Joseph F. Horn
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Education

Ph.D. in Aerospace Engineering, Georgia Institute of Technology, June 1999.
M.S. in Mechanical and Aerospace Engineering, University of Virginia, August 1992.
B.S. in Aerospace Engineering, University of Virginia, May 1990.

Experience

Professor, Penn State University, July 2014 to present.

- Teaching undergraduate and graduate level courses in system dynamics, aircraft stability and control, fundamentals of aeronautics, automatic controls, rotorcraft design, and rotorcraft stability and control.
- Conducting sponsored research in flight dynamics, modeling and simulation, flight control design, and UAV path planning with specific emphasis on rotary-wing applications (helicopters and tilt-rotor aircraft).
- Manage the Penn State Vertical Lift Research Center of Excellence Rotorcraft Flight Simulation Laboratory.

Deputy Director of the Penn State Vertical Lift Research Center of Excellence, July 2006 to present.

- One of four key faculty members at Penn State who manage the VLRCOE (the Penn State VLRCOE is one of only three Vertical Lift Research Centers funded by the U.S. Army, ONR, and NASA)
- The VLRCOE involves more than 20 faculty members, supports over 50 graduate students, and draws over $5 million in annual research funding.

Associate Professor, Penn State University, July 2006 to June 2014.

Assistant Professor, Penn State University, July 2000 to June 2006.

Senior Engineer, Sikorsky Aircraft Corporation, Electronic Flight Controls/Simulation, Handling Qualities Group, Stratford, CT. July 1999 to July 2000.

- Handling qualities, stability and control development on S-92 program.
- Handling qualities, simulation, and control law development on Cypher II UAV program.

Graduate Research Assistant, Georgia Tech., School of Aerospace, September 1996 to June 1999.

- Developed flight envelope limiting systems for the V-22 and XV-15 aircraft using neural network limit prediction and tactile cueing through an active center stick. Demonstrated envelope cueing system in piloted simulation at the Boeing Helicopters Flight Simulation Laboratory.

Project Engineer, Piasecki Aircraft Corporation, Essington, PA. August 1992 to August 1996. Consultant 2000-2013.

- Flying Qualities and Simulation Specialist for Piasecki Aircraft Compound rotorcraft programs
- Developed flight simulation code and control laws for the X-49A experimental compound helicopter.

Patents

- US Patent Numbers 7,438,259 and 8,463,465 Compound aircraft control system and method. Inventors: Frank N. Piasecki, Andrew S. Greenjack, Joseph F. Horn
- US Patent Number 6,332,105 Neural network based automatic limit prediction and avoidance system and method. Inventors: Anthony J. Calise, Joseph F. Horn, J.V.R. Prasad

Awards and Associations

- Technical Chair of the 68th American Helicopter Society (AHS) Annual Forum (2011-2012)
- Deputy Technical Chair of the 67th American Helicopter Society (AHS) Annual Forum (2010-2011)
- Associate Editor of the Journal of the American Helicopter Society, 2010 - Present
- AHS Handling Qualities Technical Committee, 2004- Present, Chair 2009-2010
- Associate Fellow of the American Institute Aeronautics and Astronautics (AIAA)
- American Helicopter Society Student Design Competition, faculty advisor and instructor of 1st place team in undergraduate division 2010 and 2013, 2nd place 2011 and 2012.
- 2010 AHS Forum Best Paper in Flight Simulation

- Winner of Tilt-Rotor Handling Qualities Workshop Flight Control Challenge, sponsored by University of Liverpool and the Royal Aeronautical Society, November 2008.
- 2006 Georgia Institute of Technology Council of Outstanding Young Engineering Alumni
- 2003 AHS Forum Best Paper in Flight Simulation
- 1998 Robert L. Lichten Award from the American Helicopter Society (AHS)
- Reviewer: Journal of the American Helicopter Society; AIAA Journal of Guidance, Dynamics, and Control; AIAA Journal of Aircraft; Journal of Aerospace Engineering

Current Graduate Students

J. Michael Spires, PhD expected in December 2014.
Mark DeAngelo, PhD expected in December 2015.
Ilker Oruc, PhD expected in August 2016.
Adam Thorsen, MS expected in August 2014.
Greg Soneson, MS expected in August 2014.
David Caudle, MS expected in December 2014.
Sylvie Garret, MS expected in May 2015.

