DR. ROBERT H. BISHOP, P.E.

_____ CONTACT INFORMATION _____

<u>Campus address</u>

The University of South Florida
4202 E. Fowler Ave., ENB 118
Tampa, FL 33620-5350
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_____ EDUCATION AND CREDENTIALS _____

Rice University, Houston, TX
 Doctor of Philosophy (PhD) 1990
 Electrical & Computer Engineering

Texas A&M University, College Station, TX
 Master of Science (MS) 1980 and Bachelor of Science (BS) 1979
 Aerospace Engineering

Executive Coaching
 Dyer Global, 2017 – 2019
 Vernal Management Consultants, LLC, 2010 – 2012

Continuing Education
 Certified Online Instructor, Digital Learning Facilitators, USF, 2022
 Harvard Kennedy School, *Crisis Leadership in Higher Education,* 2013
 Harvard Graduate School of Education, *Performance Assessment in Higher Education,* 2010

Registered Professional Engineer, State of Texas, No. 55965

_____ PROFESSIONAL EXPERIENCE _____

The University of South Florida, 2014 – present
 Dean of Engineering
 Distinguished University Professor
 Department of Electrical Engineering, Professor

USF Institute of Applied Engineering, Inc., 2018 – 2022
 Founder, President and CEO

USF Institute of Applied Engineering, Inc., 2022 – 2023
 Founder & Chief Scientist

Marquette University, 2010 – 2014
 Dean of Engineering
 Department of Electrical and Computer Engineering, Professor
 Opus Endowed Chair, 2010-2014

The University of Texas at Austin, Aerospace Engineering & Engineering Mechanics, 1990 – 2010
      Department Chair 2003 – 2009
      Associate Department Chair 1995 – 2000
      Full Professor 2000 – 2010
      Associate Professor 1995 – 2000
      Assistant Professor 1990 – 1995
      Joe J. King Professorship in Engineering, Endowed Position, 2005 – 2010
      Myron L. Begeman Fellowship in Engineering, Endowed Position, 1997 – 2005

NASA Jet Propulsion Laboratory, Summer Faculty Fellow, 1992, 1993

Boeing Company, A. D. Welliver Faculty Fellow, 1996

The Charles Stark Draper Laboratory, 1980 – 1990
      Engineering Staff, Guidance and Navigation Group
      NASA Johnson Space Center On-Site Resident, Mission Planning & Analysis Division

NASA Johnson Space Center, Cooperative Education, 1977 – 1978

_____ RESEARCH AND INNOVATION AWARDS _____

Google Scholar: Citations 15221; h-index 35; i10-index 86 (as of September 28, 2023)

Mechanics & Control of Flight Award of the American Institute of Aeronautics and Astronautics, 2023

> *Citation: "... contributed significant advances to the mechanics and control of flight, particularly in the area of spaceflight. ... made significant advances throughout his career in the areas of spacecraft rendezvous, hypersonic interception, control moment gyro momentum management, adaptive estimation, and precision landing."*

NASA Advanced Exploration Systems Innovation Award, 2015

> *Citation: In "recognition of outstanding contributions to the Morpheus/ALHAT flight testing which successfully concluded with a night flight on May 28, 2014"*

Dirk Brouwer Award of the American Astronautical Society, 2013

> *Citation: For "seminal contributions to the theory and practice of navigation and control of autonomous aerospace systems and for exceptional achievements in engineering education."*

Member, Academy of Science, Engineering and Medicine of Florida, 2023

Member, Pan American Academy of Engineering, 2020

Fellow, American Association for the Advancement of Science, 2019

Fellow, American Astronautical Society, 2009

Fellow, American Institute of Aeronautics and Astronautics, 2007

Senior Member, Institute of Electrical and Electronics Engineers (IEEE)

Best Conference Paper Award, AIAA *Guidance, Navigation and Control Conference*, 1991

_____ BOARDS, DIRECTORSHIPS, & COLLEGE COMMITTEES _____

IEEE University Resources Committee (URC), Representing the Global Engineering Deans Council (GEDC), 2023 – present

University (USF) Post-Tenure Review Planning Workgroup, 2023 – present

Vice President for Strategic Communications, American Astronautical Society, 2022 – present

Global Engineering Deans Council (GEDC), Executive Committee, 2013 – 2016, 2022 – present

University (USF) SACSCOC Reaffirmation Steering Committee, 2022 – present

University (USF) Performance Accountability Team, 2022 – present

Search Committee, USF Vice President for Diversity, Equity, & Inclusion, 2022 – 2023

University Budget Committee, Chair of Resource Allocation Subcommittee, 2021 – present

