John L. Crassidis
Department of Mechanical and Aerospace Engineering

9/16/24

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EDUCATION

State University of New York at Buffalo, Ph.D.
"Integrated Estimation and Identification for Robust Control of Multivariable Systems"
Mechanical Engineering, May 1993

State University of New York at Buffalo, M.S.
"Tracking and Control of an Automatic Carrier Landing System Utilizing Aircraft Sensor Information"
Mechanical Engineering, February 1991

State University of New York at Buffalo, B.S.
Mechanical Engineering, May 1989

TECHNICAL INTERESTS

Robust Estimation and Control of Nonlinear Systems, Spacecraft Attitude Determination and Control, Novel Navigation Concepts and Hardware Development

PROFESSIONAL EXPERIENCE

11/19 – present	**University at Buffalo -** SUNY Distinguished Professor Department of Mech. & Aero. Engineering
6/22 – present	**University at Buffalo -** Moog Endowed Chaired Professor of Innovation Department of Mech. & Aero. Engineering
1/18 – 5/22	**University at Buffalo -** Samuel P. Capen Chair Professor Department of Mech. & Aero. Engineering
6/13 – 12/17	**University at Buffalo -** CUBRC Professor in Space Situational Awareness Department of Mech. & Aero. Engineering
6/12 – present	**XAnalytix Systems, LLC -** President and Founder
8/07 – 5/13	**University at Buffalo -** Professor, Department of Mech. & Aero. Engineering
1/24 – present	**University at Buffalo -** Executive Director, Collaborative Institute for Multisource Information Fusion (CIMIF)
1/14 – 12/23	**University at Buffalo -** Director, Center for Multisource Information Fusion (CMIF)
1/21 – present	**University at Buffalo -** Founder and Director, Center for Space Cyber Strategy and Cyber Security $(CS)^3$
1/10 – present	**University at Buffalo -** Founder and Director, University at Buffalo Nanosatellite Laboratory (UBNL)
8/07 – 12/13	**University at Buffalo -** Associate Director, Center for Multisource Information Fusion (CMIF)
5/12 – 4/15	**University at Buffalo -** Associate Chair, Department of Mech. & Aero. Engineering
5/11 –6/11	**Air Force Research Laboratory -** Visiting Faculty Research Program, Information Directorate
5/10 –6/10	**Air Force Research Laboratory -** Visiting Scholar, Space Vehicle Directorate
8/02 –7/07	**University at Buffalo -** Associate Professor, Department of Mech. & Aero. Engineering
1/01 – 7/02	**University at Buffalo -** Assistant Professor, Department of Mech. & Aero. Engineering
8/98 –1/01	**Texas A&M University -** Assistant Professor, Department of Aerospace Engineering
1/96 - 7/98	**The Catholic University of America -** Assistant Professor, Department of Mechanical Engineering
5/94 - 1/96	**National Research Council Tenable at NASA Goddard -** Postdoctoral Research Fellow
10/93 - 5/94	**Ford Motor Company -** Consultant

1/92 - 1/93 **National Transportation Research Board -** Research Fellow

3/92 - 10/92 **Calspan - U.B. Research Center (CUBRC) -** Research Assistant

1/91 - 12/91 **Bell Aerospace Textron -** Research Assistant

9/89 - 1/91 **Bell Aerospace Textron -** Research Assistant

TECHNICAL EXPERIENCE

1/89 - 5/89 **Taylor Devices -** Internship

HONORS

- **American Astronautical Society**, 2022 Dirk Brouwer Award
- **Niagara Frontier Aviation and Space Hall of Fame**, 2022 Inductee
- **American Institute of Aeronautics and Astronautics**, 2022 Guidance, Navigation and Control Plenary at the SciTech Forum and Exposition
- **Moog Endowed Chaired Professor of Innovation**, '22
- **American Society of Mechanical Engineers**, 2020 Fellow Inductee
- **SUNY Distinguished Professor**, '19
- **Samuel P. Capen Chair Professor**, '18
- **UB President Emeritus and Mrs. Meyerson Award for Distinguished Undergraduate Teaching and Mentoring**, '17
- **NASA iTech Semifinalist**, '17
- **Best Presentation in Session, AIAA Guidance, Navigation, and Control Conference**, '17
- **Collegiate Science Technology Program (CSTEP) Research Mentor Award**, '17
- **American Institute of Aeronautics and Astronautics and American Society for Engineering Education**, 2016 J. Leland Atwood Award
- **American Institute of Aeronautics and Astronautics**, 2015 Fellow Inductee
- **Dr. Richard T. Sarkin Award For Excellence In Teaching**, '14
- **American Astronautical Society**, 2014 Fellow Inductee
- **CUBRC Chaired Professor in Space Situational Awareness**, '13
- **Tau Beta Pi**, 2012 Eminent Engineer Inductee
- **American Institute of Aeronautics and Astronautics**, 2012 Mechanics and Control of Flight Award
- **Tau Beta Pi New York Nu Chapter,** 2012 Professor of the Year
- **American Institute of Aeronautics and Astronautics**, 2006 Sustained Service Award
- **Society of Automotive Engineers**, 2006 Ralph R. Teetor Educational Award
- **Best Paper Award**, 2003 AIAA Guidance, Navigation & Control Conference (out of 350 papers)
- **Best Paper Award**, 2001 AIAA Guidance, Navigation & Control Conference (out of 225 papers)
- **University at Buffalo**, Young Investigator Award, '02
- **National Aeronautics and Space Administration**-Summer Faculty Fellowship Award, '97-'98
- **National Aeronautics and Space Administration**-Postdoctoral Fellowship Award, administered by the **National Research Council**, '94-'96
- **United States Achievement Academy**-National Collegiate Engineering Award, '93
- **National Transportation Research Board**-Graduate Research Fellowship Award, administered by the **National Research Council**, '92-'93

PROFESSIONAL SERVICE

Member, National Reconnaissance Office Advisory Board, '20-present

Member, AIAA Journal of Guidance, Control, and Dynamics Advisory Board, '24-present

Guest Editor, AIAA Journal of Guidance, Control, and Dynamics, F. Landis Markley Memorial Virtual Collection, Vol. 46, No. 1, Nov. 2023, pp. 2043-2043, doi:10.2514/1.G007851 (https://arc.aiaa.org/toc/jgcd/Virtual+Collection/2).

Member, International Academy of Astronautics, Strategy and Feasibility Assessment of Collision Protection from Asteroids and Comets: Concept, Technology, and Prospect Group, '17-present

Panelist, Space Science Week Panel on Space Situational Awareness, Orbital Debris Mitigation, and Hazards in the Commons, March '22

Member, AIAA Honors and Awards Committee, '15-'23. Chair, Dryden Lecture Award, '19-'23

Deputy Director, AIAA Region 1 Honors and Awards, '15-'19

Member, Air Force Space Command Astrodynamics (AFSPC) Innovation Committee, also Member of the Transparency, Openness, and Collaboration Working Group within AFSPC, '13-'17

Guest Editor, AIAA Journal of Guidance, Control, and Dynamics, Special Issue on the Kalman Filter and its Aerospace Applications, Vol. 40, No. 9, Sept. 2017.

Book Series Co-Editor (with Dr. Mark Balas and Dr. Florian Holzapfel), *Dynamics and Control of Electromechanical Systems*, '14-'17

Deputy Editor, AIAA Journal of Guidance, Control, and Dynamics, '17-'23

Associate Editor, AIAA Journal of Guidance, Control, and Dynamics, '05-'17

AIAA Publications Review Committee for Journal of Guidance, Control, and Dynamics, '17

Partnership Program Manager, Education Partnership Agreement – Air Force Research Laboratory, Directed Energy and Space Vehicles Directorates, and University at Buffalo, '09-present

Core Member, NASA Engineering and Safety Center (NESC) Guidance, Navigation and Control Technical Discipline Team, '09-'22

Research Affiliate, Center for Orbital Debris Education and Research (CODER) at the University of Maryland, '14-present

Faculty Advisor, UB Student Pilots Association-University at Buffalo Section, '17-present

Advisory Board Member, National Technical Committee of the AIAA Guidance, Navigation and Control Committee, '09-present

Team Development Member, DARPA Prize Challenge for Optimal Estimation Algorithms, '10-'11

Advisory Board, StarVision Technologies, '04-'10

Faculty Advisor, Air Force University Nanosat Program, “Formation Attitude Laser Communication Orbital Navigator,” '17-present

Faculty Advisor, NASA Undergraduate Student Instrument Project, “BRIAN: Broad-spectrum Radio Interference Analyzing Nanosatellite,” '16-'21

Faculty Advisor, Air Force University Nanosat Program, “Polarimetric Observer Light Analyzing Research,” '22-present

Faculty Advisor, Air Force University Nanosat Program, “Spectrometry Observation for Reflectivity Analysis,” '15-'17

Faculty Advisor, Air Force University Nanosat Program, “Glint Analyzing Data Observation Satellite,” '13-present

Faculty Advisor, Air Force University Nanosat Program, “Light-curve Analyzing NanoSat Calibration with Exospheric Testing,” '11-'13

Faculty Advisor, NASA CubeSat Initiative, “Glint Analyzing Data Observation Satellite,” '13-'16

Faculty Advisor, NASA Reduced Gravity Education Flight Program, “Line of Sight Relative Attitude Determination for Two Satellites,” '10-'11

Faculty Advisor, NASA Reduced Gravity Education Flight Program, “Relative Attitude Determination for Satellite Formation Flying,” '09-'10

Program Reviewer, NASA Engineering and Safety Center (NESC) Guidance, Navigation and Control Technical Discipline Team, '07-'09