Graduated Students (PhD)

Gurbuz Taha Ozdemir, PhD in Aerospace Engineering, December 2013, *In-Flight Performance Optimization for Rotorcraft with Redundant Controls*.

Thanan Yomchinda, PhD in Aerospace Engineering, May 2013, *Real-Time Path Planning and Autonomous Control for Helicopter Autorotation*. Thanan is currently a post-doctoral researcher at Penn State (working under my supervision).

Brian Geiger, PhD in Aerospace Engineering, May 2009, *Unmanned Aerial Vehicle Trajectory Planning with Direct Methods*. Brian is currently a Senior Engineer in charge of unmanned systems with Piasecki Aircraft Corporation, Essington PA.

Wei Guo, PhD, December 2009, *Flight Control Design for Rotorcraft with Variable Rotor Speed*. Wei is currently a Senior Engineer with Appareo Systems LLC, Fargo, ND.

Nilesh Sahani, PhD in Aerospace Engineering, December 2005, *Envelope Protection systems for Piloted and Unmanned Rotorcraft*. Nilesh is currently Lead Engineer Control Design and Simulation at Honda Aerospace Corporation, Greensboro, NC.

Dooyong Lee, PhD in Aerospace Engineering, August 2005, *Simulation and Control of Helicopter Shipboard Launch and Recovery Operations*. Dooyong is currently a Senior Engineer with Advanced Rotorcraft Technologies (ART), Mountain View CA.

Devendra Tolani, PhD in Mechanical Engineering, August 2005, *Hierarchical Control of Rotorcraft for Enhanced Performance and Structural Durability*. Dev is currently a Senior Research Scientist with Intelligent Automation, Inc., Rockville MD.

Graduated Students (MS)

Jayanth Krishnamurthi, MS in Aerospace Engineering, August 2013, *Design and Simulation of a Lagged Cable Angle Feedback Control System for Helicopter Slung Loads*. Jayanth is currently a PhD student in Aerospace Engineering at the Rensalaer Polytechnic Institute.

Siddharth Sonti, MS in Mechanical Engineering, May 2013, *Identification of Instabilities in Rotorcraft Systems*. Siddharth is currently with Xerox Research Center in Webster, NY.

Mark DeAngelo, MS in Aerospace Engineering, May 2012, *Optimal Search Strategies for Unmanned Aerial Vehicles*. Mark is currently a PhD student at Penn State under my advisement.

Eric O'Neill, MS in Aerospace Engineering, December 2011, *Modeling and Control Design for a Rotorcraft with On-Blade Gust Rejection System*. Eric is currently an engineer with Bell Helicopter Textron, Fort Worth TX.

Eric Schmidt, MS in Electrical Engineering, August 2010, *Unmanned Aerial Vehicle Trajectory Optimization With Neural Network Approximation Methods*. Eric is currently a Research Scientist with Numerica Corporation.

Gurbuz Taha Ozdemir, MS in Aerospace Engineering, May 2010, *Flight Control Design for a Ducted Fan Aircraft with Redundant Control Effectors*. Taha continued graduate studies at Penn State and completed his PhD degree under my advisement.

Thanan Yomchinda, MS in Aerospace Engineering, May 2009, *Flight Control Design and Handling Qualities Analysis for a Tiltrotor Aircraft*. Thanan continued on with a PhD degree and is currently a post-doctoral researcher at Penn State.

Eric Tobias, MS in Aerospace Engineering, August 2008, *Development of Modeling and Simulation Tools for Analysis of Ducted Fan Aircraft*. Eric is currently a contractor with U.S. Army Aeroflightdynamics Directorate (AFDD) at NASA Ames research center, Moffett Field CA.