FIRST Robotics Regional Executive Advisory Board, 2017 – present

USF Global Center for Hearing & Speech Research, Advisory Board, 2014 – present

Board of Directors, American Astronautical Society, 2008 – 2022

Executive Advisory Board, USF Office of Corporate Partnerships, 2018 – 2020

Chair, USF System Task Force on Student Debt Reduction, 2018 – 2019

Board of Directors, USF Federal Credit Union, 2018 – 2020

Health Professions Conferencing Corporation (HPCC)-CAMLS Board, 2015 – 2019

Board of Directors, DefenseWerx, Inc., 2018 – 2019

Supervisory Committee, USF Federal Credit Union, 2017 – 2018

Board of Directors, Wisconsin Energy Research Consortium, 2010 – 2014

Editorial Advisory Board, AIAA Education Series, 2003 – 2012

Associate Director, Texas Space Grant Consortium, 2008 – 2010

_____ EXTERNAL TECHNICAL REVIEW COMMITTEES _____

The National Academies, Space Science Board, *NSF Cubesat Program Review Panel, 2017*

NASA Space Technology Roadmaps and Priorities, National Research Council, 2012

NASA TA05–Communication and Navigation, Early Career Faculty Proposals, 2012

NASA Orion Guidance, Navigation, & Control Review Board, 2008 – 2009

DARPA Orbital Express Navigation Review Panel (On-orbit incident review), 2007

NASA Mars Odyssey Navigation Red Team, 2000

NASA Distributed Spacecraft Initiative Review Board, 2000

_____ TEACHING AWARDS _____

Inducted into the Academy of Distinguished Teachers, The University of Texas at Austin, 2002

John Leland Atwood Award, American Society of Engineering Education, 1999
  Awarded to "a leader who has made lasting and significant contributions to aerospace engineering education"

Lockheed Martin Award for Excellence in Engineering Teaching, 1997

ASE-EM Departmental Teaching Award, 1996

ASE-EM Departmental Faculty Leadership Award, 1996

Engineering Foundation Faculty Excellence Award, 1995

The "Eyes of Texas" Excellence Award, 1995

_____ EDITORIAL BOARDS, COMMITTEES, AND CONFERENCES ORGANIZED _____

Global Engineering Deans Council, Advisory Board for upcoming edited volume titled *Academic Leadership in Engineering Education,* 2023

Scientific Committee of the International Union of Theoretical and Applied Mechanics (IUTAM)*, Symposium on Optimal Guidance and Control for Autonomous Systems*, 2023

Editorial Advisory Board, *AIAA Education Series*, 2003 – 2012

Associate Editor, *AAS Journal of the Astronautical Sciences,* 1995 – 1999

Associate Editor, *AIAA Journal of Guidance, Control, and Dynamics*, 1998 – 2000

Advisory Board, *Encyclopedia of Space Science and Technology*, H. Mark, Editor, Wiley & Sons

AAS Spaceflight Mechanics Technical Committee, 1993-1999, 2001 – 2008

AIAA Guidance, Navigation, and Control Technical Committee, 1991 – 1994

AAS National Awards Committee, 2009, 2011, 2016

AIAA National Awards Committee, 2008 – 2009, 2011

USRA Science & Engineering Education Committee, 2000 – 2003

AAS General Chairman, Space Flight Mechanics Meeting, Sedona, AZ, 2007

AAS Technical Chairman, Spaceflight Mechanics Meeting, Breckenridge, CO, 1999

AAS General Chairman, Spaceflight Mechanics Meeting, Austin, TX, 1996

AAS/AIAA Space Flight Mechanics/Astrodynamics Specialist Conference, Session Chairman, 1997

AIAA Guidance, Navigation and Control Conference, Session Chairman, 1993, 1994

_____ HONOR SOCIETIES _____

Phi Kappa Phi – Honor society for all fields of higher education

Tau Beta Pi – Honor society for all areas of engineering

Eta Kappa Nu – Honor society for electrical engineering

Sigma Gamma Tau – Honor society for aerospace engineering

_____ STRATEGIC PLANNING AND COMPLEX PROJECT MANAGEMENT _____

Strategic planning and implementation
Led the development and implementation of the *USF College of Engineering Strategic Plan 2025 – Engineering Lives for the Better*[1] that guides the on-going college expansion.

Standing up new institutions across the academic enterprise
Founded the *USF Institute of Applied Engineering*, a non-profit start-up inside the USF umbrella as a pathway to diversify research funding portfolios to efficiently establish DoD contacts and connect researchers across campus and across the country. Awarded over $100M in DoD contracts over the past two years.

Co-founded the Department of Medical Engineering, an innovative department in the College of Engineering co-governed with the Morsani College of Medicine.