Guest Editor, The Journal of the Astronautical Sciences, Special Issue: The F. Landis Markley Astronautics Symposium, Vol. 57, Nos. 1 & 2, Jan.-June '09

Guest Editor, The Journal of the Astronautical Sciences, Special Issue: The Malcolm D. Shuster Astronautics Symposium, Vol. 54, Nos. 3 & 4, July-Dec. '06

Faculty Advisor, AIAA-Texas A&M University Section, '99-'01

Committee Member and Judge, AIAA-Region IV Student Conference, '00

National Technical Committee of the AIAA Guidance, Navigation and Control Committee, '97-'08

1) Chair, '06-'08
2) Vice Chair, '04-'06

3) Secretary, '04-'06
4) Best Paper for GN&C Conference, Subcommittee Chair
5) GN&C Graduate Student Award, Subcommittee Chair
6) GN&C Undergraduate Student Competition, Subcommittee Chair
7) Education, Subcommittee Chair
8) Steering Subcommittee, Member

Chair, AIAA Guidance, Navigation and Control Committee Advisory Board, '08-'10

Member, AIAA Publication Ethical Standards Committee, '06

AIAA Congressional Visits Day, 3/98, 4/01

American Society of Mechanical Engineers (ASME)-Washington D.C. Section
1) Secretary, '97-'98
2) Director, '96-'97

American Institute of Aeronautics and Astronautics (AIAA)-Niagara Frontier Section
1) Council Member, '93-'94
2) Vice Chair, '09-present

Member, American Society of Engineering Education (ASEE), '93-present

Faculty Advisor, ASME-Catholic University Section, '96-'98

Member, Tau Beta Pi, '12-present

Fellow, American Astronautical Society (AAS), '14-present

Member, American Astronautical Society (AAS), '98-'13

Fellow, American Society of Mechanical Engineers (ASME), '20-present

Member, American Society of Mechanical Engineers (ASME), '87-'19

Member, Society of Automotive Engineers (SAE), '89-present

Fellow, American Institute of Aeronautics and Astronautics (AIAA), '15-present

Associate Fellow, American Institute of Aeronautics and Astronautics (AIAA), '02-'14

Senior Member, American Institute of Aeronautics and Astronautics (AIAA), '97-'02

Member, American Institute of Aeronautics and Astronautics (AIAA), '88-'97

Conference Service

- 25th Ground Systems Architecture Workshop, Ontologies for Space and Ground System Cybersecurity, Co-Chair, '21
- Euro GNC 2019 – 6th CEAS Specialist Conference on Guidance, Navigation & Control, International Program Committee, '19
- Euro GNC 2018 – 5th CEAS Specialist Conference on Guidance, Navigation & Control, International Program Committee, '18
- Euro GNC 2017 – 4th CEAS Specialist Conference on Guidance, Navigation & Control, International Program Committee, '17
- 18th International Conference on Information Fusion, Technical Program Committee, '15
- 3rd European Aerospace Guidance, Navigation and Control Conference, Technical Program Committee, '14
- 17th International Conference on Information Fusion, Technical Program Committee, '14
- AIAA Guidance, Navigation, and Control Conference, Session Chair, '13
- 16th International Conference on Information Fusion, Session Chair, '13
- 2nd European Aerospace Guidance, Navigation and Control Conference, Technical Program Committee, '13
- The Bar-Itzhack Memorial Symposium on Estimation, Navigation, and Attitude Determination, Organizing Committee Member, '12
- 15th International Conference on Information Fusion, Technical Program Committee, '12
- AIAA Guidance, Navigation, and Control Conference, Technical Area Chair, '11
- 14th International Conference on Information Fusion, Technical Program Committee Member, '11
- AIAA Guidance, Navigation, and Control Conference, Session Chair, '10
- 8th International ESA Conference on Guidance, Navigation and Control Systems, Program Committee, '11

- AIAA Guidance, Navigation, and Control Conference, Session Chair, '09
- AAS F. Landis Markley Astronautics Symposium, General Chair, '08
- 7th International ESA Conference on Guidance, Navigation and Control Systems, Program Committee, '08
- AIAA Guidance, Navigation, and Control Conference, Session Chair, '07
- AIAA Guidance, Navigation, and Control Conference, Area Co-Chair, '06
- AIAA Guidance, Navigation, and Control Conference, Session Chair, '05
- 6th International ESA Conference on Guidance, Navigation and Control Systems, Program Committee, '05
- AAS/UB Malcolm D. Shuster Astronautics Symposium, General Chair, '05
- AIAA Guidance, Navigation, and Control Conference, Area Chair, '04
- AIAA Guidance, Navigation, and Control Conference, General Chair, Session Chair, '03
- AIAA Guidance, Navigation, and Control Conference, Session Chair, '02
- AIAA Guidance, Navigation, and Control Conference, Technical Co-Chair, '01
- AIAA Guidance, Navigation, and Control Conference, Session Chair, '01
- AIAA Guidance, Navigation, and Control Conference, Session Chair, '00
- AIAA International Space Station Service Vehicles Conference, Session Chair, '99
- AIAA Guidance, Navigation, and Control Conference, Session Chair, '97

UNIVERSITY AND COMMUNITY SERVICE

University at Buffalo

- Member, Department of Materials Design and Innovation Search Committee, '24
- Member, Law School Decanal Review Committee, '23
- Member, 2024 Total Eclipse New York State Interagency Task Force, '22-'24
- Member, Department of Materials Design and Innovation Search Committee, '22-'23
- Member, Director of Faculty Recognition Search Committee, '21
- Director of the Center for Space Cyber Strategy and Cyber Security $(CS)^3$, '21-present
- Member, School of Engineering SUNY Distinguished Professor Committee, '20-present
- Chair of MAE Faculty Search Committee, '19
- Task Force on Safeguarding University and Faculty Assets and Interests Committee, '19
- Chih Award Reviewer Group Committee, '19
- President Emeritus and Mrs. Meyerson Award Committee, '18
- MAE Faculty Search Chair – Dynamics & Control, '17-'18
- MAE Faculty Search Chair – Dynamics & Control, '16-'17
- Director of the Center for Multisource Information Fusion (CMIF), '14-present
- Director of the University at Buffalo Nanosatellite Laboratory (UBNL), '13-present
- Faculty Review Committee Member, Digital Manufacturing and Design Innovation Institute: DMDII, '16-present
- Member, SEAS Alliances for Graduate Education and the Professoriate (AGEP), NSF, '16-present
- Associate Director of the Center for Multisource Information Fusion (CMIF), '07-'13
- Associate Department Chair, '12-'17
- University Post-Baccalaureate Enrollment Committee on Master's Education, '15
- SEAS Faculty Search Guideline Committee, '13-'14
- Chair of MAE Faculty Search Committee, '13-'14
- University Graduate School Presidential Fellowship Committee, '13-'15
- Director of MAE Graduate Studies, '11-'13
- SEAS Faculty Personnel Committee (Promotion Committee), '11-'14, Chair, '13-'14
- University Graduate School Executive Committee, '12-'13
- MAE Faculty Search Chair – Dynamics & Control, '12-'13
- Member of Honors College Director Search Committee, '11-'12
- MAE Faculty Search Chair – Dynamics & Control and Design, '10-'11
- Director of Undergraduate Studies in Aerospace Engineering, '06-'11
- MAE Department Strategic Planning Committee, '08-present
- Member of Extreme Events Strategic Strength Committee, '06-'11
- Chair of MAE Faculty Search Committee, '10-'11
- MAE Faculty Search Committee, '06
- University Online Course Evaluation Committee, '05

- University Faculty Senate Alternate, '04-present
- University Faculty Mentor, '02-present
- Honors Program Mentor, '02-present
- MAE Ph.D. Comprehensive Examination, '01-present
- MAE Undergraduate Studies Committee, '01-'11

Texas A&M University

- Ph.D. Comprehensive Examination, '00
- Departmental Library Liaison, '99-'00
- Departmental Web Committee, 3/99

Catholic University of America

- Faculty Search Committee, 2/98
- Doctoral Academic Program Committee, 1/98
- Computer Assessment Committee, 9/97
- Faculty Search Committee, 7/97
- Academic Achievement Awards Committee, 4/97
- Organizer and Host, Student Paper Competition, ASME D.C. Section, 3/97
- Committee for Mechanical Engineering Chair Search, 2/97
- Mission Statement Committee in Mechanical Engineering, 10/96
- Undergraduate Curriculum in Mechanical Engineering Committee, 2/96

