

DAVID E. JEFFCOAT

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EXPERIENCE

September 2011 – Present. Adjunct Assistant Professor, Industrial & Systems Engineering, University of Florida, Shalimar, Florida. Teach graduate courses in Systems Architecture, Systems Management, and Reliability.

June 2002 to August 2011. Principal Engineer, Air Force Research Lab, DR-IV (0801), Eglin Air Force Base, FL. Conduct basic research in cooperative control and reliability of complex networks, projects funded by Air Force Office of Scientific Research. National Research Council (National Academies) Research Advisor.

December 2000 - June 2002. Technical Director, Armament Product Directorate, GS-0801-15, Eglin AFB. Senior technical leadership for all engineering personnel within the Armament Product Directorate at Eglin.

1999 to December 2000. Technical Director, Engineering. GS-0801-15, Eglin AFB. Personnel management, risk assessments, source selections, and independent review team leadership. Founder and first Chairman of the Center Engineering Rotation IPT.

1996 - 1999. Chief, Systems Engineering, GS-0801-14, Eglin AFB. Center focal point for Operational Safety, Suitability, and Effectiveness. Technical Area Chief for two major source selections. Led tri-service evaluation of the Next Generation Target Control System.

1994 - 1996. Senior Systems Engineer, GS-0801-13, Eglin AFB. Chief Engineer for the Kadena Interim Training System. Development of air combat training systems, including subsystems for weapon simulations, aircraft tracking, and display.

1992 - 1994. Senior Operations Research Analyst, GS-1515-14. Office of the Secretary of Defense (OSD) Joint Camouflage, Concealment, and Deception (JCCD) Joint Test Force. Joint service test planning and test execution using operational aircraft.

1989 - 1992. Supervisory General Engineer, GM-0801-13, Eglin AFB. Development of weapon simulations and aircraft survivability estimates. First-level engineering supervisor.

1988 – 1989. Student, Auburn University, USAF long-term, full-time training program.

1985 - 1988. General Engineer, GS-0801-13, Eglin AFB. Cost and Operational Evaluation Analyses (COEA) of weapon and air base operability systems for HQ AFSC.

1980 - 1985. Operations Research Analyst, GS-1515-12, Eglin AFB.

1976 - 1980. Senior Process Control Engineer, Monsanto Textiles Company, Pensacola, FL. Designed and implemented real-time process control systems.

EDUCATION

Ph.D., Industrial Engineering, Auburn University, Auburn, Alabama, 1990

M.S., Industrial Engineering, Auburn University, 1976

B.S., Mathematics, Magna cum Laude, Troy University, Troy, Alabama, 1974

PROFESSIONAL LICENSES AND CERTIFICATIONS

Registered Professional Engineer, State of Alabama (PE 15530)

HONORS AND AWARDS

USAF Outstanding Civilian Career Service Award, 2011

USAF Meritorious Civilian Service Award, 2001

USAF Exemplary Civilian Service Award, 1998

PROFESSIONAL ASSOCIATIONS

Member, Engineering Advisory Board, Harding University, 2008 - present

Member, National Defense Industrial Association (NDIA)

Member, American Institute of Aeronautics and Astronautics (AIAA), 2002-2011

Research Adviser, National Research Council Associates Program, 2002 - 2011

Member, Alumni Council, Auburn University ISE Department, 2000 - 2003

Member, Executive Committee, Joint Ordnance Commanders' Group, 2000 - 2002

Member, Joint Aviation Armaments Board, 2000 - 2002

Member, DOD Insensitive Munitions IPT, 2000 - 2002

Chairman, JTTCG/ME Delivery Accuracy Working Group, 1997 - 1999; 2002 - 2005

Co-Chairman, JTTCG/AS Methodology Subgroup, 1990 - 1992

U.S. Army Reserve, 1972 - 1978

Honorary Societies

Phi Kappa Phi, Scholastic Honor Society

Alpha Pi Mu, Industrial Engineering Honor Society

Kappa Delta Pi, Honor Society in Education

COMMUNITY SERVICE

Member, Board of Directors, Wiregrass Christian Youth Camp
Member, President's Council, Harding University, Searcy, Arkansas, 2001 - 2005
Panel Chair, Okaloosa County Regional Science Fair, 1999 – 2001
Volunteer Assistant, Choctawhatchee High School Tennis Team, 1997 – 1998
Member, Board of Directors, Emerald Coast Science Center, 2002 – 2005
Elder, Fort Walton Beach Church of Christ, 1998 - present

SELECTED PUBLICATIONS AND PRESENTATIONS

Journal Articles

Boyko, Nikita;turko, T.; Boginski, V.; Jeffcoat, D.; Uryasev, S.; Zrazhevsky, G.; Pardalos, P.,
“Robust multi-sensor scheduling for multi-site surveillance,” *Journal of Combinatorial Optimization*, accepted for publication.