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[1] http://www.usf.edu/engineering/about/strategicplan.aspx

Creating places and spaces for discovery

Created Marquette University Engineering Hall with philanthropic investments of $50M that showcased a new concept in education addressing challenges in health, water, energy, transportation, and education[2]. As reported in the Milwaukee Journal Sentinel[3], the visionary Engineering Hall is a platform for innovation, a key element in an integrated plan to re-imagine collaborative education and research by focusing on global challenges.

_____ GLOBAL CONNECTIVITY _____

Global Engineering Deans Council (GEDC), Executive Committee, 2013 – 2016, 2022 – present

Vietnam Education Foundation, *National Research Council*, Review Panels, 2004, 2005, and 2006

Sampling of international invited keynotes & panels:

IEEE IFAC International Conference on Automation, XXIV Congreso de la Asociación Chilena de Control Automático, "Precision Landing with Hazard Detection and Avoidance," Chile (virtual) 2021

Tenth (10th) Anniversary of the Mechatronics Program, "The Wonder of Mechatronics," Pontificia Universidad Católica del Perú, Lima, Peru, 2017

Global Engineering Dean's Council Conference, "Innovación en gestión de facultades," Cartagena, Colombia, 2016

IEEE International Conference on Industrial Instrumentation & Control, "A Circle of Discovery: Local Solutions to Global Challenges with Focus on India," Pune, India, 2015

5th African Regional Conference on Engineering Education, "A Circle of Discovery: Local Solutions to Global Challenges with Focus on Africa," Lagos, Nigeria, 2013

Global Engineering Dean's Council Conference, *"*Internationalization Activities in Latin America," Monterrey, Mexico, 2012

4th Electrical and Electronic Courses, "Teaching Modern Control Systems Employing Collaborative Learning Methods," Ministry of Education, Xi'an, China, 2008

International travel

Brazil, Canada, Chile, China, Colombia, England, Georgia, Germany, Greece, India, Italy, Mexico, Nigeria, Peru, South Korea, Switzerland, Ukraine, Vietnam

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[2] "Marquette's Engineering Hall: Engineers for Today's World and Tomorrow's Challenges," http://www.youtube.com/watch?v=MNvs9ZhAiiE.
[3] "Marquette's new hall is an innovative engineering lab," by Kathleen Gallagher, Milwaukee Journal Sentinel, September 1, 2011, http://www.jsonline.com/business/128963938.html

_____ BUILDING BRIDGES ACROSS CAMPUS _____

While at the University of South Florida

TEDx entitled "Art and Engineering – On the Interface of Creativity at the Edge of a Dream"[4].

Co-led the development of the Department of Medical Engineering[5].

While at Marquette University

Fused engineering and industrial design in partnership with Milwaukee Institute of Art and Design (MIAD). This idea spawned significant interest[6,7,8] and provided terrific exposure[9]

Haggerty Museum of Art "The Viewer's Voice" exhibition perspective on Robert Rauschenberg's "Trust Zone"[10]

Enabled the theatrical presentation of "Zoo Story" using the Engineering Hall's high-performance computational laboratory[11]

Presented a stand-up solo show entitled "Challenger: Life, Death and the Re-birth of a Masterpiece," offered before the theatrical performance of "Defying Gravity" at the Helfaer Theatre[12]

While at the University of Texas at Austin

First-year student Signature Course entitled "Art in Engineering"

Created the "Fall Festival" and "Spring Happening" for departmental camaraderie, Texas BBQ, and live Austin music (e.g., Sara Hickman, Darden Smith, Shake Russell, Van Wilks, Terri Hendrix)

_____ PUBLIC PRESENTATIONS, NEWSPAPERS, RADIO, AND TELEVISION _____

1   *The Young Turks: The Conversation*, "Less-than-Lethal," Host**:** Cenk Uygur, Jan 4, 2022 https://tyt.com/watch/the-conversation/2VOmYJPxXf8UqFj3L6d2Gt/episodes/4BWuhi9qqXlmeO46kSIZo7

2   *Forbes*, "What Entrepreneurs Can Learn From Academia: How To Engineer Your Team," July 20, 2021, https://www.forbes.com/sites/shamahyder/2021/07/20/what-entrepreneurs-can-learn-from-academia-how-to-engineer-your-team/?sh=16865fb933ac

[4] https://www.ted.com/tedx/events/13142 and https://www.youtube.com/watch?v=KFJyfyivqjo&list=PLiVaAjy-VN_-SXxCnoqihfD3bIqDQ93bI&index=5

[5] USF partnership creates department of medical engineering, Tampa Bay Times - January 05, 2017

