

CURRICULUM VITA
MAJ DEAN MIRMIRANI

EDUCATION

PhD Mechanical Engineering, University of California, Berkeley, 1977
MS Mechanical Engineering, University of California, Berkeley, 1972
BS Mechanical Engineering, Tehran Polytechnic (now Amir Kabir University), 1967

EMPLOYMENT HISTORY

October 2007 – present Dean, College of Engineering, Embry-Riddle Aeronautical University, Daytona Beach, FL
Sep 2016 – Apr 2017 Interim Senior Vice President for Academic Affairs and Research and Dean of the College of Engineering Faculty, Department of Mechanical Engineering, California State University, Los Angeles
1981 - 2007 Department Chair, 1992 – 1998, and 2001 - 2007
1980 - 1981 CF Brun and Company, Alhambra, CA, Senior Engineer
1979 - 1980 Academic Visitor, Department of Electrical Engineering, Imperial College of Science and Technology, London, UK
1977 - 1979 Senior Analyst, Industrial Management Institute, Tehran, Iran
Adjunct Professor, Department of Electrical and Systems Engineering, National University, Tehran, Iran

GRANTS AND CONTRACTS RECEIVED (Over \$17.5 M in funding as PI and Co-PI)

- Development of a Hybrid Electric Power Plant for a Cargo Air Vehicle, Boeing, \$2.5M, Co-PI, 2019- July2020
- “Robust Analysis and Prediction for the Integration Design of Structures (RAPIDS),” NASA STTR Phase II with NextGen Corporation, 2 years \$240K, PI, 2007
- “Modernizing the Mechanical Engineering Laboratories to Meet Today's Engineering Challenges,” DoD Infrastructure Development, \$200K, Co-PI, 2006
- “Graduate Engineering Education to Serve the Aerospace Industry in Urban Los Angeles and the Antelope Valley,” NSF S-STEM, 4 years, \$500K, Co-PI, 2006
- “Modeling, Control, and Simulation of Airbreathing Hypersonic Vehicles,” Air Force Office of Scientific Research, Three years, \$350K, PI, 2005
- “Design and Flight Testing of Intelligent Flight Laws Using the WVUYF-22 Research Aircraft Model,” NASA Dryden Flight Research Center, 2 years \$250K Subcontractor to West Virginia University, PI, 2004
- “Structures, Propulsion, Aerospace, and Control Engineering,” NASA Grant to Establish a University Research Center (URC), 5 years, \$6M one of the two principal investigators, the institutional PI was the dean of the college, 2002
- “CSULA/USC Collaborative to Integrate Research and Education,” NSF, \$600K, 3 years, Co-PI, 2002
- “Control of High-Performance Flight Vehicles, A multidisciplinary Approach,” NASA Dryden Flight Research Center, \$80K, PI, 2002
- “Multidisciplinary Analysis and Control of High-Performance Air Vehicles,” Air Force Office of Scientific Research, \$800K, 3 years, PI, 2001
- “Control of Hypersonic Air Vehicles, A Multidisciplinary Approach,” NASA Dryden Flight Research Center, \$200K, 2 years, PI, 1999
- “Simulation and Control of Hypersonic Vehicles” NASA Dryden Flight Research Center grant, \$100K, PI, 1997
- “The Use of Decentralized Control in Design of a Large Segmented Reflector” NASA grant, \$5.2 M, 8 years, the only Co-PI, with USC and UC Berkeley, 1994
- “Rapid Prototyping” NSF ILI grant, \$104 K, PI, 1994
- “Automated Manufacturing and Robotics Laboratory” NSF ILI grant, \$96K, PI, 1989
- “Geometric Calibration of Robots, Implementation to a Gantry Robot” Northrop Corp., \$15K, P, 1987

ADDITIONAL FUNDING

- Founded Advanced Engineering Solutions, Inc. The company has been focused on multidisciplinary finite element codes for aerospace applications 2002 - 2018:
 1. NASA STTR Phase I and II, “The Integrated Computational Environment for Airbreathing Hypersonic Flight Vehicle Modeling and Design Evaluation,” \$600K Advanced Engineering Solutions, Inc., with Oklahoma State University, 2009-2011, PI
 2. NASA STTR Phase I and II, “CFD-Based Multidisciplinary Analysis for Flight Vehicle Simulation and Control,” \$600K, Advanced Engineering Solutions, Inc., with Oklahoma State University, 2003-2006, PI
 3. NASA SBIR Phase I and II subcontracts, “A Matlab-Based Finite Element Software Using Matrix Structural Analysis,” \$250K, subcontractor to Astro Technologies, Inc., Venice, FL, 2002 -2005, PM