PROFESSIONAL DEVELOPMENT

- The National Science Foundation Regional Grants Conference, 3/98

MEDIA COVERAGE

CBS This Morning, CNN, Fox News Network, NBC Today Show, BBC News World, BBC World Service Radio, Associated Press News, C-SPAN, NBC News, CNBC, MACH, Fox News (website), Wall Street Journal, U.S. News & World Report, Bloomberg QuickTake, Forbes, The New York Times, I Don't Understand with William Shatner, This Week in Space with Rod Pyle and Tariq Malik, National Public Radio, Voice of America, WIRED Magazine, Scientific American, Sky News Australia, NewsNation Now, The Sun UK Edition, Spectrum News, Inverse, The Shift with Shane Hewitt (Syndicated Canadian Talk Radio Show), Newsy, Fox 26 Houston, The Miami Herald, E.W. Scripps, Global News 640 AM, La Presse, Swedish Public Radio, Newsmax, TalkRadio UK, W Radio Station in Colombia, Freethink, New Scientist, AIAA Momentum Member Spotlight – Feb. 2017, MIT Technology Review, AirTalk with Larry Mantle – LAist Southern California Public Radio, Aerospace America, MSN, Daily Beast, The National News, The Guardian, International Business Times, Popular Mechanics, Popular Science, *i* (British newspaper), Space Daily, space.com, Hackaday, MarsNews, Discover Magazine, Air & Space/Smithsonian Magazine, Salon, WION (World Is One News) India, The Show About Science, Kumparan, MSN Ireland, The Atlantic, ABC News 10, Live Science, Yahoo! News Canada, Communications Daily, Equal Times, The Verge, The Messenger, Globe and Mail (Canada's National Newspaper), Atlas Obscura, Xinhua News, Tech2, WBFO Radio, Science World Magazine, Washington Examiner, SpaceRef, IEEE Spectrum Magazine, ASEE Prism Magazine, Space Safety Magazine, Space, Yahoo! News, Markets Insider, Business Insider, German Public Radio MDR Jump, Futurism, CNET, Payload Newsletter, Khalifa University Science and Tech Review, Scholastic's Classroom Magazine Scope, RTVI - Russian Television International, Houston Chronicle, The Face, MeteoWeb, Lifestyle Magazine, Florida Sentinel, Military & Aerospace Electronics Magazine, Ninja Marketing, Radio Metafora, Libération, Golem13, VTM, TriCurioso, Clarín (Argentine newspaper), Merdeka, Dinheiro Vivo, Merah Putih, Sina Technology, ETA BETA Magazine, Buffalo News, CHED Edmonton, WGRZ TV, WIVB TV, KNX News Los Angeles, Machine Design, Satellite Today, Vosveteit, Nguoi Viet Phone, CafeBiz, Focus, Arkansas Business, Euronews, United Press International, The Times-Tribune, Science et Vie

COURSES INSTRUCTED

University at Buffalo

Course	*Title*	*Years Taught*
MAE 425/525	Spacecraft Dynamics and Control	Spring '21, Spring '20, Spring '19, Spring '18, Spring '16, Spring '15 Spring '14, Spring '13, Spring '12, Spring '11, Spring '10, Spring '09 Spring '08, Spring '07
EE 441	Space Exploration Topics	Fall '09

EAS 496	Co-Op	Summer '08, Summer '07
MAE 674	Optimal Estimation Methods	Fall '23, Fall '22, Fall '21, Fall '20, Fall '19, Fall '18, Fall '17, Fall '16, Fall '15, Fall '14, Fall '13, Fall '12, Spring '06, Spring '05, Spring '04, Spring '03
MAE 472	Guidance Navigation & Control	Spring '06, Spring '05, Spring '04, Spring '03, Spring '02
MAE 571	Systems Analysis 1	Fall '11, Fall '10, Fall '10, Fall '09, Fall '08, Fall '07, Fall '06, Fall '05 Fall '04, Fall '03, Fall '02, Fall '01
SYS 577	Optimal Control Systems	Spring '16, Spring '01
SYS 436	Digital Control Systems	Spring '93

Texas A&M University

Course	*Title*	*Years Taught*
AERO 689	Estimation of Dynamic Systems	Fall '00, Fall '99
AERO 310	Aerospace Dynamics	Fall '00, Spring '00, Fall '99, Spring '99, Fall '98

Catholic University of America

Course	*Title*	*Years Taught*
ME 334	System Dynamics	Spring '98, Spring '97
ME 510	Modern Control Systems	Spring '98, Spring '97, Spring '96
ME 507	Mechanical System and Control	Fall '97, Fall '96
ME 571	Optimum Design of Mech. Systems	Fall '97
ME 555	Spacecraft Dynamics and Control	Fall '96

RESEARCH SUPERVISION

Completed

Ph.D.

- Steven R. Gagnon (Ph.D.), "Overcoming Convergence Issues with Attitude Determination from Light Curves," (2/24).
- Steven Szklany (Ph.D.), "Geometric Extended Kalman Filtering for Passive Navigation with Unobservable Parameter Consideration," (2/22).
- Jeremy Chapman (Ph.D.), "Utilizing Conceptual Spaces Cognitive Modeling for Hard and Soft Data Fusion for Space Event Threat Assessment," (2/22).
- Saeed Maleki (Ph.D.), "Total Least Squares for Optimal Pose Estimation," (2/22).
- Scott Geyer (Ph.D.), "3D Mapping of Non-Cooperative Space Body Features Using Multiple Hypothesis Tracking," (9/21).
- Andrew Dianetti (Ph.D.), "Resident Space Object Characterization Using Polarized and Multispectral Light Curves," (2/20).
- Matthew Whittaker (Ph.D.), "Inertial Navigation Employing Common Frame Error Definition," (2/19).
- Adonis Pimienta-Peñalver (Ph.D.), "Attitude Dynamics, Stability, and Control of a Heliogyro Solar Sail," (9/17).
- Matthias Schmid (Ph.D.), "A New Control Paradigm for Stochastic Differential Equations," (5/17).
- Michael Andrle (Ph.D.), "Geometric-Based Nonlinear Filtering with Applications to Attitude Estimation," (2/14).
- Richard Linares (Ph.D.), "Probabilistic Identification and Discrimination of Deep Space Objects via Astrometric and Photometric Data Fusion," (2/14).
- Christopher K. Nebelecky (Ph.D.), "New Variations of Multiple-Model Adaptive Estimation for Improved Tracking and Identification," (2/14).
- William Banas (Ph.D.), "Numerically Stable Covariance Intersection for Spacecraft Formation Flying," (2/14).
- Sean Semper (Ph.D.), "Optimal and Efficient Geolocation and Path Planning for Unmanned Aerial Vehicles using Uncertainty Measures," (9/11).
- Jemin George (Ph.D.), Co-Advised with Dr. Puneet Singla, "An Adaptive Disturbance Accommodation Approach for Robust Control and Fault Detection in Uncertain Stochastic Systems," (5/10).
- Hakjae Kim (Ph.D.), "Nonlinear Filtering Using the Complex-Step Derivative Approximation," (2/10).
- Badr N. Alsuwaidan (Ph.D.), "Generalized Multiple Model Adaptive Estimation," (9/08).
- Kok-Lam Lai (Ph.D.), "Generalizations of the Complex-Step Derivative Approximation," (9/06).

- Adam Fosbury (Ph.D.), "Control and Kalman Filtering for Relative Dynamics of a Formation of Uninhabited Autonomous Vehicles," (9/06).
- Keun Joo Park (Ph.D.), "GPS Receiver Self Survey and Attitude Determination Using Pseudolite Signals," (5/04).
- Jo-Ryeong Yim (Ph.D.), Co-Advised with Dr. John Junkins, "Autonomous Orbit Navigation of Interplanetary Spacecraft," (12/02).
- Jongrae Kim (Ph.D.), "A New Approach to Robust Control: Model-Error Control Synthesis," (8/02).
- Jong-Woo Kim (Ph.D.), "International Space Station Leak Localization Using Attitude Response," (8/02).

M.S. Thesis

- Aniketh Kalur (M.S.), "Improved Data Association for Space-Object Identification Using Gating Methods and Planar Triangles," (5/15).
- Paul Silversmith (M.S.), "Space-Object Identification Using Spatial Pattern Recognition," (5/14).
- Arnab Ghosh (M.S.), "Fast and Optimal Solution for the Generalized Attitude Determination Problem," (9/13).
- Adonis Pimienta-Peñalver (M.S.), "Accurate Kepler Equation Solver without Transcendental Function Evaluations," (5/13).
- Andrew Hazlett (M.S.), "Differential Wheel Speed Integration with GPS/INS for Land Vehicle Navigation," (5/13).
- Jeremy Marschke (M.S.), "Generalized Multiple Model Adaptive Attitude Estimation without Rate Gyros," (5/11).
- Richard Linares (M.S.), "Constrained Relative Attitude Determination for Two Vehicle Formations," (2/11).
- Shivaswamy Anirudh (M.S.), "Robust Attitude Estimation in the Presence of Magnetic Disturbances," (2/11).
- Christopher Nebelecky (M.S.), "Improved Decentralized Attitude Estimates Using the Covariance Intersection Algorithm," (9/09).
- Matthias Schmid (M.S.), "Robust Reduced Order Control for Nonlinear Distributed Systems of Burgers' Class," (2/09).
- Sean Semper (M.S.), "Decentralized Geolocation and Optimal Path Planning Using Unmanned Aerial Vehicles," (5/08).
- Michael Andrle (M.S.), "Deterministic Relative Attitude Determination of Formation Flying Spacecraft," (5/08).
- William Banas (M.S.), "Micro-Arcsecond Line-of-Sight Filtered Performance for Spacecraft Formation Flying," (5/08).
- Shu Ting Goh (M.S.), "Unscented Kalman Filtering for Relative Attitude and Position Estimation," (9/07).
- Frank Centinello (M.S.), "Analysis of the ECEF and NED Covariance Propagation for the Navigational Extended Kalman Filter," (5/07).
- Jemin George (M.S.), "Kalman Filter Approach to Model-Error Control Synthesis," (5/07).
- Anjani Kumar (M.S.), "Design of Colored-Noise Extended Kalman Filter for Vision-Based Navigation Applications," (5/07).
- Badr Alsuwaidan (M.S.), "Robust Longitudinal Aircraft Control Using Model-Error Control Synthesis," (2/06).
- Chaitanya Tapaswi (M.S.), "Determination of Vessel Sizes and Refinement of 3D Imaging Geometry from Biplane Images of the Coronary Vasculature," (9/05).
- Agnar Kenneth Nygaard Nielsen (M.S.), "Helicopter Dynamics and Robust Control," (9/05).
- Jasbir Singh Vig (M.S.), "Improved Navigation of Vehicle Using GPS/INS with Line of Sight Measurements," (9/05).
- Brian Michael Haas (M.S.), "Sensitivity Study: The Affects of Beacon Errors on a Vehicle's Position and Attitude Estimation for a Vision-Based Navigation System," (5/05).
- Son-Goo Kim (M.S.), "Kalman Filtering for Relative Spacecraft Attitude and Position Estimation," (5/05).
- Adam Fosbury (M.S.), "Control of Relative Attitude Dynamics of a Formation Flight Using Model Error Control Synthesis," (5/05).
- Arun Natarajan (M.S.), "Spacecraft Attitude Maneuvers with Input Saturation Using Model Error Control Synthesis," (9/04).
- Kaylan Kappagantula (M.S.), "Linearizing Assumptions and Control Design for Spacecraft Formation Flying Maneuvers," (5/04).
- Craig Cole (M.S.), "Fast Star Pattern Recognition Using Spherical Triangles," (2/04).
- Krishnakumar Ramamoorthy (M.S.), "Potential Functions for En-Route Air Traffic Management," (2/04).
- Kok-Lam Lai (M.S.), "In-Space Autonomous Spacecraft Alignment Calibration," (9/03).
- Randy Chugh (M.S.), "Model-Error Control Synthesis for Spacecraft Attitude Maneuvers," (5/03).
- Puneet Singla (M.S.), "A New Attitude Determination Approach Using Split Field of View Star Camera," (8/02).
- Curtis Webb (M.S.), "GPS Position Determination Using a Nonlinear Predictive Filter," (5/02).
- Roberto Alonso (M.S.), "Relative Navigation for Formation Flying of Spacecraft," (5/01).
- David Nestle (M.S.), "Adaptive Optimization of Motion-Based Simulator," (8/01).
- Malak Anees Samaan (M.S.), "Studies in Robust Control Systems with Application to Various Spacecraft Attitude Control Systems," (3/00).