[6] http://www.jsonline.com/news/education/marquette-miad-come-together-to-meld-engineering-industrial-design-b9979234z1-220278081.html

[7] http://www.bizjournals.com/milwaukee/news/2013/08/21/marquette-miad-plan-unique-design.html

[8] http://milwaukeecourieronline.com/index.php/2013/08/24/miad-and-marquette-to-collaborate-on-innovative-curriculum/

[9] http://wuwm.com/post/form-and-function-are-winners-new-miad-marquette-partnership

[10] https://onmilwaukee.com/ent/articles/haggertyviewers.html

[11] https://onmilwaukee.com/ent/articles/zoostory.html

[12] http://www.marquette.edu/newsbriefs/2012/Students/February-2012-Students/February-16-12-NB-STUDENTS.html

3 *The Hill*, "National security and cybercrime: This is not your grandpa's battleground," Op-Ed, July 13, 2021, https://thehill.com/opinion/national-security/562804-national-security-and-cybercrime-this-is-not-your-grandpas

4 *Business Observer*, "Engineering school creating tools for the next generation of warfare," July 1, 2021, https://www.businessobserverfl.com/article/engineering-school-creating-tools-for-the-next-generation-of-warfare

5 *Tampa Bay Business Journal*, "A year after getting an $85M contract, USF's College of Engineering is ready to be a major partner in the community," May 31, 2021, https://www.bizjournals.com/tampabay/news/2021/03/31/usf-applied-institute-of-engineering-innovation.html

6 *2021 State of Uptown - Tampa !p - Virtual Edition*, (Bishop's part is 22:39 - 44:50 in the video), May 20, 2021, https://www.youtube.com/watch?v=5SVEXPJlBOs

7 *Catalyst*, "How USF's Institute of Applied Engineering is using its $85-million government contract," May 19, 2021, https://stpetecatalyst.com/how-usfs-institute-of-applied-engineering-is-using-its-85-million-government-contract/

8 *Tampa Bay Times*, "The future of conflict: how a USF institute is developing military technology," May 14, 2021, https://www.tampabay.com/news/education/2021/05/14/the-future-of-conflict-how-a-usf-institute-is-developing-military-technology/

9 *Axios*, "How Tampa is helping develop the casualty-free future of warfare," May 10, 2021, https://www.axios.com/tampa-future-warfare-casualty-free-usf-9b2ce2db-4fa6-46dc-923b-88e18d3d85ea.html

10 *Quanser Café*, A PodCast conversation with Paul Gilbert, CEO, April 21, 2021, https://www.youtube.com/watch?v=3rZuoM_vqAA

11 ROAR with Lakecia Gunter, "The Power of Asking," Podcast, August 4, 2020, https://shows.acast.com/roar-with-lakecia-gunter/episodes/the-remarkable-power-of-asking

12 *83 Degrees*, "ROBOTICON brings together students for space-themed event in Tampa," article by Cheryl Rogers with quotes by R. H. Bishop on August 21, 2018, http://www.83degreesmedia.com/innovationnews/ROBOTICON-showcasing-STEAM-at-USF082118.aspx.

13 *"First town hall focuses on plans to maintain stability during consolidation,"* article by Jessenia Rivera with quotes by R. H. Bishop appearing in *The Oracle* on August 22, 2018, http://www.usforacle.com/news/view.php/1034224/First-town-hall-focuses-on-plans-to-main.

14   "USF To Offer Bachelor's in Cybersecurity," *WUSF University Beat* interview by Mark Schreiner on August 1, 2018, http://wusfnews.wusf.usf.edu/post/usf-offer-bachelors-cybersecurity.

15   *"*University creates cybersecurity degree program*"* interview by *Business Observer* staff with quotes by R. H. Bishop, *Business Observer* on June 19, 2018, https://www.businessobserverfl.com/article/tampa-usf-cybersecurity-degree-program.

16   "Cybersecurity sector bear hugs Tampa region," interview by Brian Hartz with quotes by R. H. Bishop, *Business Observer* on August 10, 2018, https://www.businessobserverfl.com/article/cybersecurity-sector-bear-hugs-tampa-region.

17   "USF to offer degree in cybersecurity," interview by CBS 10 News, https://www.wtsp.com/video/news/local/usf-to-offer-degree-in-cybersecurity/67-8164569, June 19, 2018.

18   "Space Navigation," General talk, *NASA Space Congress*, Cape Canaveral, FL, February 2018.

19   "Florida Matters: Space Shuttle Challenger Disaster, 30 Years Later," WUSF Public Radio Interview by Lottie Watts and Carson Cooper, http://wusfnews.wusf.usf.edu/post/florida-matters-space-shuttle-challenger-disaster-30-years-later, Feb 2, 2016.