INDUSTRY EXPERIENCE, CONSULTING

- 2020 -present • Member of Advisory Board, Memoria, Inc.
- 2009 – 2010 • Technical Advisor and member of Board of Directors, SoloPower, Inc, Milpitas CA
- 2005 - 2009 • Technical Advisor to NuTool Inc., Milpitas, CA
- 1980 – 1981 • CF Brun and Company, Alhambra, CA, Senior Engineer
- 1982 and 1983 • National Cancer Institute, Department of Mathematical Biology, Bethesda Maryland, summer faculty fellow

SERVICE AND SYNERGETIC ACTIVITIES

- Since May 2018 • Serves on editorial board, International Journal of Aerospace Engineering
- Since May 2018 • Serves on ASEE Public Policy Committee
- 2016 - 2017 • Served on the Global Engineering Deans Executive Council
- 2016-present • Serves on the ERAU Research Park Board of Advisors
- 2010 – present • Serves on the Florida FIRST Executive Advisory Board
- 2012 - present • Serves as the faculty Advisor, Tau Beta Pi, Engineering Honor Society
- 2011 – 2013 • Served as Senior Advisor to the Air Force Fleet Viability Board
- 1997 -2007 • Served as the Faculty advisor, Pi Tau Sigma, Mechanical Engineering Honor Society
- 2013 • Served on Aviation Week Workforce Advisory Board
- Served as NSF MRI review panel
- Serves as reviewer for, AIAA Journal, AIAA Journal of Aerospace Engineering, AIAA Journal of Guidance, Control and Dynamics, International Journal of Aerospace Engineering, Journal of Systems and Control Engineering

PROFESSIONAL AND HONOR SOCIETIES MEMBERSHIP

- American Society of Mechanical Engineers (ASME), Fellow
- Royal Aeronautical Society (RAeS), Fellow
- American Institute for Aeronautics and Astronautics (AIAA), Associate Fellow
- American Society for Engineering Education (ASEE), Engineering Deans Council, Member
- Tau Beta Pi, the Engineering Honor Societies, Inducted member
- Pi Tau Sigma, the Mechanical Engineering Honor Society
- Aircraft Owners and Pilot Association (AOPA), Member – Private Pilot Instrument rated

AWARDS

- ABET President's Award for Diversity, 2007
- Diversity and Woman's Vision Award, Embry Riddle Aeronautical University, 2011
- University Outstanding Professor, California State University, Los Angeles, 2004
- Meritorious Performance and Promise Award, California State University, Los Angeles, 1998
- NASA Technical Brief recognition for software development, "Algorithm for Calibrating Robot Arms," 1986

PhD Students

- Shahriar Keshmiri, University of Kansas, Department of Aerospace Engineering, "Modeling and simulation of a Generic Hypersonic Vehicle," with Richard Colgren
- Ying Huo, University of Southern California, Department of Electrical Engineering Systems, "Fault Tolerant Intelligent Flight Control," with Petros Ioannou
- Nazli Kahveci, University of Southern California, Department of Electrical Engineering Systems, "Adaptive and Optimal Soaring of Autonomous UAV Systems," with Petros Ioannou
- Mathew Kuipers, University of Southern California, Department of Electrical Engineering Systems, " Adaptive Control of an Airbreathing Generic Hypersonic Vehicle Model," with Petros Ioannou
- Jason Levine, University of Southern California, Department of Electrical Engineering Systems, "Adaptive and Intelligent Flight Control of Hypersonic Flight Vehicles," with Petros Ioannou

PUBLICATIONS

1. Anderson, R. P., Moncayo, H., Parazenica, R., Mirmirani, M.D., Noriga, A., Burnet, B., Geholt, V.P., Yosvany, A., Kern, Z., "Development of a Surrogate Autonomous Aircraft Entry into the NASA Airspace Operation, Challenge," AIAA SciTech 2015, Orlando, FL, 2015
2. Lee, J. W., Gangadharan, S. N., and Mirmirani, M. D., "Multidisciplinary Design Optimization of Large Scale Hybrid Composite Wind Turbine Blade", AIAA SDM 52 conference, April 4-7, 2011, Denver, CO
3. Lee, J. W., Gangadharan, S. N., and Mirmirani, M. D., "Multidisciplinary Design Optimization of Hybrid Composite Wind Turbine Blade", ASME 2011 Applied Mechanics and Materials Conference, May 31- June 2, 2011, Chicago, IL