M.S. Project

- Logan Andrzejewski (M.S.), Co-Advised with Dr. Christopher K. Nebelecky, "Tracking and Bias Estimation in Near Rectilinear Halo Orbit Using Multiple Model Adaptive Estimation, (5/24).
- Benjamin Leone (M.S.), "Three Axis Magnetometer Calibration Using Estimation Methods," (2/22)
- Harrison Lofredo (M.S.), "Custom Autonomous Rover in Real Life Environment," (5/21)
- Luke Miller (M.S.), "Guidance Navigation and Control of a 29-Rotor Uninhabited Aerial Vehicle," (2/18).
- Sean Rosney (M.S.), "Extended Kalman Filtering for Individual, Relative, and Constrained Relative Spacecraft Attitude Estimation," (5/17).
- Eric Barton (M.S.), "Pressure Foot Plate Modal Analysis and Signal Conditioning," (9/13).
- Bharath Kumar Baburajan (M.S.), "Space Attitude Tracking Control Using Sliding Mode Control," (9/12).
- Supriya Singh (M.S.), "Adaptive Cruise Control Systems: Possible Development Opportunities for Improved Driver Safety," (9/12).
- Steven McDonald (M.S.), "Bipropellant Thrusters and Their Operation at Low Feed Pressure, High Propellant Temperature Conditions," (2/11).
- Ryan McMahon (M.S.), "Aircraft Parameter Identification Using an Aircraft Model Simulation Toolkit," (5/10).
- Brenna Stachewicz (M.S.), "A Graphical User Interface for Eigenstructrue Assignment for Linear Systems," (9/08).
- Yijia Sun (M.S.), "Robust Spacecraft Attitude Estimation using Multiple-Model Approaches," (9/07).
- Min-Chang Tsai (M.S.), "Pitch Arm Control and Virtual Realization of T-Type Robot Helicopter," (9/05).
- Hsieh Chang Keng (M.S.), "Simulating the Elevation and Azimuth Dynamics and the Trajectory Prediction for the Helicopter Model," (5/05).
- Jayesh Minase (M.S.), "Unscented Filter for GPS Attitude Estimation," (9/04).
- Garth Mathe (M.S.), "Aircraft Attitude and Gyroscope Drift Estimation Using Three Axis Magnetometer and Ground Reference Position Data," (9/04).
- Paul Schifferle (M.S.), "In-Flight Simulation Capability of a Variable Stability Helicopter in the Longitudinal Axis," (9/04).
- Ketan Churi, Kedar Deshpande, Anirudha Naik, and Jitesh Panicker (M.S.), "Simulation of Warfare Logistics in a Virtual Environment Using Motion-Based Object Tracking and Positional Coordinates Estimation," (2/04).
- Guoshi Li (M.S.), "Application of Model-Error Control Synthesis to the Control of a Pneumatic Muscle Actuator System," (9/03).

Postdoctoral Researchers

- Dr. Andrew Dianetti ('20)
- Dr. Joanna Hinks ('12-'15)
- Dr. Jemin George ('10-'11)
- Dr. Yang Cheng ('03-'09)

Visiting Scholars

- Mr. Aitor R. Gómez, Aalborg University, ('21-'22)
- Dr. Shashi Poddar, *CSIR-Central Scientific Instruments Organization*, ('19-'21)
- Dr. Yasuhiro Yoshimura, *Kyushu Universit*y, ('19-'20)
- Dr. Hao Wang, *Zhejiang University*, ('16-'17)
- Mr. Linqi Ye, *Tianjin University*, ('15-'16)
- Dr. Jesús García Herrero, *Universidad Carlos III de Madrid*, ('15-'16)
- Mr. Zhengshi Yu, *Harbin Institute of Technology*, ('14-'15)
- Dr. Zhonghua Zhao, *Shanghai Jiaotong University*, ('11-'12)
- Dr. Debo Sun, *Harbin Institute of Technology*, ('09-'10)

Undergraduate Supervision

- Kaden Ostrander, SUNY Louis Stokes Alliance for Minority Participation Program, "Satellite Design and Analysis," 2024.
- Khalil Suleman, SUNY Louis Stokes Alliance for Minority Participation Program, "Satellite Design and Analysis," 2024.
- Cristian Pompey, Collegiate Science & Technology Entry Program (CSTEP), "Flight Architecture Systems for a Small Satellite," 2022, 2023.
- Christine Shiyam, SUNY Louis Stokes Alliance for Minority Participation Program, "Flight Software Design for a Satellite System," 2022.
- Becky Paul-Odionhin, SUNY Louis Stokes Alliance for Minority Participation Program, "Design Analysis for a Satellite System," 2021.
- Anoop Kiran, UB Ronald E. McNair Post-Baccalaureate Achievement Program, "Kalman Filter Design for Attitude Estimation of a Nanosatellite," 2020.

- Chukwudi Nwoke, Collegiate Science & Technology Entry Program (CSTEP), "Thermal Analysis a Nanosatellite," 2020.
- Christopher Gnam, Collegiate Science & Technology Entry Program (CSTEP), "Advanced Techniques for Attitude Estimation and Control Systems for Nanosatellites," 2018.
- Priya Persaud, Collegiate Science & Technology Entry Program (CSTEP), "Satellite Design and Testing," 2018.
- Nicholas Phillips, University at Buffalo Honors Program, "Satellite Modeling and Design," 2018.
- Christopher Gnam, Collegiate Science & Technology Entry Program (CSTEP), "Investigation of Attitude Estimation and Control Systems for Nanosatellites," 2017.
- Christopher Gnam, Collegiate Science & Technology Entry Program (CSTEP), "Nanosatellite Design to Study the Radio Frequency Noise Environment in Space," 2016.
- Ali Al Qaraghuli, Collegiate Science & Technology Entry Program (CSTEP), "Design of Circuit Boards for a Nanosatellite," 2016.
- Avery Bodenstein, Undergraduate Zimmer Fellowship, "Study of Multiband Photometric Data of Resident Space Objects in Geosynchronous Orbit," 2015.
- William Roman, SUNY Louis Stokes Alliance for Minority Participation Program, "Structural Design Analysis of Nanosatellite," 2015.
- Clarence Uzoho, Collegiate Science & Technology Entry Program (CSTEP), "Vibrational Testing of a Nanosatellite," 2015.
- Joshua Bueno, SUNY Louis Stokes Alliance for Minority Participation Program, "Software System Design for a Nanosatellite," 2014, 2015.
- Hamlet Spenser, Collegiate Science & Technology Entry Program (CSTEP), "Analysis of a Nanosatellite Thermal Design," 2014.
- Ifechukwu Ononye, Undergraduate Zimmer Fellowship, "Orbit Estimation for a Nanosatellite," 2014.
- Jose Escobar, SUNY Louis Stokes Alliance for Minority Participation Program, "Miniature Satellite Dynamic Analysis," 2014.
- Muhammad Khan, Collegiate Science & Technology Entry Program (CSTEP), "Analysis of a Nanosatellite Structure Design," 2014.
- Kevin Carpio, SUNY Louis Stokes Alliance for Minority Participation Program, "Analysis of a Nanosatellite Structure Design," 2013.
- Ifechukwu Ononye, SUNY Louis Stokes Alliance for Minority Participation Program, "Control System Design for a Nanosatellite," 2013.
- Nikita Butakov, Faculty Mentor, UB Honors College, "Small Satellite Design," 2012-2013.
- Joseph Materski, Faculty Mentor, UB Honors College, "Experimental Verification of Relative Navigation Using Line-of-Sight Observations," 2012-2013.
- Andrew Dianetti, Faculty Mentor, UB Honors College, "Small Satellite Design," 2011-2013.
- John McGreevy, Faculty Mentor, UB Honors College, "Relative Navigation Using Line-of-Sight Observations," 2011-2012.
- Adonis Pimienta-Peñalver, Collegiate Science & Technology Entry Program (CSTEP), "Kepler Equation Solver," 2010.
- Richard Linares, UB Ronald E. McNair Post-Baccalaureate Achievement Program, "Relative Attitude Determination Between Two Vehicles," 2009.
- Souleymane Sow, UB Ronald E. McNair Post-Baccalaureate Achievement Program, "Large Angle Maneuvers of Spacecraft with Actuation Constraints," 2009.
- Richard Linares, UB Ronald E. McNair Post-Baccalaureate Achievement Program, "Deterministic Attitude Determination Algorithm for Formation Flying Missions," 2008.
- Jeremy Marschke, Undergraduate Zimmer Fellowship, "Kalman Filtering for Relative Navigation," 2007.
- Christopher Nebelecky, Undergraduate Zimmer Fellowship, "Navigation using Line-of-Sight Observations," 2007.
- Amanda Schmidt, Undergraduate Zimmer Fellowship, "Spacecraft Formation Flying Navigation," 2006.
- Anne-Marsha Joseph, SUNY Louis Stokes Alliance for Minority Participation Program, "Thruster Control of a Spacecraft Testbed Using Fans," 2006.
- Jeremy Marschke, Undergraduate Zimmer Fellowship, "Spacecraft Momentum Management," 2006.
- Michael Andrle, Undergraduate Zimmer Fellowship, "Spacecraft Attitude Control," 2005-2006.
- Demissie Wolde-Gabriel, Collegiate Science & Technology Entry Program (CSTEP), "Robust Spacecraft Attitude Estimation," 2004-2005.
- Krystine Santos, SUNY Louis Stokes Alliance for Minority Participation Program, "Construction of a Miniature Spacecraft," 2005.
- Sean Semper, SUNY Louis Stokes Alliance for Minority Participation Program, "Construction of a Miniature Spacecraft," 2004-2005.