20   "Art and Engineering – On the Interface of Creativity at the Edge of a Dream," *TEDx Talk* by R. H. Bishop, https://www.usf.edu/student-affairs/tedx/speak/pasttalks.aspx - 2016talk, 2015.

21   "Form and Function Are the Winners In New MIAD-Marquette Partnership," *Lake Effect, WUWM Public Radio* Interview by Bonnie North and Mitch Teich of R. H. Bishop and N. Hoffman, http://wuwm.com/post/form-and-function-are-winners-new-miad-marquette-partnership, 2013.

22   Jackson, K. S., Maughmer, M. D., Bishop, R. H., Fowler, W. T., "Are We Up to the Task of Confronting a Decline in Student Performance? A Panel Discussion," W102·Aerospace Technical Session, *119th Annual ASEE Conference & Exposition*, San Antonio, TX, 2012.

23   Panel session: Bishop, R.H., Caruso, J., Emmons, S., Gilbert, K.D., "The Role of Creative Education in Talent Development," *Creative Milwaukee Conference*, Milwaukee, WI, 2012.

24   "Getting kids interested in STEM," *At Issue with Ben Morens*, Interview by John Munson of R. H. Bishop, *Wisconsin Public Radio*, Live on-air interview, https://www.wpr.org/shows/getting-kids-interested-stem, August 24, 2012.

25   Bishop, R. H., "Curiosity should inspire future," *Milwaukee Journal Sentinel*, Op-ed, April 16, 2012, http://www.jsonline.com/news/opinion/curiosity-should-inspire-future-326ge86-166471866.html.

26 Bishop, R. H., "Changing Engineering Education," *Lake Effect, WUWM Public Radio Interview*, December 21, 2011.

27 Bishop, R. H., "Alternative Fuels for Air Travel," *KTBC Fox Austin*, TV interview, June 24, 2008.

28 Bishop, R. H., "With education partnership, U.S. can help heal Vietnam wounds," *San Antonio Express-News*, Op-ed, April 30, 2006.

29 *Rolling Stone Magazine*, "Mars or Bust! NASA's Plan for the Human Race," Article by Benjamin Wallis-Wells that includes quotes by R. H. Bishop, Feb 23, 2006.

30 Bishop, R. H., "On the Role of Mechatronics in the Development of Science and Technology in the World," Vietnam Television (VTV2) Interview, August 11, 2004.

31 Bishop, R. H., "Let youth's imaginations take flight," *Austin American-Statesman*, Op-ed, Jan. 16, 2004.

32 Bishop, R. H. "Mars and onward*," IEEE Control Systems Magazine*, pp. 70-71, 2004.

33 Bishop, R. H., "America's youth deserves the moon" San Antonio Express-News, Op-ed, July 9 2003.

34 Bishop, R. H., "Space Hotels with Buzz Aldrin", *KVUE ABC Austin*, TV interview, February 13, 2002.

35 Bishop, R. H., Paynter, S. J., and Sunkel, J. W., "Adaptive Control of Space Station with Control Moment Gyros," *IEEE Control Systems Magazine*, pp. 23-28, 1992.

_____ **PUBLICATIONS** _____

REFEREED JOURNAL PUBLICATIONS

1. Antoulas, A. C., and Bishop, R. H., "Continued Fraction Decomposition of Linear Systems in the State Space," *Systems and Control Letters,* Vol. 9, 1987, pp. 43-53.
2. Jones, B. L., and Bishop, R. H., "H_2-Optimal Halo Orbit Guidance," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 16, No. 6, 1993, pp. 1118-1124.
3. Sheen, J.-J., and Bishop, R. H., "Spacecraft Nonlinear Control," *The Journal of the Astronautical Sciences*, Vol. 42, No. 3, 1994, pp. 361-377.
4. Bishop, R. H., and Antoulas, A. C., "Nonlinear Approach to the Aircraft Tracking Problem," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 17, No. 5, 1994, pp. 1124-1130.
5. Jones, B. L., and Bishop, R. H., "Rendezvous Targeting and Navigation for a Translunar Halo Orbit," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 17, No. 5, 1994, pp. 1109-1114.
6. Sheen, J.-J., and Bishop, R. H., "Adaptive Nonlinear Control of Spacecraft," *Journal of the Astronautical Sciences*, Vol. 42, No. 4, 1994, pp. 451-472.
7. Burkhart, P. D., and Bishop, R. H., "Adaptive Orbit Determination for Interplanetary Spacecraft," *AIAA Journal of Guidance, Control, and Dynamics,* Vol. 19, No. 3, 1996, pp. 693-701.