Krokhmal, Pavlo, and D. Jeffcoat, “On Measures of Cooperation in Distributed Systems under Uncertainties,” *Military Operations Research*, to appear.

Liang, Zhe, A. Chaovalitwongse, A. Rodriguez, D. Jeffcoat, D. Grundel, J. O’Neal,
“Optimization of Spatio-Temporal Clustering for Target Tracking from Multi-Sensor Data,”
IEEE Transactions on Systems, Man, and Cybernetics, Part C: Applications and Reviews, Vol 40, No. 2, ISSN 1094-6977, March 2010, pp 176-188.

Jun, Myungsoo, and D. Jeffcoat, “Control Theoretic Analysis of a Target Search Problem by a Team of Search Vehicles,” *International Journal of Control*, Vol. 81, Issue 12, p1878-1885, 2008.

Yerrick, Nathan, M. Yavuz, and D. Jeffcoat, “Two Sensor Motion Models for the Dynamic Sensor Coverage Problem,” *Military Operations Research*, Vol 12, No. 2, 2007, pp55-64.
[won MOR Journal Award for 2007]

Sinclair, Andrew; R. Prazenica, and D. Jeffcoat, “Optimal and Feedback Path Planning for Cooperative Attack,” *Journal of Guidance, Control, and Dynamics*, Vol. 31 no. 6, 2008.

Jeffcoat, D., P. Krokhmal and O. Zhupanska, “Effects of Cueing in Cooperative Search,” *Naval Research Logistics Vol 53*, pp 814-821, 2006.

Jeffcoat, D., “Weaponeering: Conventional Weapon System Effectiveness,” *Phalanx: The Bulletin of Military Operations Research*, Vol. 38, No. 2, June 2005.

Jeffcoat, D. and R. Bulfin, "Simulated Annealing for Resource-Constrained Scheduling," *European Journal of Operational Research*, Vol. 70-1, October, 1993, pp. 43-51.

Book Chapters

Jeffcoat, D., P. Krokhmal and O. Zhupanska, "A Markov Chain Approach to Analysis of Cooperation in Multi-Agent Search Missions," *Cooperative Systems: Control and Optimization*, Grundel, Murphey, Pardalos, Prokopyev, editors, Springer, 2007, pp 171-184.

Grundel, D. and D. Jeffcoat, "Combinatorial Test Problems and Problem Generators," *Encyclopedia of Optimization*, 2nd Ed." (C.A. Floudas and P.M. Pardalos, Eds.). Springer, to appear 2007.

Alexander, A. and D. Jeffcoat, "A Markov Analysis of the Cueing Capability / Detection Rate Trade-Space in Search and Rescue," *Cooperative Systems: Control and Optimization*, Grundel, Murphey, Pardalos, Prokopyev, editors, Springer, 2007, pp. 185-196.

Bolonkin, A, and D. Jeffcoat, "Optimal Thrust Angle" in *Non-Rocket Space Launch and Flight*, Elsevier, London, 2005, pps. 431-446.

Grundel, D. and D. Jeffcoat, "Combinatorial Test Problems and Problem Generators," in *Encyclopedia of Optimization*, C.A. Floudas and P.M. Pardalos, Eds, Kluwer Academic Publishers, 2004

Jeffcoat, D. "Coupled Detection Rates: An Introduction," in *Theory and Algorithms for Cooperative Systems*, Grundel, D., Murphey, R., and Pardalis, P., editors, New Jersey: World Scientific Publishing, 2004, pp. 157-167.

"Applying Simulated Annealing to the Multidimensional Assignment Problem," with Wilson Clemons and Don Grundel, in *Theory and Algorithms for Cooperative Systems*, Grundel, D., Murphey, R., and Pardalis, P, editors, New Jersey: World Scientific Publishing, 2004, pp. 45-61.

Keynote Presentations

"Interoperability for Hunter-Killer Operations," presentation to the *Joint Aeronautical Commanders Group*, Richmond, VA, May 2002.

"Armament in Aerospace Operations," presentation to the Class of 2001, Air Command and Staff College, Montgomery, AL, April 2001.

"Test Capabilities at Air Armament Center," Keynote presentation at *International Test and Evaluation Association (ITEA) Test Instrumentation Workshop*, Lancaster, CA, March, 2000

Conference papers

Geng, Xiaojun, D. Jeffcoat, and Y. Xu, "Interaction Reduction and Consensus for Multi-Agent Systems," presented at the *2010 American Control Conference*

Uryasev, S., N. Boyko, T. Turko, V. Boginski, D. Jeffcoat, G. Zrazhevsky, and P. Pardalos, "Sensor Scheduling in Uncertain Environments," *International Conference on the Dynamics of Information Systems*, January 28 – 30, 2009, Gainesville, FL.

