04.
- Kochersberger, K. and Crossfield, A. S., "Experiences with the Wright Experience," Civil Air Patrol (CAP) National Congress on Aerospace Education, Atlanta, GA, Mar, 04.
- "Aerospace Education and Careers," CAP National Congress on Aerospace Education, Atlanta, GA, Mar, 04.
- "From a Dream to First Flight," E-Week Kick-off meeting at the University of North Florida, Jacksonville, FL., Feb, 04.
- "The Wright Experience Project," Buffalo Aero Club, Buffalo, NY, Jan, 04.
- "The Wright brothers: *The First Aeronautical Engineers*," ASME 100 Years of Flight Program at the Rochester Museum and Science Center, Apr, 03.
- "The Wright Brothers' Engines," Turbine Engine Technology Symposium luncheon keynote, Dayton, OH, Sep, 02.
- Hyde, K., Kochersberger, K., and Glenshaw, P., "Educational Initiatives of the Discovery of Flight Foundation," Centennial of Flight Advisory Board, NASA HQ, Washington, D.C., Apr, 02.
- Kochersberger, K., "Innovations of the Wright brothers, the Outcome of Inquiry," CAP National Congress for Aerospace Education, Crystal City, VA, Apr, 02.
- Numerous elementary and middle school presentations on the Wright project.

#### **Affiliations:**

- Deputy technical chair, AIAA SciTech Conference, Intelligent Systems, San Diego, CA, Jan, 2016
- Technical Chair, AIAA SciTech Conference, Intelligent Systems, Orlando, FL, Jan 2015.
- Technical Chair, AIAA SciTech Conference, Intelligent Systems, National Harbor, MD, Jan 2014.
- Technical Chair, AIAA Infotech@Aerospace, Unmanned Systems Applications, Boston, MA, 2013
- Member, AIAA Information Systems Technical Committee

- Technical Co-Chair, Information Systems, 50<sup>th</sup> (Nashville, TN) and 51<sup>st</sup> (2013 Grapevine, TX) Aerospace Sciences Meeting, American Institute of Aeronautics and Astronautics
- Member: American Society of Mechanical Engineers, Society of Automotive Engineers, American Institute of Aeronautics and Astronautics, Association for Unmanned Vehicle Systems International, American Society of Testing and Materials
- Member, Crossfield Aerospace Teacher of the Year Award committee
- Chairman, Cloud Fund (aviation philanthropy foundation)

***Training courses developed:***

- FAA-accepted course, "Light sport aircraft powered parachute inspection course," a 16-hour certification course for aircraft inspection, course no. LSRIPP120501, Nov, 05.
- FAA-accepted course, "Light sport aircraft fixed-wing inspection course," a 16-hour certification course for aircraft inspection, course no. LSRIAP010601, Nov, 05.

***Certifications:***

- Airplane, single engine land
- Powered parachute sport pilot
- Range safety officer, VT unmanned aircraft operations
- Instrument airplane
- Commercial glider
- Flight Instructor, glider
- Light sport aircraft inspection course instructor

***Patents:***

#6,378,374, Kochersberger, K., An Apparatus for Testing a Constant Velocity Joint and a Method Thereof, issued April 30, 2002.

#6,895,830, Kochersberger, K., Kacprzynski, G., Morris, W., and Eckler, J., System and Method for Testing Linkages, issued May 24, 2005.