8. Carpenter, J. R., and Bishop, R. H., "Flight Data Results of Estimate Fusion for Spacecraft Rendezvous Navigation from Shuttle Mission STS-69," *AAS Journal of the Astronautical Sciences*, Vol. 45, No. 3, 1997, pp. 297-319.

9. Paynter, S. J., and Bishop, R. H., "Singularities of Nonlinear Attitude Control with Momentum Management," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 20, No. 6, 1997, pp. 1255-1257.

10. Chaer, W., Bishop, R. H., and Ghosh J., "A Mixture of Experts Framework for Adaptive Kalman Filtering," *IEEE Transactions on Systems, Man, and Cybernetics,* Vol. 27, No. 3, Part B, 1997, pp. 452-464.

11. Carpenter, J. R., and Bishop, R. H., "Navigation Filter Estimate Fusion for Enhanced Spacecraft Rendezvous," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 20, No. 2, 1997, pp. 338-345.

12. Paynter, S. J., and Bishop, R. H., "Adaptive Nonlinear Attitude Control and Momentum Management of Spacecraft," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 20, No. 5, 1997, pp. 1025-1032.

13. Chaer, W., Bishop, R. H., and Ghosh J., "Hierarchical Adaptive Kalman Filtering for Interplanetary Orbit Determination," *IEEE Transactions on Aerospace and Electronic Systems,* Vol. 34, No. 3, 1998, pp. 883-896.

14. Nabaa, N., and Bishop, R. H., "Solution to a Multisensor Tracking Problem with Sensor Registration Errors," *IEEE Transactions on Aerospace and Electronic Systems,* Vol. 35, No. 1, 1999, pp. 354-363.

15. Nabaa, N., and Bishop, R. H., "Derivation and Analytic Evaluation of an Equivalence Relation Clustering Algorithm," *IEEE Transactions on Systems, Man, and Cybernetics,* Vol. 29, Part B, No. 6, 1999, pp. 908-912.

16. Nabaa, N. and Bishop, R. H., "Validation and Comparison of Coordinated Turn Aircraft Maneuver Models," *IEEE Transactions on Aerospace and Electronic Systems,* Vol. 36, No. 1, 2000, pp. 250-259.

17. Ely, T. A., Bishop, R. H., and Crain, T. P., "Adaptive Interplanetary Navigation using Genetic Algorithms," *Journal of the Astronautical Sciences*, Vol. 48, No. 2 and 3, 2000, pp. 287-303.

18. Crain, T.P., Bishop, R.H., Fowler, W.T., and Rock, K., "Interplanetary Flyby Mission Optimization Using a Hybrid Global-Local Search Method," *AIAA Journal of Spacecraft and Rockets,* Vol. 37, No. 4, 2000, pp. 468-474.

19. Crain, T.P., Bishop, R.H., Fowler, W.T., and Rock, K., "Radiation Exposure Comparison of Venus and Mars Flyby Trajectories," *AIAA Journal of Spacecraft and Rockets,* Vol. 38, No. 2, 2001, pp. 289-291.

20. Azimov, M., and Bishop, R. H., "Extremal Rocket Motion with Maximum Thrust in a Linear Central Field," *AIAA Journal of Spacecraft and Rockets,* Vol. 38, No. 4, 2001, pp. 765-776.

21. Bishop, R. H., and Azimov, M., "Analytic Solutions to the Fuel-Optimal Orbital Transfer Problem Using Low-Thrust Exhaust-Modulated Propulsion," *AIAA Journal of Spacecraft and Rockets,* Vol. 38, No. 6, 2001, pp. 897-903.

22. Crain, T. P., Bishop, R. H., and Ely, T., "Event Detection and Identification During Autonomous Interplanetary Navigation," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 25, No. 2, 2002, pp. 394-403.

23. Azimov, M., and Bishop, R. H., "Turning Elliptic Orbital Planes via Intermediate Thrust Spherical Arcs," *AIAA Journal of Guidance, Control, and Dynamics,* Vol. 25, No. 2, 2002, pp. 358-367.

24. Azimov, M., and Bishop, R. H., "Transfer Between Circular and Hyperbolic Orbits Using Analytic Maximum Thrust Arcs," *AIAA Journal of Spacecraft and Rockets,* Vol. 40, No. 3, 2003, pp. 433-437.

25. Ebinuma, T, Bishop, R. H., and Lightsey, E. G., "Integrated Hardware Investigations of Precision Spacecraft Rendezvous Using Global Positioning System," *AIAA Journal of Guidance, Control, and Dynamics,* Vol. 26, No. 3, 2003, pp. 425-433.