- Adriana Crippen, SUNY Louis Stokes Alliance for Minority Participation Program, "Modeling of a Miniature Spacecraft," 2003-2004.
- Adam Fosbury, Undergraduate Zimmer Fellowship, "3D Dynamics Experiments of Miniature Spacecraft," 2003.
- Kok-Lam Lai, Undergraduate Zimmer Fellowship, "Development of a Miniature Spacecraft Testbed Model," 2002.
- Curtis Webb, Undergraduate Summer Research Program, "Attitude Determination Using Pseudolites," winner best paper presentation, 1999-2000.
- April Evans, Undergraduate Summer Research Program, "Vision-Based Navigation and Calibration," winner best paper presentation, 2000.

Internship Programs

- Demissie Wolde-Gabriel, Collegiate Science & Technology Entry Program (CSTEP) Internship Program, 2004.

Committee Member

- Derek Bourabah (Ph.D.), "Principal Moment of Inertia Estimation of Tethered Debris," *University at Buffalo* (9/24).
- Alexander Burton (Ph.D.), "Attitude Estimation Using Light Curves," *Purdue University* (9/24).
- Aditya Rajesh Atre (M.S.), "A Lightweight Robust Methodology for Perception and Navigation for a Venusian Flier," *University at Buffalo* (5/24).
- Andrew M. Kopanon (Ph.D.), "On the Deployment Optimization of Sensors and Coverage Path Planning for Drone Inspections," *University at Buffalo* (5/24).
- Liam Field (M.S.), "Modeling, Simulation, and Control of Tethered Space Debris," *University at Buffalo* (9/22).
- Derek Bourabah (M.S.), "Effectiveness of Utilizing Only Tether Length Rate during the Retrieval of Tethered Satellite Retraction," *University at Buffalo* (9/21).
- Timothy Dubill (M.S.), "Wave Suppression and Guidance Through the Exploitation of Bandgap Properties in Periodic Vibrating Structures," *University at Buffalo* (5/21).
- Amir Behjat (Ph.D.), "Evolutionary and Physics Infused Learning for Intelligent Systems," *University at Buffalo* (5/21).
- Mohammadali Attarzadeh (Ph.D.), "Wave Propagation in Space-Time-Periodic Media: Breaking Elastic and Acoustic Reciprocity," *University at Buffalo* (5/21).
- Suraj Jain Megharaja (M.S.), "A Detailed Dynamic Damage Investigation of a Large Passenger Aircraft Fuselage Section Subject to Emergency Landing Requirements," *University at Buffalo* (2/20).
- Sharat Parameswaran Chidambaran (M.S.), "Neuroevolution in Control of Intelligent Systems: Benchmark Testing, Simulated and Physical Demonstrations," *University at Buffalo* (9/18).
- Cheng Zeng (M.S.), "Conceptual Design and Optimization of a Tilt-Arm Hybrid Unmanned Aerial Vehicle," *University at Buffalo* (2/18).
- Michael Moskal (Ph.D.), "Adaptive Unmanned Aerial Vehicle Routing Methods for Tactical Surveillance Operations," *University at Buffalo* (2/16).
- Vinod Kumar (Ph.D.), "Autonomous Navigation and Station-Keeping of Geostationary Satellites in Formation Using Indian Regional Space-Based Navigation System," *Indian Institute of Technology Bombay* (9/15).
- Martin Diz (Ph.D.), "Design, Development and Applications of a Framework for Autonomous Vehicle Operations," *University at Buffalo* (5/15).
- Seungkook Jun (Ph.D.), "A Home-Based Rehabilitation for Deficient Knee Patients," *University at Buffalo* (5/15).
- Jennifer Haggerty, (Ph.D.), "Minimum-Time Optimal Output Transitions Using Pre- and Post-Actuated Inputs: Impact of Zeros on the Structure of the Optimal Control Profile," *University at Buffalo* (2/15).
- Reza Madankan (Ph.D.), "Model-Data Fusion and Adaptive Sensing for Large Scale Systems: Applications to Atmospheric Release Incidents," *University at Buffalo* (5/14).
- John McGreevy (M.S.), "Calculation of an Optimal Two Impulse Earth-Moon Trajectory," *University at Buffalo* (5/14).
- Shashank Shekhar (M.S.), "Simulation of an Aircraft Dynamics in a Virtual Environment," *University at Buffalo* (9/13).
- Eric Salerno (M.S.), "Road Network Extraction and Uncertainty Analysis," *University at Buffalo* (5/13).
- Eamonn J. Moyer (M.S.), "Feedback Control and Steering Laws for Spacecraft Using Canfield Joint Attitude Manipulatois," *University at Buffalo* (5/13).
- Brandon Brown (Ph.D.), "A Jacobian Singularity Based Controller Design for Structured Uncertainty Robustness," *University at Buffalo* (2/13).
- Christopher Van Loon (M.S.), "The Analysis of Optical Flow Methods for Use with Tumor Motion," *University at Buffalo* (5/12).
- Cheng Jin (Ph.D.), "Multiresolution Algorithms for Input-Output Data Modeling with Applications to Dynamic Systems," *University at Buffalo* (5/12).
- Reza Madankan (M.S.), "Polynomial Chaos Based Method for State and Parameter Estimation," *University at Buffalo* (9/11).