Sade Sparbanie, MS in Aerospace Engineering, December 2008, *Modeling and Identification of Unsteady Airwake Disturbances on Rotorcraft*. Sade is currently a flight test engineer with Sikorsky Aircraft Corporation, West Palm Beach, FL.

Brian Geiger, MS in Aerospace Engineering, May 2005, *Flight Control Optimization on a Fully Compound Helicopter with Redundant Control Effectors*. Brian is a Senior Engineer in charge of unmanned systems with Piasecki Aircraft Corporation, Essington PA.

Hsun-Hsuan Huang, MS in Aerospace Engineering, August 2004, *A State Estimation System for a Rotary-Wing Unmanned Aerial Vehicle*. Hsun-Hsuan received her PhD at Ohio State and is now an engineer for iGATE (a contractor General Motors).

Derek Bridges, MS in Aerospace Engineering, August 2003, *Damage Mitigating Control of Rotorcraft*. Derek is currently a controls engineer with LIGO laboratories, Baton Rouge, LA.

Matthew Swartzwelder, MS in Aerospace Engineering, August 2003, *Control Optimization for Compound Rotorcraft with Redundant Control Surfaces*. Matt is currently an officer with U.S. Navy and a Naval Test Pilot, Patuxent River Naval Air Station MD.

Nilesh Sahani, MS in Aerospace Engineering August 2002, *Collective Axis Limit Avoidance Algorithms for Carefree Maneuvering on Rotorcraft*. Nilesh continued on with a PhD degree at Penn State. He is currently Lead Engineer Control Design and Simulation at Honda Aerospace Corporation, Greensboro, NC.

Graduated Students (BS Honors Theses)

Rebecca Ripley, BS in Electrical Engineering, December 2013, *Investigation of Attitude and Translational Rate Command Control Laws for a Ship-Based Helicopter*.

Andrew Wilson, BS in Mechanical Engineering, May 2010, *A Control Allocation Method for a Helicopter with On-Blade Control*.

Christian Haag, BS in Aerospace Engineering, December 2007, *Open-Source Flight Simulation*.

Teaching

AERSP 304 Aerospace Systems Dynamics and Control (2002-2004, 2008)

AERSP 306 Introduction to Aeronautics (2006)

AERSP 402A/B Section 2, Aircraft Design – Rotorcraft (2009 to 2014)

AERSP 413, Aircraft Stability and Control (2000-2007, 2009-2013)

AERSP 460 (AERSP 497G), Classical and Modern Controls (2001, 2003-2005)

AERSP 518, Dynamics and Control of Aerospace Vehicles, (2005, 2007, 2009, 2011, 2013)

AERSP 597B (AERSP 597J), Rotorcraft Stability and Control (2003, 2008, 2010, 2012, 2014)

Current and Recent Funded Research Programs (title, sponsor, period of performance)

"Autonomous Control Modes and Optimized Path Guidance for Shipboard Landing in High Sea States," Office of Naval Research (ONR). July 2014 to June 2017.

"Autonomous UAV Aerodynamic Performance Analysis for the Near-Ship Environment," U.S. Navy Phase II.5 STTR, sub-contract to CRAFT-Tech, Inc., March 2014 – August 2015.

"Pilot-in-the-Loop CFD Method Development," Office of Naval Research (ONR). April 2014 to March 2017.

"Flight Test Measurement of Airwake Disturbances for Validation of Virtual Dynamic Interface Simulations," Office of Naval Research (ONR). October 2013 to September 2016.

"Control Redundancy to Enhance Rotorcraft Performance, Handling Qualities, and Survivability," National Rotorcraft Technology Center (NRTC), as part of the Vertical Lift Research Center of Excellence (VLRCOE), funded by U.S. Army, Navy, and NASA. September 2011-May 2016.

"Advanced Response Types and Cueing Systems for Naval Operations," National Rotorcraft Technology Center (NRTC), as part of the Vertical Lift Research Center of Excellence (VLRCOE), funded by U.S. Army, Navy, and NASA. September 2011-May 2016.

"Autonomous Multi-lift Systems," National Rotorcraft Technology Center (NRTC), as part of the Vertical Lift Research Center of Excellence (VLRCOE), funded by U.S. Army, Navy, and NASA. September 2011-May 2016.