26. Zanetti, R. and Bishop, R. H., "A New Method to Introduce A Priori Information in QUEST," AAS *Journal of the Astronautical Sciences*, American Astronautical Society, Vol. 55, No. 4, 2008, pp. 451-461.

27. Huxel, P, and R. H. Bishop, "Navigation Algorithms and Observability Analysis for Formation Flying Missions, *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 32, No. 4, 2009, pp. 1218-1231.

28. Gildin, E., Antoulas, A. C., Sorensen, D., and Bishop, R. H., "Model and Controller Reduction Applied to Structural Control Using Passivity Theory," *Structural Control and Health Monitoring Journal*, Vol. 16, John Wiley & Sons, Ltd., 2009, pp. 319-334.

29. Chomel C. T. and Bishop R. H., "An Analytical Lunar Descent Guidance Algorithm," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 32, No. 3, 2009, pp. 915-926

30. Zanetti, R., Majji, M., Bishop, R. H., and Mortari, D., "Norm-Constrained Kalman Filtering," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 32, No. 5, 2009, pp. 1458-1465.

31. Zimmer, S., Ocampo, C., and Bishop, R. H., "Reducing Orbit Covariance for Continuous Thrust Spacecraft Transfers," *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 46, No. 2, 2010, pp. 771-791.

32. Zanetti, R., DeMars, K., and Bishop, R. H., "Underweighting Nonlinear Measurements," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 33, No. 5, 2010, pp. 1670-1675.

33. R. Zanetti and R. H. Bishop, "Kalman Filters with Uncompensated Biases," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 35, No. 1, 2012, pp. 327-330.

34. DeMars, K. Bishop, R. H., and Jah, M., "Entropy-Based Approach for Uncertainty Propagation of Nonlinear Dynamical Systems," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 36, No. 4, 2013, pp. 1047-1057.

35. DeMars, K., and Bishop, R. H., "Projecting High-Dimensional Parameter Uncertainties for Improved State Estimation Error Confidence," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 38, No. 9, 2015, pp. 1659-1672.

36. Velasco, J., García-Nieto, S. Salcedo, J. V., and Bishop, R. H., "Multi-Objective Optimization for Wind Estimation and Aircraft Model Identification," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 39, No. 2, 2016, pp. 372-389.

37. Tapiero, J. E., Medeiros, H., and Bishop, R. H., "Predicting Multiple Target Tracking Performance for Applications on Video Sequences," *Machine Vision and Applications*, Vol. 28, No. 5-6, 2017, pp. 539-550.

38. Azimov, D. M. and Bishop, R. H., "Integrated Targeting and Guidance for Powered Planetary Descent," *Journal of the Astronautical Sciences*, Vol. 65, No. 2, pp 229–259, 2018.

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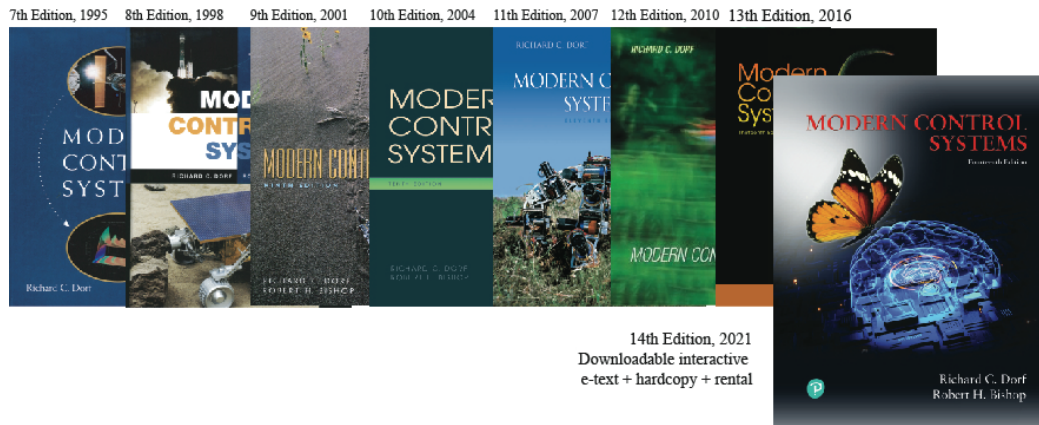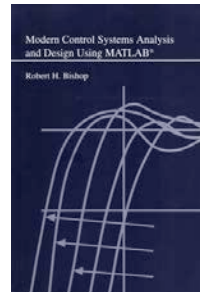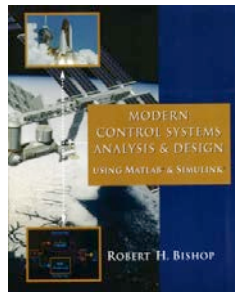