4. Lee, J. W., Gangadharan, S. N., and Mirmirani, M. D., "Multidisciplinary Design Optimization of A Large Scale Hybrid Composite Wind Turbine Blade Structure", 16th International Conference on Composite Structures, June 28-30, 2011, Porto, Portugal
5. Mirmirani, M. D., Kuipers, M., Levin, J., Clark, A., "Flight Dynamic Characteristics of an Airbreathing Generic Hypersonic Flight Vehicle," American Control Conference, St. Louis, MO, 2009 invited paper
6. Kuipers, M., Ioannou, P., Mirmirani, M.D., "Analysis of an Adaptive Mixing Control Scheme for an Airbreathing Hypersonic Vehicle Model," American Control Conference, St. Louis, MO, 2009 invited paper
7. Keshmiri, S., Colgren, R., Mirmirani, M., "A Nonlinear ten degrees of Freedom Dynamics Model of a Generic Hypersonic Vehicle," *AIAA Journal of Aircraft*, vol. 46, No.3, May-June 2009
8. Keshmiri, S., Colgren, R., Farokhi, S., Mirmirani, M., "Nonlinear and Linear Longitudinal and Lateral-Directional Dynamical Model of an Airbreathing Hypersonic Vehicle," presented at the AIAA Space Planes and Hypersonic Systems Technologies Conference, Dayton OH, May 2008
9. Kahveci, N., Ioannou, P., Mirmirani, M., "Adaptive LQ Control with Anti-Windup Augmentation to Optimize UAV Performance in Autonomous Soaring Applications," *IEEE Transactions on Control Systems Technology*, August 2008
10. Levin, J., Ioannou, P., Mirmirani, M., "Adaptive mode Suppression for an Aeroelastic Airbreathing Hypersonic Vehicle," AIAA Guidance, Navigation, and Control Conference and Exhibit, Honolulu, Hawaii, August 2008
11. Kahveci, N., Ioannou, P., Mirmirani, M., "A Heuristic Search Algorithm for Maneuvering of UAVs across Dense Thermal Areas," AIAA Guidance, Navigation and Control Conference and Exhibit, Hilton Head, Aug 2007
12. Huo, Y., Ioannou, P., Mirmirani, M., "Robust Fault-Tolerant Control with Adaptive Backstepping Design," AIAA Guidance, Navigation and Control Conference and Exhibit, Hilton Head, SC, August 2007
13. Kuipers, M., Huo, Y., Mirmirani, M., "Adaptive Control of an Airbreathing Hypersonic Cruise Vehicle," AIAA Guidance, Navigation and Control Conference and Exhibit, Hilton Head, SC, August 2007
14. Kahveci, N., Ioannou, P., Mirmirani, M., "A Robust Adaptive Control Design for Gliders Subject to Actuator Saturation Nonlinearities," 2007 American Control Conference, New York, July 2007
15. Kahveci, N., Ioannou, P., Mirmirani, M., "A Stochastic Approach to Optimal Soaring Problem and Robust Adaptive LQG Control," AIAA Infotech@Aerospace 2007 Conference and Exhibit, Rohnert Park, CA, May 2007
16. Huo, Y., Ioannou, P., Mirmirani, "Robust Adaptive Fault- Tolerant Control with Trajectory Optimization," 45th AIAA Aerospace Science Meeting and Exhibition, Reno, NV, January 2007
17. Keshmiri, S., Colgren, R., Mirmirani, M. "Modeling and Simulation of a Generic Hypersonic Vehicle," 14th AIAA/AHI Space Planes and Hypersonic Systems and Technologies Conference, Canberra, Australia, November 2006