"Innovative Method for Real-Time Damage Alleviation," U.S. Navy Phase I and Phase II SBIR, subcontract to Technical Data Analysis, Inc. October 2011-December 2014.

"Alternative Control Law Architecture for Fly-By-Wire Helicopters," Bell Helicopter Textron. October 2011-December 2013.

"Aeroelastic Stability Methods," Vertical Lift Consortium (VLC), funded by the U.S. Army and industry partners. June 2011-August 2013.

"Handling Qualities Requirements and Flight Control Concepts for Future Vertical Lift," Vertical Lift Consortium (VLC), funded by the U.S. Army and industry partners. June 2011-August 2013.

"Aided/Automated Flare and Landing during Autorotation (AutoFLARE)," Vertical Lift Consortium (VLC), funded by the U.S. Army and industry partners. January 2010-August 2013.

Recent Invited Lectures and Seminars

1. *Flight Test Measurement of Airwake Disturbances for Validation of Virtual Dynamic Interface Simulations* Presented to The Technical Cooperation Program (TTCP) TP-2 Rotorcraft Technologies Workshop, United States Naval Academy, Annapolis, MD, May 13, 2014.
2. *Current Research Activities in Flight Simulation and Control at the Penn State VLRCOE*. Presented to Sikorsky Aircraft Corporation, Stratford, CT, June 11, 2013.
3. *Recent Advances and Future Directions in Rotorcraft Flight Controls and Handling Qualities at the Penn State VLRCOE*. Presented to U.S. Army AeroFlightDynamics Directorate and NASA Ames Research Center, Moffett Field, CA, December 9, 2010.
4. *Use of Stochastic Ship Airwake Models for Simulation and Gust Rejection Control Design*. Presented to the The Technical Cooperation Program (TTCP) Land and Maritime Operational Challenges Workshop, United States Naval Academy, Annapolis, MD, April 20, 2010.
5. *Modeling and Simulation to Predict Pilot Workload of Ship-Based Rotorcraft*. Presented to the U.S. Naval Air Warfare Center Workshop on Aerodynamic Modeling and Simulation in Support of Ship-Aircraft Integration, California, MD, September 15, 2009.
6. *Improving Rotorcraft Safety and Performance through Advanced Flight Control Design*. Penn State Engineering Science and Mechanics Seminar, University Park, PA, March 25, 2009.
7. *Methods for Rotorcraft Flight Dynamics Modeling, Identification, and Control*. A short course and workshop presented to Centro Italiano Ricerche Aereospaziali (CIRA), Capua, Italy, September 18-23, 2008.
8. *Modeling and Alleviation of Airwake Disturbances on Rotorcraft in Shipboard Operations*, An invited lecture to the SAE/IEEE Aerospace Guidance and Control Systems Committee Meeting, Salt Lake City, UT, March 6, 2008
9. *Recent Research on Flight Dynamics, Simulation and Control at the Pennsylvania State University*, A series of lectures presented to the Nanjing University of Aeronautics and Astronautics, Nanjing, China, October 8-11, 2007.
10. *Advanced Modeling and Control Design for Helicopter Shipboard Operations*, An invited presentation to the HeliJapan conference, Nagoya, Japan, November 16, 2006.