Geng, X. and D. Jeffcoat, "A Connectivity Reduction Strategy for Multi-Agent Systems," *International Conference on the Dynamics of Information Systems*, January 28 – 30, 2009, Gainesville, FL.

Boginski, V., S. Butenko, D. Jeffcoat, and C. Commander, "Reliability and Robustness Issues for Complex Networks in Uncertain Environments," *International Conference on the Dynamics of Information Systems*, January 28 – 30, 2009, Gainesville, FL.

Liang, Z., Chaovalitwongse, W., Wang, W., Jeffcoat, D., Grundel, D., and O'Neal, J., "Cooperative Clustering for Target Tracking in Battle Space," submitted to the 14th ACM Special Interest Group on Knowledge Discovery and Data Mining (SIGKDD) International Conference, Las Vegas, August 2008.

Krokhmal, P., and D. Jeffcoat, "On Weakly Cooperative Systems," *8th International Conference on Cooperative Control and Optimization*, January 30 - February 1, 2008, Gainesville, FL.

Doucette, E., A. Sinclair, and D. Jeffcoat, "Simultaneous Localization and Planning for Cooperative Air Munitions via Dynamic Programming," *8th International Conference on Cooperative Control and Optimization*, January 30 - February 1, 2008, Gainesville, FL.

Krokhmal, P., and D. Jeffcoat, "Distributed Cooperative Systems with Human Operator-in-the-Loop," *7th International Conference on Cooperative Control and Optimization*, Gainesville, FL, February 2007

Sinclair, Andrew; R. Prazenica, and D. Jeffcoat, "Simultaneous Localization and Planning for Cooperative Air Munitions," *7th International Conference on Cooperative Control and Optimization*, Gainesville, FL, February 2007

Gupta, V; D. Jeffcoat, and R. Murray, "On Sensor Coverage by Mobile Sensors," *45th IEEE Conference on Decision and Control*, 13 – 15 Dec 2006, San Diego.

Malik, W., S. Rathinam, D. Swaroop, and D. Jeffcoat, "Combinatorial Motion Planning of Multiple Vehicle Systems," *45th IEEE Conference on Decision and Control*, 13 – 15 Dec 2006, San Diego.

Yerrick, N; A. Tiwari, and D. Jeffcoat, "Sensor Motion Strategies for the Dynamic Coverage Problem," *6th Cooperative Control and Optimization Conference*, Gainesville, FL, February 2006, to be published by World Scientific

Jun, M.; D. Jeffcoat and J. Evers, "Particle Filters for Target Tracking using Vision Data for Micro-Air Vehicles," *AIAA GNC Conference*, Keystone, CO, August 2006.

Tiwari, A., M. Jun, D. Jeffcoat, and R. Murray, “The Dynamic Sensor Coverage Problem,” 16th *International Federation of Automatic Control (IFAC) World Congress*, Prague, Czech Republic, July 2005

Jun, M. and D. Jeffcoat, “Convergence Properties of Continuous-Time Markov Chains with Application to Target Search,” *American Control Conference*, Portland, Oregon, June 2005.

Tiwari, A., M. Jun, D. Jeffcoat, and R. Murray, “Dynamic Sensor Coverage,” 30th *AIAA Aerospace Sciences Symposium*, Dayton, OH, March 2005.

Tiwari, A., M. Jun, D. Jeffcoat, and R. Murray, “Dynamic Sensor Coverage,” 73rd *Military Operations Research Society (MORS) Symposium*, United States Military Academy, West Point, NY, June 2005.

“Formulation and Solution of the Target Visitation Problem,” with Don Grundel, *Proceedings of the American Institute of Aeronautics and Astronautics (AIAA) “Unmanned Unlimited” Conference*, Chicago, September 2004.

“Coupled Detection Rates: An Introduction ,” 72nd *Military Operations Research Society Symposium*, Naval Postgraduate School, Monterey, CA, June 2004

“A Case Study of Challenges in Modeling, Simulation, and Analysis For Cooperative Weapons,” with Robert Murphey and Sheri Roberts, *Air Armament Summit V*, Eglin AFB, FL, March 2003.

Jeffcoat, D. “Survivability versus Quantity Trade-off for Unmanned Aerial Vehicles,” *American Institute of Aeronautics and Astronautics (AIAA) “Unmanned Unlimited” Conference*, San Diego, CA, September 2003.

“Cooperative Systems under Communication Delay,” with CR Ashokkumar, *American Institute of Aeronautics and Astronautics (AIAA) Guidance, Navigation and Control Conference*, Austin, Texas, August 2003.

“An Analytical Method to Derive Survival Probabilities,” 71st *Military Operations Research Society Symposium*, Marine Corps Base Quantico, June 2003.