18. Keshmiri, S., Colgren, R., Mirmirani, M., "Trajectory Optimization for a Generic Hypersonic vehicle," 14th AIAA/AHI Space Planes and Hypersonic Systems and Technologies Conference, Canberra, Australia, November 2006
19. Clark, A., Mirmirani, M. Wu, C., Choi, S., Kuipers, M., "An Aero-Propulsion Integrated Elastic Model of a Generic Airbreathing Hypersonic vehicle," AIAA Guidance Navigation and Control Conference and Exhibit, Keystone, CO, August 2006
20. Ludeke, T, Mirmirani, M., "The Pulling Device for a Flexible Bronchoscope," Frontier in Biomedicine Conference, June 8-11, Irvine, CA, 2006
21. Yuo, Y., Mirmirani, M., Ioannou, P., " Altitude and Velocity Tracking Control for an Airbreathing Hypersonic Cruise vehicle," AIAA, GNC Conference and Exhibit, Keystone, Colorado, August 2006 Fidan, B., Mirmirani, M. D., Kuipers, M., Ioannou, P., "Longitudinal Motion Control of Airbreathing Hypersonic Vehicles Based on Time Varying Control," 14th AIAA/AHI Space Planes and Hypersonic Systems and Technologies Conference, Canberra, Australia, November 2006
22. Clark, A., Wu, C., Mirmirani, M., Choi, S., "Development of an Airframe Integrated Generic Hypersonic Vehicle Model," AIAA Aerospace Conference and Exhibit, Reno, Nevada, January 2006
23. Xu, H., Ioannou, P. A., Mirmirani, M., "Adaptive Control of a Class of Large-Scale Nonlinear Systems," *International Journal of Control*, Vol.78, No. 17, 20 November 2005, pp 1359-1377
24. Mirmirani, M., Wu. C., Clark, A and S. Choi, Colgren, R. "Modeling for Control of a Generic Airbreathing Hypersonic," AIAA, Guidance Navigation and Control Conference and Exhibit, San Francisco, CA, August 2005
25. Keshmiri, S. Colgren, R., Mirmirani, M., "Development of an Aerodynamic Database for a Generic Hypersonic Air Vehicle," AIAA, Guidance Navigation and Control Conference and Exhibit, San Francisco, CA, August 2005
26. Mirmirani, M., Wu, C., Clark, Andrew, Fidan, B., "Airbreathing Hypersonic Flight Vehicle Modeling and Control, Review, Challenges, and a CFD-Based Example," Workshop on Modeling and Control of Complex Systems, Ayia Napa, Cyprus, June 30, 2005
27. He, C., Choi, S., Mirmirani, M., and Wu, C., "CFD-based Aeroelasticity Analysis in Transonic Flow Regime," ASME 2004 International Mechanical Engineering Congress and RD&D Expo, November 2004, Anaheim, California
28. Keshmiri, S. Mirmirani, M. D. and Colgren, R. D., "Six-DOF Modeling and Simulation of a Generic Hypersonic Vehicle for Conceptual Design Studies," AIAA Modeling and Simulation Technologies Conference, Providence, RI, August 2004,
29. Keshmiri, S. Mirmirani, M. D. and Colgren, R. D., "Six-DOF Modeling and Simulation of a Generic Hypersonic Vehicle for Conceptual Design Studies," AIAA Modeling and Simulation Technologies Conference, Providence, RI, August 2004,
30. Xu, H., Mirmirani, M., and Ioannou, P. A., "Adaptive sliding mode control design for a hypersonic flight vehicle", *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 27, No 5, 2004. Fidan, B., Mirmirani, M., and Ioannou, P. A., "Air-breathing hypersonic flight control," in Proc. 16th IFAC Symposium on Automatic Control in Aerospace, June. 2004