Publications in Archival Journals

1. Krishnamurthi, J. and Horn J.F., "Helicopter Slung Load Control using Lagged Cable Angle Feedback," *Journal of the American Helicopter Society.* In Press 2014.
2. Cooper, J.C., Horn, J.F., Yomchinda, T., and O'Neill, E.P., "Handling Qualities Evaluation of an Adaptive Disturbance Compensation System for Ship-based Rotorcraft," *Journal of the American Helicopter Society*, Vol. 59, (2), April 2014, pp. 12-23.
3. Sonti, S., Horn, J.F., Keller, R., and Ray, A., "Identification of Instabilities in Rotorcraft Systems," *ASME Journal of Dynamic Systems, Measurement and Control*, Vol. 136, (2), March, 2014, pp. 024505-1 – 024505-6.
4. Horn, J.F., Guo, W., and Ozdemir, G.T., "Use of Rotor State Feedback to Improve Closed Loop Stability and Handling Qualities," *Journal of the American Helicopter Society*, Vol. 57, (2), April 2012, pp.1-10.
5. Horn, J.F., Schmidt, E.M., Geiger, B.R., and Deangelo, M.P., "Neural Network Based Trajectory Optimization for Unmanned Aerial Vehicles," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 35, (2), April 2012, pp. 548-562.
6. Geiger, B.R., Horn, J.F., Sinsley, G.L., Ross, J.A., and Long, L.N., "Flight Testing a Real Time Implementation of a UAV Path Planner Using Direct Collocation," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 31, (6), November-December 2008, pp.1575-1586.
7. Yasar, M., Ray, A., and Horn, J.F., "A Comprehensive Control Strategy for Integrated Flight/Propulsion Systems," *Journal of Aerospace Engineering – Proceedings of the Institute of Mechanical Engineers Part G*, Vol. 222, (6), June 2008, pp. 843-859.
8. Miller, J.A., Minear, P.D., Neissner, A.F., DeLullo, A.M., Geiger, B.R., Long, L.N., and Horn, J.F., "Intelligent Unmanned Air Vehicle Flight Systems," *AIAA Journal of Computing, Information, and Communications*, Vol. 4, May 2007.

9. Sahani, N. A., Horn, J. F., Jeram, G. J., and Prasad, J. V. R., "A Hub Moment Limit Protection System Using Neural Network Prediction," *Journal of the American Helicopter Society*, Vol. 51, (4), October 2006, pp. 331-340.
10. Sahasrabudhe, V., Horn, J.F., Sahani, N., Faynberg, A., and Spaulding, R. "Simulation Investigation of a Comprehensive Collective-Axis Tactile Cueing System." *Journal of the American Helicopter Society*, Vol. 51, (3), July 2006, pp. 215-224.
11. Tolani, D.K., Ray, A., and Horn, J.F., "Integrated decision and control of human-engineered complex systems," *International Journal of General Systems*, Vol. 35, (3), June 2006.
12. Horn, J.F., Bridges, D.O., Wachspress, D.A, and Rani, S.L., "Implementation of a Free-Vortex Wake Model in Real-Time Simulation of Rotorcraft," *AIAA Journal of Computing, Information, and Communications*, Vol. 3, (3), March 2006.
13. Chen, H.N., Brentner, K.S., Lopes, L.V., and Horn, J.F., "An Initial Analysis of Transient Noise in Rotorcraft Maneuver Flight." *International Journal of Aeroacoustics*, Vol. 5, (2), April 2006.
14. Sahani, N. and Horn, J.F., "Adaptive Model Inversion Control of a Helicopter with Structural Load Limiting." *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 29, (2), March-April 2006.
15. Lee, D. and Horn, J.F., "Simulation of Pilot Workload for a Helicopter Operating in a Turbulent Ship Airwake." *Journal of Aerospace Engineering – Proceedings of the Institute of Mechanical Engineers Part G*, Special issue on shipbourne aviation, Vol. 219, (G5), October 2005, pp. 445-458.
16. Horn, J.F., Tolani, D.K., Lagoa, C.M., Wang, Q., and Ray, A., "Reliable Operation of Rotorcraft Using Probabilistic Robust Control." *IFAC Control Engineering Practice*, Vol. 12, (8), August 2005, pp. 1037-1046.
17. Horn, J.F., Bridges, D.O., Lopes, L.V., and Brentner, K.S., "Development of a Low-Cost Multi-Disciplinary Rotorcraft Simulation Facility." *AIAA Journal of Computing, Information, and Communications*, Vol. 2, (7), July 2005, pp.267-284.
18. Lee, D., Sezer-Uzol, N., Horn, J.F., and Long, L.N., "Simulation of Pilot Control Activity During Helicopter Shipboard Operations," *AIAA Journal of Aircraft*, Vol. 42, (2), March-April 2005, pp.448-461.
19. Brentner, K.S., Lopes, L.V., Chen, H.N., and Horn, J.F., "Near Real-Time Simulation of Rotorcraft Acoustics and Flight Dynamics," *AIAA Journal of Aircraft*, Vol. 42, (2), March-April 2005, pp. 347-355.
20. Sahani, N. and Horn, J.F., "Neural Network Based Algorithms for Comprehensive Collective Axis Limit Avoidance on Rotorcraft," *AIAA Journal of Computing, Information, and Communications*, Vol. 1, (11), November 2004, pp.432-451.
21. Horn, J.F. and Sahani, N., "Detection and Avoidance of Main Rotor Hub Moment Limits on Rotorcraft," *AIAA Journal of Aircraft*, Vol. 41, (2), March-April 2004, pp.372-379.
22. Horn, J.F., Calise, A.J., and Prasad, J.V.R, "Flight Envelope Limit Detection and Avoidance for Rotorcraft," *Journal of the American Helicopter Society*, Vol. 47, (4), October 2002, pp. 253-262.
23. Horn, J.F., Calise, A.J., and Prasad, J.V.R, "Flight Envelope Cueing on a Tilt-Rotor Aircraft Using Neural Network Limit Prediction," *Journal of the American Helicopter Society*, Vol. 46, (1), January 2001, pp. 23-31.