- Drew P. Woodbury (Ph.D.), "Accounting For Parameter Uncertainty in Reduced-Order Static and Dynamic Systems," *Texas A&M University* (9/11).
- Max Rech (M.S.), "Uncertainty Characterization for Advection/Diffusion Equations," *University at Buffalo* (2/11).
- Hrishi Shah (M.S.), "Kinematic, Dynamic and Workspace Analysis of a Novel 6-DOF Parallel platform Manipulator," *University at Buffalo* (9/10).
- Umamaheswara Konda (Ph.D.), "Bayesian Inference and Uncertainty Propagation in Dynamical Systems," *University at Buffalo* (2/10).
- Jennifer Haggerty (M.S.), "Minimax Control of Flexible Structures Using Quadratically Constrained Programming," *University at Buffalo* (2/10).
- Brandon Brown (M.S.), "Global Optimization of Three Dimensional Maneuvers in a Field with Obstacles," *University at Buffalo* (9/09).
- Asad Abbas Ali (M.S.), "Polynomial Chaos Based Approach for State Limited Robust Control of Systems with Parametric Uncertainty," *University at Buffalo* (9/09).
- Chin Pei Tang (Ph.D.), "Design and Control Framework for Cooperative Mobile Robot Collectives," *University at Buffalo* (2/09).
- Patrick T. Miller (M.S.), "Output Synchronization for Teleoperation of Robot Manipulators," *University at Buffalo* (2/09).
- Amrish Kumar (M.S.), "Kinesthetic Mapping of RoSS: Robotic Surgical Simulator Using Inverse Kinematics," *University at Buffalo* (9/08).
- Yao Wang (M.S.), "Symbolic Kinematics and Dynamics Analysis and Control of a General Stewart Parallel Manipulator," *University at Buffalo* (9/08).
- Baro Hyun (M.S.), "State Estimation for Vision-Based Simultaneous Localization and Mapping of Unmanned Vehicles," *University at Buffalo* (9/08).
- Qiushi Fu (M.S.), "Kinematics of Articulated Wheeled Robot: Exploiting Reconfigurability and Redundancy," *University at Buffalo* (9/08).
- Satyanarayana Manyam (M.S.), "Adaptive Sequential Linear Programming for Optimal Control Profiles," *University at Buffalo* (5/08).
- Aaron Dando (Ph.D.), "Robust Adaptive Control of Rigid Spacecraft Attitude Maneuvers," *Queensland University of Technology* (5/08).
- Kevin L. Wyffels (M.S.), "Development of a Ground Truth Simulator and Application of a Generalized Multiple-Model Adaptive Estimation Approach to Tune a State Estimation Filter," *Rochester Institute of Technology* (11/07).
- Matthew L. Vossler (M.S.), "Deformation Limited Time Optimal Control of Flexible Structures," *University at Buffalo* (9/07).
- K. V. Umamaheswara Reddy (M.S.), "Data Assimilation for Dispersion Models," *University at Buffalo* (5/07).
- Hemanth Satyanarayana (M.S.), "Image Guided Liver Surgery using Augmented Reality," *University at Buffalo* (2/07).
- Venkatraghavan Gourishankar (M.S.), "HAPSTICK – A High Fidelity Haptic Simulation for Billiards," *University at Buffalo* (2/07).
- Charles Wang (Ph.D.), "Single Antenna GPS Attitude Algorithm for Non-Uniform Antenna Gain Pattern," *Queensland University of Technology* (2/07).
- Rajankumar Bhatt (Ph.D.), "Towards Modular Cooperation Between Multiple Nonholonomic Mobile Manipulators," *University at Buffalo* (2/07).
- Abdul Kather Rephy Parely (M.S.), "Modified Approach to Pennestri's Optimal Design of Dynamic Vibration Absorbers," *University at Buffalo* (9/06).
- Michael Fattey (M.S.), "Time-Delay Control of an Undamped Two Mode System," *University at Buffalo* (9/06).
- Wanseok Yang (M.S.), "Optimal Approach for Autonomous Parallel Parking of Nonholonomic Car-Like Vehicle," *University at Buffalo* (2/06).
- Chi-Han Yang (M.S.), "Artificial Mechanical System Modeling and Simulation," *University at Buffalo* (2/06).
- Thomas Concord (M.S.), "Linear Matrix Inequality Based Robust Control Synthesis," *University at Buffalo* (2/06).
- Jaisung Lee (M.S.), "Different Optimal Controls of a Ducted Fan Model," *University at Buffalo* (9/05).
- Daniel Fuglewicz (M.S.), "A Six Degree-of-Freedom Vehicular Performance Measurement System (VPMS) with Integral Engine Speed Measurement," *University at Buffalo* (9/05).
- Rajaey Kased (M.S.), "Rest-to-Rest Motion of an Experimental Flexible Structure Subject to Friction," *University at Buffalo* (2/05).
- Regeesh Britto (M.S.), "Diagnostics of Arterial Pressure Pulse Using Haptic Kymograph-Remote Diagnostics of Vital Signs Through a Vibrotactile Device," *University at Buffalo* (2/05).
- Leng-Feng Lee (M.S.), "Decentralized Motion Planning within an Artificial Potential Framework (APF) for Cooperative Payload Transport by Multi-Robot Collectives," *University at Buffalo* (2/05).

- Bertrand Douillard (M.S.), "Design and Implementation of a SLAM Algorithm on an Autonomous Robot," *University at Buffalo* (9/04).
- Dirk Tenne (Ph.D.), "Statistics Based Sampling for Controller and Estimator Design," *University at Buffalo* (5/04).
- Chin Pei Tang (M.S.), "Manipulability-Based Analysis of Cooperative Payload Transport by Robot Collectives," *University at Buffalo* (5/04).
- Seung Kook Jun (M.S.), "Kinetostatic Design of an Articulated Leg-Wheel Locomotion Subsystem", *University at Buffalo* (3/04).
- Jae-Jun Kim (Ph.D.), "Point-to-Point Control of Flexible Systems Subject to Friction," *University at Buffalo* (12/03).
- Rajankumar Bhatt (M.S.), "Formation Motion Planning for Payload Transport by Modular Wheeled Mobile Manipulators," *University at Buffalo* (12/03).
- Byungki Kim (M.S. Project), "Fuel and Time Optimal Slosh Control for an Open Container," *University at Buffalo* (12/02).
- Nidal Al-Masoud (Ph.D.), "Active Control of Combustion Instabilities," *University at Buffalo* (8/02).
- Hye-Young Kim (Ph.D.), "Novel Methods for Spacecraft Attitude Estimation," *Texas A&M University*, (3/02).
- Anna Fleming (M.S.) "A Dynamics Model Suitable for Multi-Purpose Vehicle Simulation," *University at Buffalo* (9/01).
- Jason, Kolodziej (Ph.D.), "A Robust Model Determination Algorithm for Nonlinear System Identification," *University at Buffalo* (9/01).
- Bumsoo Kim (M.S.), "Vehicle Estimation and Control Using Global Positioning System and Inertial Navigation," *University at Buffalo* (8/01).
- Kai Harth (M.S.), "Research on an Enabling Infrastructure for Distributed Simulation," *University at Buffalo* (1/01).
- Praveen Sudhakar Joshi (M.S.), "Direct Comparison of Neural Network, Fuzzy Logic and Model Predictive Variable Structure Vortex Flow Controllers," *Texas A&M University* (8/99).
- Jaeho Oh (Ph.D.), "Control of Static and Dynamic Characteristics of Passive Magnetic Composites," *Catholic University* (8/98).
- Shehta El-Sayed Abdou (Ph.D.), "Vibration Control of Beams with Magnetic Constrained Layer Damping," *Catholic University* (3/98).
- Abdel-Hady Kamal Ebrahim (Ph.D.), "Vibration Control of Plates Using Magnetic Constrained Layer Damping," *Catholic University* (2/98).
- Adel Abdel-Razek Omer (Ph.D.), "Active Control of Compressional Constrained Layer Damping Treatments Using Electromagnetic Actuation," *Catholic University* (2/98).
- Eleanor Ketchum Silverman (Ph.D.), "Autonomous Navigation Recovery for Fine Pointing Low Earth Orbiting Spacecraft," *George Washington University* (1/98).
- Zheng Gu (Ph.D.), "Control of Precision Pointing System," *Catholic University* (1/98).
- William A. LaPlante (Ph.D.), "Vibration Control of Fluid-Loaded Cylindrical Shells Using Active Constrained Layer Damping," *Catholic University* (1/98).

RESEARCH CONTRACTS

Current

Principal Investigator: John Crassidis
Co-Investigator: Moises Sudit
Title: STARLIT: UniverSiTy SpAce StRategic TechnoLogy InitiaTive
Sponsor: Space Force
Amount: $845,000, 9/23-8/25

Principal Investigator: John Crassidis
Co-Investigator: Moises Sudit
Title: Research Experimentation for Space and Counter-UxVs Engagement (RESCUE)
Sponsor: Air Force Office of Scientific Research
Amount: $234,633, 2/24-2/25

Principal Investigator: John Crassidis
Title: Resident Space Object Characterization by Fusing Polarized and Unpolarized Light Curves
Sponsor: Air Force Office of Scientific Research
Amount: $484,580, 9/22-9/25 (Year 1 $157,660, Year 2 $161,661, Year 3 $165,259)

Principal Investigator: John Crassidis
Co-Investigator: Moises Sudit
Title: Space Object Understanding and Reconnaissance of Complex Events (SOURCE): Space University Research Initiative

Sponsor: Air Force Office of Scientific Research
Amount: $5,000,000, 3/22-2/27

Principal Investigator: John Crassidis
Co-Investigator: Moises Sudit
Title: Information Fusion for Space Cyber Resiliency
Sponsor: Air Force Office of Scientific Research
Amount: $625,000, 9/21-9/24 (Year 1 $250,000, Year 2 $125,000, Year 3 $250,000)

Past Awarded

Principal Investigator: John Crassidis
Title: Polarimetric Observer Light Analyzing Research (POLAR) Mission
Sponsor: Air Force Research Laboratory
Amount: $220,000, 1/22-12/23

Principal Investigators: John Crassidis (UB), William Tagliaferri and Christopher Nebelecky (CUBRC)
Title: Enhanced Exploitation of Multi-Int Data for Space Situational Awareness (E2MIDS)
Sponsor: Air Force Research Laboratory
Amount: $9,687,554, 9/19-10/23 (Year 1 $2,421,890, Year 2 $2,421,888, Year 3 $2,421,888, Year 4 $2,421,888)

Principal Investigator: John Crassidis
Title: Novel Navigation, Guidance and Attitude Estimation of Vehicles
Sponsor: Moog, Inc.
Amount: $153,584, 9/21-2/23

Principal Investigator: John Crassidis
Title: Development of Modern Optical Navigation Techniques for Improved Terrain Relative Navigation around Small Bodies
Sponsor: NASA Goddard Space Flight Center
Amount: $150,000, 2/20-1/22 (Year 1 $75,000, Year 2 $75,000)

Principal Investigator: John Crassidis
Title: Advanced Satellite Navigation Receiver (ASNR), Time-Space- Position Information (TSPI) Project
Sponsor: Dynetics Incorporated
Amount: $152,973, 3/21-3/22

Principal Investigator: John Crassidis
Title: Space Object Material Characterization from Polarized Light Curves
Sponsor: Air Force Office of Scientific Research
Amount: $300,000, 9/19-9/22 (Year 1 $100,000, Year 2 $100,000, Year 3 $100,000)

Principal Investigator: John Crassidis
Co-Investigators: Barry Smith, James Llinas
Title: Event Characterization Using Hard and Soft Data via Semantic Models
Sponsor: Air Force Office of Scientific Research
Amount: $661,447, 9/18-8/22 (Year 1 $159,962, Year 2 $163,172, Year 3 $167,402, Year 4 $170,910)

Principal Investigator: John Crassidis
Title: Formation Attitude Laser Communication Orbital Navigator (FALCON)
Sponsor: Air Force Office of Scientific Research
Amount: $220,000, 12/18-11/21