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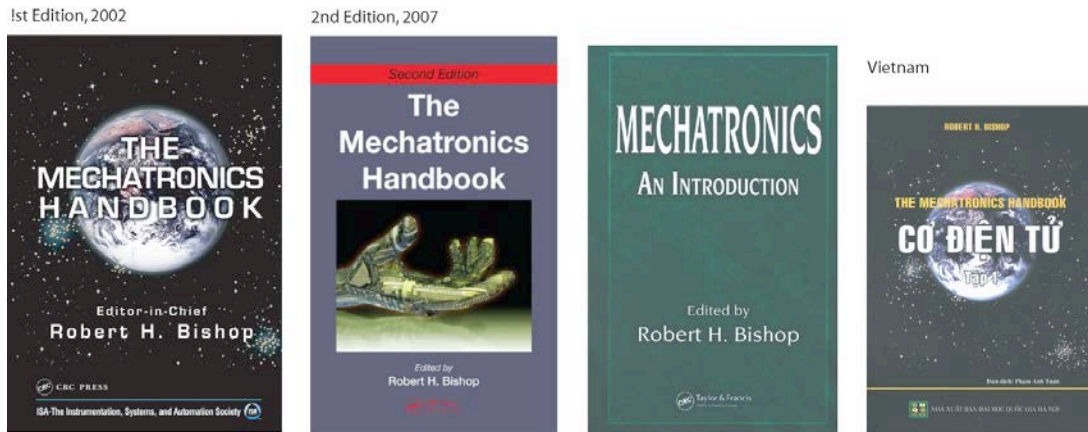
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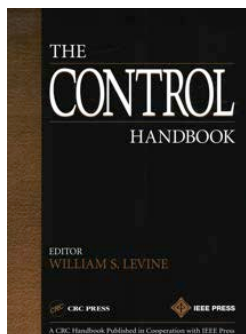
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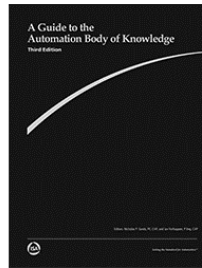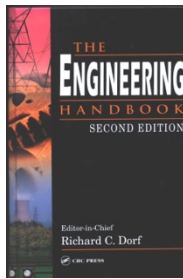
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3. "Navigation Analysis of the Manned Mars Mission," UT Chancellor's Council, 1991

4. "Nonlinear Adaptive Control of Evolutionary Spacecraft," NASA-Johnson Space Center, 1991 – 1992.

5. "Data Fusion for 2-D Search Sensors," Oerlikon-Contraves, Switzerland, 1994 – 1997.

6. "Welliver Fellow," Boeing Company, 1996.

7. "Advanced Spacecraft Navigation," NEC Japan, 1991, 1998.

8. "Undergraduate Student Researchers Program," NASA-Headquarters, 1993 – 1997.

9. "Graduate Student Researchers Program," NASA-Johnson Space Center, 1997 – 2004.

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37. "Autonomous Rover Development," National Instruments, 2011.

38. "SmallSat Precision Navigation with Low-Cost MEMS IMU Swarms," NASA Johnson Space Center, 2013 – 15.

39. "SmallSat Technology," U.S. Special Operations Command, 2017 – 2022

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2. Key, Kevin, 1998-99 (co-advised)

3. Ebinuma, Tak, 2001-2002 (co-advised)

4. Dubois-Matra, Olivier, 2003-2005

5. Heyne, Martin, 2007

_____ **VISITING STUDENTS SUPERVISED** _____

1. Guillaume Gailet, France, 1997, (BS Thesis)

2. Zanetti, Renato, Italy, 2003 (MS Thesis)

3. Prado, Bonnie J., Colombia, 2008 (BS Thesis)

4. Tapiero, Juan, Colombia, 2010 (BS Thesis)

5. Echeverri, Andres, Colombia, 2011 (BS Thesis)

_____ **VISITING RESEARCHERS SUPERVISED** _____

1. Hiroshi Iida (Japan, 1994)

2. Dr. Hongwei Xie (China, 1998)

3. Dr. Dilmurat Azimov (Uzbekistan, 1999 – 2008)

4. Dr. Juan Senent (Spain, 2001 – 2003)

5. Dr. Nguyen Viet Khoa (Vietnam, Fulbright Fellow, 2008 – 2009)

6. Dr. José Vicente Salcedo (Spain, 2016)

7. Dr. Carlos Muñoz (Universidad de La Frontera, Chile, 2019 – 2020)

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1. MS, Yehia Helwa

2. MS, Audrey Tahwa