Recent Consulting Reports

Horn, J.F., Keller, J.D, Whitehouse, G.R., and McKillip, R.M., *Analysis of Urban Airwake Effects on Heliport Operations at the Chicago Children's Memorial Hospital*, Final Report Submitted to Illinois Department of Transportation, May 27, 2011. 77 pages. Available at http://www.dot.state.il.us/aero/CMH.

Book Review

Horn, J.F., Book Review of "Aircraft and Rotorcraft System Identification: Engineering Methods with Flight Test Examples (M.B. Tischler et al.; 2006) [Bookshelf]," *Control Systems, IEEE*, vol.28, no.4, pp.101,103, Aug. 2008.

Publications in Conference Proceedings

1. Soneson, G.L., and Horn, J.F., "Simulation Testing of Advanced Response Types for Ship-Based Rotorcraft," Proceedings of the American Helicopter Society 70th Annual Forum, Montreal, Canada, May 2014.
2. Thorsen, A.T., Horn, J.F., and Ozdemir, G.T., "Optimizing Control of a Compound Rotorcraft in Quasi-Steady Maneuvers," Fifth Decennial AHS Aeromechanics Specialists' Conference, San Francisco, California, January 22-24, 2014.
3. Thaiss, C.J., McColl, C.C., Horn, J., Keller, E., Ray, A., Semidey, R., and Phan, N., "Rotorcraft Real Time Damage Alleviation through Load Limiting Control," AIAA/ASMe/ASCE/AHS/SC Structures, Structural Dynamics, and Materials Conference, National Harbor, MD, January 13-17, 2014.
4. Li, Z., Horn, J.F., and Langelaan, J.W., "Coordinated Transport of a Slung Load by a Team of Autonomous Rotorcraft," AIAA Guidance, Navigation, and Control Conference, National Harbor, MD, January 13-17, 2014.