Principal Investigators: John Crassidis (UB), William Tagliaferri and Christopher Nebelecky (CUBRC)
Title: Information Requirement Identification for Threat Hypothesis Management (InRITHM)
Sponsor: Air Force Research Laboratory
Amount: $7,862,578, 9/17-12/21 (Year 1 $1,965,646, Year 2 $1,965,644, Year 3 $1,965,644, Year 4 $1,965,644)

Principal Investigator: John Crassidis
Title: Combat Environment Instrumentation Systems
Sponsor: Dynetics Incorporated
Amount: $145,221, 3/20-2/21

Principal Investigator: John Crassidis
Title: Novel Methods for Satellite Attitude Maneuver Detection

Sponsor: Air Force Office of Scientific Research, Defense University Research Instrumentation Program
Amount: $53,491, 9/18-12/19

Principal Investigator: John Crassidis
Title: Attitude Mode Estimation from Computer Vision Data via Multiple Model Methods
Sponsor: Air Force Research Laboratory
Amount: $154,958, 12/17-9/19 (Year 1 $81,597, Year 2 $73,361)

Principal Investigator: Manoranjan Majji
Co-Investigator: John Crassidis
Title: Broad-spectrum Radio Interference Analyzing Nanosatellite (BRIAN)
Sponsor: NASA
Amount: $100,000, 08/16-9/19

Principal Investigator: John Crassidis
Title: Assessing and Projecting Situations and Impacts in Space (APSIS)
Sponsor: Air Force Research Laboratory
Amount: $347,131, 9/17-8/19 (Year 1 $156,194, Year 2 $190,937)

Principal Investigator: Chase Murray
Co-Investigators: Chunming Qiao, John Crassidis, Krishna Rajan, Moises Sudit
Title: Meta-Autonomy
Sponsor: Office of Naval Research, Defense University Research Instrumentation Program
Amount: $392,816, 6/18-6/19

Principal Investigator: John Crassidis
Title: Spectrometry Observation for Reflectivity Analysis Satellite (SORA)
Sponsor: Air Force Office of Scientific Research
Amount: $110,000, 01/16-6/18

Principal Investigator: John Crassidis
Title: Robust Adaptive Sensor Filtering/Fusion for Shipboard Autolanding
Sponsor: Office of Naval Research
Amount: $219,240, 9/15-12/17 (Year 1 $146,313, Year 2, $72,927)

Principal Investigator: James Llinas
Co-Investigator: John Crassidis
Title: Robust Discrimination of Missile Systems
Sponsor: Missile Defense Agency
Amount: $338,996, 06/15-6/17

Principal Investigator: John Crassidis
Title: Glint Analyzing Data Observation Satellite (GLADOS)
Sponsor: Air Force Office of Scientific Research
Amount: $220,000, 02/15-12/17

Principal Investigator: John Crassidis
Co-Investigator: Barry Smith
Title: Space Analytics for Emerging Threat Identification (SAFETI)
Sponsor: Air Force Research Laboratory
Amount: $4,000,262, 9/14-12/17 (Year 1 $1,175,000, Year 2 $1,284,000, Year 3 $1,541,262)

Principal Investigator: John Crassidis
Title: Satellite Guidance Navigation and Control System Engineering Support for Cleopatra Program
Sponsor: Naval Research Laboratory
Amount: $48,404, 6/17-9/17

Principal Investigator: Kemper Lewis
Co-Investigator: Timothy Leyh, Gary Dargush, John Crassidis, Kenneth English, Venkat Krovi, Rahul Rai, Lisa Stephens, Shambhu Upadhyaya and Chi Zhou
Title: DMDII: The Digital Manufacturing and Design Innovation Institute
Sponsor: Digital Manufacturing & Design Specialization (Online Course Series Development)
Amount: $1,081,926, 9/16-8-17

Principal Investigator: John Crassidis

Title: Validation and Verification of RSO Shape Estimation from Non-Resolved Imagery
Sponsor: Air Force Research Laboratory
Amount: $248,388, 06/13-11/15 (Year 1 $124,259, Year 2 $124,129)

Principal Investigator: Tarunraj Singh
Co-Investigators: Puneet Singla and John Crassidis
Title: Integrated Context-Aided Estimation/Inferencing and Sensor Resource Management for Naval Applications
Sponsor: Office of Naval Research
Amount: $149,953, 7/14-8/15

Principal Investigator: John Crassidis
Title: Lightcurve Analyzing NanoSATellite (LANSAT)
Sponsor: Air Force Office of Scientific Research
Amount: $110,000, 06/13-01/15

Principal Investigator: John Crassidis
Title: Awareness Simulator for Trajectories of Resident Objects in Space (ASTROS)
Sponsor: Air Force Research Laboratory
Amount: $1,269,093, 1/12-12/14 (Year 1 $318,218, Year 2 $466,701, Year 3 $484,174)

Principal Investigator: John Crassidis
Title: Relative Navigation for Automated Carrier Landings
Sponsor: Northrop Grumman Corporation
Amount: $75,000, 1/14-9/14

Principal Investigator: John Crassidis
Title: Nonlinear Filtering for Relative Navigation
Sponsor: Northrop Grumman Corporation
Amount: $29,855, 9/13-12/13

Principal Investigator: John Crassidis
Title: Intrinsic Property Estimation of Space Objects from Multi-Band Observations
Sponsor: Air Force Office of Scientific Research
Amount: $397,462, 1/12-12/12 (Year 1 $262,607, Year 2 $134,855)

Principal Investigator: James Llinas
Co-Investigator: John Crassidis
Title: Advanced Data Fusion Concepts for Object Tracking
Sponsor: Army Research Laboratory
Amount: $800,198, 1/11-12/12 (Year 1 $369,377, Year 2 $430,821)

Principal Investigator: John Crassidis
Title: Resident Space Object Orbit, Attitude and Shape Characterization from Light Curve Data
Sponsor: Air Force Office of Scientific Research
Amount: $587,804, 9/11-8/13 (Year 1 $230,235, $357,569)

Principal Investigator: John Crassidis
Title: University at Buffalo Nanosatellite Program, Light-Curve Analyzing NanoSat Calibration with Exospheric Testing (UB-LANCE)
Sponsor: Air Force Office of Scientific Research
Amount: $109,108, 1/11-12/12

Principal Investigator: John Crassidis
Title: Reducing Guidance, Navigation and Control System Design for Operational Responsive Space Missions Through Adaptive Estimation and Control
Sponsor: Air Force Research Laboratory
Amount: $659,158, 7/09-10/12 (Year 1 $158,897, Year 2 $191,373, Year 3 $308,888)

Principal Investigator: John Crassidis
Title: Simulation Development for Low Earth Orbiting Objects
Sponsor: Air Force Research Laboratory
Amount: $57,000, 7/11-12/11

Principal Investigator: Moises Sudit
Co-Investigators: Rakesh Nagi and John Crassidis

Title: Intelligent Exchange (IntellEx)
Sponsor: Office of Naval Research
Amount: $4,900,000, 2/08-8/11 (Year 1 $1,633,333, Year 2 $1,633,333, Year 3 $1,633,333)

Principal Investigator: John Crassidis
Co-Investigator: Puneet Singla
Title: Realistic State and Measurement Error Uncertainty Computation and Propagation for Space Surveillance and Reconnaissance
Sponsor: Air Force Office of Scientific Research
Amount: $40,000, 7/10-5/11

Principal Investigator: Mark Karwan
Co-Investigators: Moises Sudit, Rakesh Nagi and John Crassidis
Title: Optimization Planning and Tactical Intelligent Management of Aerial Sensors (OPTIMAS)
Sponsor: Office of Naval Research
Amount: $1,171,255, 1/08-1/11 (Year 1 $386,050, Year 2 $392,585, Year 3 $392,620)

Principal Investigator: John Crassidis
Co-Investigators: James Llinas and Mark Karwan
Title: Platform Routing and Data Fusion Technologies for Cooperative ISR
Sponsor: Air Force Research Laboratory
Amount: $262,471, 9/08-11/10 (Year 1 $131,215, Year 2 $131,257)

Principal Investigator: John L. Crassidis
Title: Precise Attitude and Geolocation Determination for Closed-Loop Topology Spacecraft Formations
Sponsor: Air Force Research Laboratory
Amount: $243,258, 6/08-5/10 (Year 1 $119,413, Year 2 $123,845)

Principal Investigator: John L. Crassidis
Title: NASA NESC Guidance, Navigation and Control Program Review
Sponsor: NASA
Amount: $38,535, 9/07-12/09

Title: Navigation of a Satellite Using Light Curve Measurements with Data Association and Multiple Target Tracking
Sponsor: Air Force Research Laboratory
Amount: $46,219, 6/09-1/10

Principal Investigator: John L. Crassidis
Title: Mirco-Arcsecond Line-of-Sight Filtered Performance for Spacecraft Formation Flying
Sponsor: NASA-Goddard Space Flight Center
Amount: $72,000, 7/05-10/09

Principal Investigator: James Llinas
Co-Investigators: Stuart Shapiro, John Crassidis and Tarunraj Singh
Title: Employing Context Information for L1 Fusion Approaches
Sponsor: Office of Naval Research
Amount: $179,000, 1/08-1/09

Principal Investigator: John L. Crassidis
Title: Attitude Determination and Geolocation from a Formation of Spacecraft with Laser Communication Devices
Sponsor: Air Force Research Laboratory
Amount: $40,181, 9/07-7/08