31. H. Xu, M. Mirmirani, and S. Choi, "LQG control of a CFD-based aeroelastic wing model", IEEE 2003 Conference on Decision and Control, Maui, HI, Dec. 2003
32. Xu, H., Mirmirani, M., "Robust Neural Adaptive Control of a Hypersonic Aircraft," AIAA Guidance, Navigation and Control Conference, Austin, Texas, August 2003
33. Xu, H., Ioannou, P., Mirmirani, M., "Decentralized-Like Adaptive Control for Class of Multi-Input, Multi-Output Nonlinear Systems," *IFAC 2003*, Milan, Italy
34. Mirmirani, M., Boussalis, H.R., Florakis, D., "Structures, Pointing, and Control Engineering, a Segmented Reflector Testbed," at IASTED International Conference on Control and Application, Cancun, Mexico, June 2002
35. Xu, H., Mirmirani, M. "Robust Adaptive Sliding Control for A Class of MIMO Nonlinear Systems", Proceedings of the AIAA Guidance, Navigation and Control Conference, Montreal, Canada, August 2001
36. Xu, H., Mirmirani, M., and Ioannou, P., "Robust Adaptive Sliding Control of Linearizable Systems," presented at American Control Conference, Arlington, VA, 2001
37. Morales, M., Mirmirani, M., Boussalis, H.R., "Design, Simulation & Control of a Segmented Reflector Testbed," The Mediterranean Conference in Control and Automation, Haifa, Israel, June 1999.
38. Kosmatopoulos, E.B., Boussalis, H., Mirmirani, M., Ioannou, P.A., "Adaptive Control of Multivariable Nonlinear Systems with Application to a Large Segmented Reflector," Proceedings of American Control Conference, 1998
39. Ahmed, M., Tuanmu, W., Li, K., Kosmatopoulos, E.B., Mirmirani, M., Boussalis, H., Chassiakos, A., Ioannou, P.A., "Time-Domain System Identification & Robust Control of a Large Segmented Reflector," Proceedings of American Control Conference 1998
40. Kosmatopoulos, E.B., Ioannou, P.A., Chassiakos, A., Boussalis, H.R., Mirmirani, M., "Neural Network Control of Multivariable Nonlinear Systems with Application to a Large Segmented Reflector," ISIAC 98, Alaska, 1998.
41. Mirmirani, M., Boussalis, H., Rad, K., Ahmed, M., "The Control and Structures Research Laboratory (CSRL) – A Control Oriented Test-Bed for a Large Segmented Reflectors," 5th IEEE Mediterranean Conference on Control and Systems, Cyprus, 1997.
42. Boussalis, H., Mirmirani, M., Rad, K., Morales, M., Velazquez, E., Chassiakos, A.G., Luzardo, J.A., "The Use of Decentralized Control in the Design of a Large Segmented Space Reflector," NASA URC Technical Conference, Albuquerque, New Mexico, February 1997.
43. Boussalis, H., Mirmirani, M., Wei, Z., "Decentralization and PID Controller Design for Large Space Borne Telescopes," IASTED International Conference on Applied Modeling, Simulation and Optimization, Pittsburgh, 1995
44. Boussalis, H., Szeto, C., Mirmirani, M., "Vibration Control of a Segmented Reflector Using Neural Networks," IASTED Conference, Cancun, Mexico, 1995
45. Hahn, M., Mirmirani, M., Boussalis, H., "Optimal Design of a Truss Structure for a Segmented Reflector," ASME Conference, Boston, 1995
46. Chassiakos, A.G., Orrala, C., Boussalis, H., Mirmirani, M., "Neural Network Based Identification of a Large Segmented Space Reflector," 3rd IEEE Mediterranean Symposium on New Directions in Control and Automation, Limassol, Cyprus, 1995.
47. Boussalis, H., Mirmirani, M., Clarke, A., "Decentralized Pole Placement Control of a Precision Segmented Reflector," IASTED International Conference on Computer Application in Industry, Cairo, Egypt, 1995
48. Mirmirani, M., Boussalis, H.A.R., Wei, Z., "Robotic Tank Waste Retrieval," ASEE Annual Conference, Edmonton, Canada, June 1994.
49. Mirmirani, M., Boussalis, H.A.R., Wei, Z., "The Use of Finite Element Modeling and Decentralized Techniques to Control Long-Reach Manipulators," American Control Conference, Baltimore, Md., June 1994
50. Boussalis, H., Mirmirani, M., "Finite Element Modeling and Decentralized Techniques for a Long-Reach Manipulators," Third International Conference on Automation, Robotics and Computer Vision, Singapore, 1994
51. Mirmirani, M., "Competition, Kin Selection, and Evolutionary Stable Strategy," Chapter in Book: Multicriteria Optimization in Engineering and in the Sciences, Volume 37 of the Series in Mathematical Concepts and Methods in Sciences and Engineering, Plenum Publishing Co., 1988
52. Hayati, S., Mirmirani, M., "A General Software for Robot Geometry Calibration," NASA Tech Briefs, May/June 1986, volume 10, number 3
53. Hayati, S., Mirmirani, M., "A Software for Robot Geometry Parameter Estimation," SME paper, presented at Robot West Conference, Anaheim, California, Nov. 1984
54. Hayati, S., Mirmirani, M., "Puma 600 Robot Arm Geometry Calibration," presented at the International Conference on Robotics, Atlanta, Georgia, Mar. 1984
55. Hayati, S., Mirmirani, M., "Improving the Absolute Positioning Accuracy of Robot Manipulators," *Journal of Robotic Systems*, volume 2, number 4, 1985
56. Mirmirani, M., Oster, G., "Competition, Kin Selection, and Evolutionary Stable Strategies," *Journal of Theoretical Population Biology*, volume 13, number 5, 1978
57. Perelson, A.S., Mirmirani, M., Oster, G., "Optimal Strategies in Immunology, part II," *Journal of Mathematical Biology*, volume 5, 1978
58. Perelson, A.S., Mirmirani, M., Oster, G., "Optimal Strategies in Immunology, Part I," *Journal of Mathematical Biology*, volume 3, 1976