5. Sonti, S., Horn, J.F., Keller, R., and Ray, A., "Identification of Instabilities in Rotorcraft Systems," Proceedings of the ASME Dynamic Systems and Controls Conference, Palo Alto, CA, October 21-23 2013.
6. Ozdemir, G.T., Horn, J.F., and Thorsen, A.T., "In-Flight Multi-Variable Optimization of Redundant Controls on a Compound Rotorcraft," Proceedings of the AIAA Guidance, Navigation, and Control Conference, Boston, MA, August 19-22, 2013.
7. Rigsby, J., Hung, C.H., and Horn, J.F., "Design and Evaluation of a Robust Feedback Controller for Helicopters Handling Externally Slung Loads," Proceedings of the American Helicopter Society 69th Annual Forum, Phoenix, AZ, May 2013.
8. Krishnamurthi, J. and Horn J.F., "Helicopter Slung Load Control using Lagged Cable Angle Feedback," Proceedings of the American Helicopter Society 69th Annual Forum, Phoenix, AZ, May 2013.
9. Song, Y., Horn, J.F., Li, Z., and Langelaan, J.W., "Modeling, Simulation, and Non-linear Control of a Rotorcraft Multi-Lift System," Proceedings of the American Helicopter Society 69th Annual Forum, Phoenix, AZ, May 2013.
10. Barron, H.M., Brentner, K.S., Horn, J.F., Ozdemir, G.T., and Thorsen, A.T., "Acoustic Analysis of Compound Helicopters with Trim Variations," Proceedings of the American Helicopter Society 69th Annual Forum, Phoenix, AZ, May 2013.
11. Yomchinda, T., Grande, N., Horn, J.F., and Langelann, J.W., "Development and Testing of an Autonomous Autorotation System," Proceedings of the American Helicopter Society International Specialists' Meeting on Unmanned Rotorcraft, Scottsdale, AZ, January 22-24, 2013.
12. DeAngelo, M.P. and Horn J.F., "Optimal Search Strategies for Unmanned Aerial Vehicles," Proceedings of the AIAA Guidance, Navigation, and Control Conference, Minneapolis, MN, August 13-16, 2012.
13. Sahasrabudhe, V., Fallon, M., Blanken, C., Hayes, P.M., Kashawlic, B., Labus, G., Grill, I., Campbell, K., Shue, J., Schillings, J., and Horn, J.F., "Transformational Vehicle Management Systems," Proceedings of the American Helicopter Society 68th Annual Forum, Ft. Worth, TX, May 2012.
14. Ozdemir, G.T. and Horn, J.F., "Simulation Analysis of a Flight Control Law with IN-Flight Performance Optimization," Proceedings of the American Helicopter Society 68th Annual Forum, Ft. Worth, TX, May 2012.
15. Yomchinda, T., Horn, J.F., and Langelaan, J.W., "Autonomous Control and Path Planning for Autorotation of Unmanned Helicopters," Proceedings of the American Helicopter Society 68th Annual Forum, Ft. Worth, TX, May 2012.
16. Hayes, P.M., Grill, I., and Horn, J.F., "Gust Rejection Using Active Trailing Edge Flaps," Proceedings of the American Helicopter Society 68th Annual Forum, Ft. Worth, TX, May 2012.
17. Yomchinda, T., Horn, J.F., Langelaan, J.W., "Flight Path Planning for Descent-phase Helicopter Autorotation," Proceedings of the AIAA Guidance, Navigation, and Control Conference, Portland, OR, August 8-11, 2011.
18. Cooper, J.C., Horn, J.F., Schierman, J., Yomchinda, T. and O'Neill, E.P., "Handling Qualities Evaluation of an Adaptive Disturbance Compensation System for Ship-based Rotorcraft," Proceedings of the American Helicopter Society 67th Annual Forum, Virginia Beach, VA, May 3-5, 2011.
19. Keller, J.D., McKillip, R.M, Horn, J.F., and Yomchinda, T. "Active Flight Control and Appliqué Inceptor Concepts for Autorotation Performance Enhancement," Proceedings of the American Helicopter Society 67th Annual Forum, Virginia Beach, VA, May 3-5, 2011.
20. Geiger, B.R., Piasecki, F.W., Horn, J.F., Schifferle, P., and Lotterio, M., "Challenges of Flight Control in a Compound Helicopter," Proceedings of the International Powered Lift Conference, Philadelphia, PA, October 5-7, 2010.
21. Schmidt, E.M., Horn, J.F., Geiger, B.R., "Use of Neural Network Approximation for Trajectory Optimization of Unmanned Aerial Vehicles with Gimbaled Cameras," Proceedings of the AIAA Guidance, Navigation, and Control Conference, Toronto, Canada, August 2-5, 2010.
22. Cooper, J.C., Schierman, J., and Horn, J.F., "Robust Adaptive Disturbance Compensation for Ship-based Rotorcraft," Proceedings of the AIAA Guidance, Navigation, and Control Conference, Toronto, Canada, August 2-5, 2010.
23. Horn, J.F., Guo, W., and Ozdemir, G.T., "Use of Rotor State Feedback to Improve Closed Loop Stability and Handling Qualities," Proceedings of the American Helicopter Society 66th Annual Forum, Phoenix, AZ, May 11-13, 2010.
24. Yomchinda, T. and Horn, J.F. "Handling Qualities Assessment of a Model Inversion Controller for a Tiltrotor Aircraft," Proceedings of the 3rd International Basic Research Conference on Rotorcraft Technology, Nanjing, China, October 14-16, 2009.
25. Horn. J.F., Guo, W., and Ozdemir, G. "Implementation of Variable RPM in Helicopter Flight Control Laws," Proceedings of the 3rd International Basic Research Conference on Rotorcraft Technology, Nanjing, China, October 14-16, 2009.
26. Geiger, B.R., Schmidt, E.M, and Horn, J.F., "Use of Neural Network Approximation in Multiple-Unmanned Aerial Vehicle Trajectory Optimization" Proceedings of the AIAA Guidance, Navigation, and Control Conference, Chicago, IL, August 10-13, 2009.
27. Ozdemir, G.T., and Horn, J.F. "Control of Ducted Fan Aircraft using Redundant Effectors," Proceedings of the AIAA Atmospheric Flight Mechanics Conference, Chicago, IL, August 10-13, 2009.

28. Guo, Wei and Horn, J.F., "Rotor State Feedback Control for Rotorcraft with Variable Rotor Speed," Proceedings of the AIAA Guidance, Navigation, and Control Conference, Chicago, IL, August 10-13, 2009.
29. Yomchinda, T., and Horn, J.F. "Integrated Flight Control Design and Handling Qualities Analysis for a Tilt Rotor Aircraft," Proceedings of the AIAA Atmospheric Flight Mechanics Conference, Chicago, IL, August 10-13, 2009.
30. Guo, Wei and Horn, J.F., "Helicopter Flight Control with Variable Rotor Speed and Torque Limiting," Proceedings of the American Helicopter Society 65th Annual Forum, Grapevine, Texas, May 27-29, 2009.
31. Horn, J.F., Sparbanie, S.M., Cooper J., and Schierman, J., "On-Line Identification of Ship Airwake Disturbances on Rotorcraft," Proceedings of the American Helicopter Society 65th Annual Forum, Grapevine, Texas, May 27-29, 2009.
32. Horn, J.F., Sparbanie, S.M., Geiger, D.H., and Sahasrabudhe, V. "A Stochastic Model of Unsteady Ship Airwake Disturbances on Rotorcraft," Proceedings of the American Helicopter Society 65th Annual Forum, Grapevine, Texas, May 27-29, 2009.
33. Horn, J.F., and Geiger, B.R. "Neural Network Based Trajectory Optimization for Unmanned Aerial Vehicles," Proceedings of the AIAA Aerospace Sciences Meeting, Orlando, FL, January 2009.
34. Tobias, E.L. and Horn, J.F., "Simulation Analysis of the Controllability of a Tandem Ducted Fan Aircraft," AIAA Atmospheric Flight Mechanics Conference, Honolulu, HI, United States, 2008.
35. Ross, J.A., Geiger, B.R., Sinsley, G.L., Horn, J.F., Long, L.N., and Niessner, A.F. "Vision-Based Target Geolocation and Optimal Surveillance on an Unmanned Aerial Vehicle," Proceedings of the AIAA Guidance, Navigation, and Control Conference, Honolulu, HI, August 2008.
36. Horn J.F., Sparbanie S.M., Cooper, J., and Schierman, J., "On-Line Identification of Ship Airwake Disturbances on Rotorcraft," Proceedings of the AIAA Guidance, Navigation, and Control Conference, Honolulu, HI, August 2008.
37. Horn, J. F., and Guo, Wei, "Flight Control Design for Rotorcraft with Variable Rotor Speed," American Helicopter Society 64th Annual Forum, Montréal, Canada, April 29 – May 1, 2008.
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