Principal Investigator: Moises Sudit
Co-Investigators: Rakesh Nagi, John L. Crassidis and Agamemnon L. Crassidis
Title: Hierarchical High Level Information Fusion Technologies
Sponsor: Office of Naval Research
Amount: $448,410, 1/06-5/08 (Year 1 $224,205, Year 2 $224,205)

Principal Investigator: John L. Crassidis
Title: Development of Robust Algorithms for Star Camera Attitude and Rate Estimation
Sponsor: StarVision Technologies
Amount: $50,000, 6/06-9/07

Principal Investigator: John L. Crassidis

Title: Missile Modeling and Data Fusion
Sponsor: Missile Defense Agency
Amount: $30,191, 5/07-9/07

Principal Investigator: John L. Crassidis
Title: Intelligent Sample Sensor Algorithms
Sponsor: L-3Communications
Amount: $178,456, 1/06-12/06

Principal Investigator: Tarunraj Singh
Co-Investigators: John L. Crassidis and James Llinas
Title: A Proposal for Research, Design, and Validation of Fusion-Based Techniques for Tracking of Ground-Based Objects
Sponsor: Overwatch Systems
Amount: $199,981, 11/05-12/06

Principal Investigator: John L. Crassidis
Title: Development of Automated Alignment and Calibration Algorithms
Sponsor: NASA-Goddard Space Flight Center
Amount: $149,981, 8/02-9/06 (Year 1 $45,998, Year 2 $49,997, Year 3 $53,985)

Principal Investigator: John L. Crassidis
Title: Unscented Filtering for Undersampled Data Reconstruction
Sponsor: L-3Communications
Amount: $60,432, 6/05-1/06

Principal Investigator: John L. Crassidis
Title: Kalman Filtering for GPS/INS Aircraft Applications
Sponsor: Calspan
Amount: $7,158, 5/05-9/05

Principal Investigator: John L. Crassidis
Title Robust Control of Nonlinear Systems Using Model-Error Control Synthesis
Sponsor: National Science Foundation
Amount: $76,019, 8/02-8/04

Principal Investigator: John L. Crassidis
Title: NSTL Attitude Determination Pseudolite Task
Sponsor: NASA-Johnson Space Center
Amount: $250,244, 1/00-12/04 (Year 1 $72,248, Year 2 $87,097, Year 3 $89,227)

Principal Investigator: John L. Junkins
Co-Investigators: Thomas C. Pollock and John L. Crassidis
Title: Micro Spacecraft Attitude Sensing System
Sponsor: NASA-Langley Research Center
Amount: $600,000, 2/00-1/03 (Year 1 $200,000, Year 2 $200,000, Year 3 $200,000)

Principal Investigator: John L. Junkins
Co-Investigators: Thomas C. Pollock and John L. Crassidis
Title: DIGISTAR Attitude Determination System for GIFTS
Sponsor: NASA-Langley Research Center
Amount: $848,511, 7/00-6/02 (Year 1 $500,000, Year 2 $348,511)

Principal Investigator: John L. Junkins
Co-Investigator: John L. Crassidis
Title: A New Sensor Concept for Vision-Based Navigation of Spacecraft, Aircraft, and Robots
Sponsor: Texas Higher Education Coordinating Board
Amount: $191,911, 1/00-1/02

Principal Investigator: John L. Crassidis
Co-Investigator: Srinivas R. Vadali
Title: ISS Leak Localization Based on Attitude Response
Sponsor: United Space Alliance, LLC
Amount: $158,506, 9/99-8/02

Principal Investigator: John L. Crassidis
Co-Investigator: John L. Junkins
Title: Vision-Based Navigation for Spacecraft Formation Flying
Sponsor: NASA-Goddard Space Flight Center
Amount: $391,804, 1/00-8/02 (Year 1 $218,760, Year 2 $173,044)

Principal Investigator: John L. Crassidis
Title: Attitude Determination Schemes for the CEGANS Sensor
Sponsor: NASA-Goddard Space Flight Center
Amount: $5,900, 11/01-12/01

Principal Investigator: John L. Crassidis
Title: Autonomous Attitude Determination for ISS Applications Using Pseudolite Signals
Sponsor: NASA-Johnson Space Center
Amount: $57,212, 2/99-10/99

Principal Investigator: John L. Crassidis
Co-Investigator: Carl Knospe (University of Virginia)
Title: Reaction Wheel Jitter Reduction Through Active Control of Magnetic Bearings
Sponsor: NASA-Goddard Space Flight Center
Amount: $50,000, 3/98-11/98

Principal Investigator: John L. Crassidis
Title: Robust GPS Attitude Determination Scheme
Sponsor: NASA-Goddard Space Flight Center
Amount: $15,373, 3/98-11/98

Principal Investigator: John L. Crassidis
Title: Robust Predictive Attitude Determination Using Global Positioning System Signal
Sponsor: NASA-ASEE Summer Faculty Fellowship Program
Amount: $10,000, 6/98-8/98

Principal Investigator: John L. Crassidis
Title: Attitude Determination Using Global Positioning System Signal
Sponsor: NASA-ASEE Summer Faculty Fellowship Program
Amount: $10,000, 6/97-8/97

CONSULTING: Cobham, Teledyne Brown Engineering, Google, Leidos, BAE Systems, U.S. Army Materiel Systems Analysis Activity (USAMSAA), Army Research Laboratory, GCAS Inc., Integrity Applications Incorporated, Pacific Defense Solutions, IAVO Research and Scientific, National Satellite Technology Program, King Abdulaziz City for Science and Technology, NASA, Sierra Nevada Corporation, Space Photonics Inc., StarVision Technologies, Sunstream Scientific, Reichert Ophthalmic Instruments

PUBLICATIONS

Journal

[1] Whittaker, M.P., and Crassidis, J.L., "Navigation Employing a Common-Frame Error Model," *AIAA Journal of Guidance, Control, and Dynamics*, accepted for publication.

[2] Whorton, M.S., and Crassidis, J.L, "Multi-User System for Earth Sensing Spacecraft Attitude Calibration and Analysis," *AIAA Journal of Spacecraft and Rockets*, Vol. 61, No. 3, May-June 2024, pp. 691-703.

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[6] Crassidis, J.L., Markley, F.L., Junkins, J.L., and Howell, K.C., editors, *The Malcolm D. Shuster Astronautics Symposium*, *Advances in the Astronautical Sciences*, published for the American Astronautical Society by Univelt, Inc., San Diego, CA, Vol. 122, 2006.

[7] Crassidis, J.L., Junkins, J.L., Howell, K.C., Oshman, Y., and Thienel, J.K., editors, *The F. Landis Markley Astronautics Symposium*, *Advances in the Astronautical Sciences*, published for the American Astronautical Society by Univelt, Inc., San Diego, CA, Vol. 132, 2008.

SHORT COURSES

[1] "An Introduction to Spacecraft Attitude Determination and Estimation," *NASA Goddard Space Flight Center*, Greenbelt, MD, April 2023.

[2] "An Introduction to Spacecraft Attitude Determination and Estimation," *Blue Origin*, Kent, WA, Sept. 2022.

[3] "Optimal Estimation Methods with Application to Attitude Estimation and Inertial Navigation," *Dynetics*, Huntsville, AL, May 2020.

[4] "An Overview of Orbital Dynamics and Satellite Maneuvers," *NASA Glenn Research Center*, *Air Force Research Laboratory*, Rome, NY, Dec. 2018.

[5] "An Overview of Spacecraft Attitude Determination and Estimation," *NASA Glenn Research Center*, May 2017.

[6] "An Overview of Spacecraft Attitude Determination and Estimation," *NASA Engineering and Safety Center*, Webcast, Jan. 2013.

[7] "Introduction to Orbital Dynamics and Determination," *Air Force Research Laboratory*, Rome, NY, Sept. 2011.

[8] "Optimal Estimation Methods with Application to Attitude Estimation," *Air Force Research Laboratory*, Albuquerque, NM, May 2010.

[9] "L1 Fusion Approaches," *L3 Communications*, Greenville, TX, July 2007.

[10] "An Overview of Particle Filters with Applications to Aerospace Systems," *The Charles Stark Draper Laboratory*, Cambridge, MA, Nov. 2005.

INVITED PRESENTATIONS

[1] "Cislunar Space Situational Awareness – Challenges and Obstacles" *The Aerospace Corporation*, Chantilly, VA, Aug. 2024.

[2] "Cislunar Space Situational Awareness – Challenges and Obstacles" *University of Central Florida*, Orlando, FL, Feb. 2023.

[3] "Space Debris: It's Just Floating Space Junk, So Why Do We Care?" *The Renaissance Society*, Sacramento State, CA, Nov. 2022.

[4] "Good, Bad and Ugly Attitudes: A Brief History of Attitude Determination and Estimation," *AAS/AIAA Astrodynamics Specialist Conference Plenary*, Charlotte, NC, Aug. 2022.

[5] "Information Fusion for Space Cyber Resiliency," *DSI's 8th Annual Space Resiliency Summit*, Washington, DC, Dec. 2021.

[6] "Relative Navigation of Uncooperative Space Bodies," *Lockheed Martin Corporation*, Denver, CO, Jan. 2021.

[7] "Inertial Navigation Employing Common Frame Error Representations," *Ohio State University*, Columbus, OH, April 2019.

[8] "Data/Information Fusion for Advanced Space Situational Awareness of Resident Space Objects," *MIT Lincoln Laboratory*, Lexington, MA, March 2019.

[9] "Inertial Navigation Employing Common Frame Error Representations," *University of California, Los Angeles*, Los Angeles, CA, Jan. 2019.

[10] "Data/Information Fusion for Advanced Space Situational Awareness of Resident Space Objects," *NASA Goddard Space Flight Center*, Greenbelt, MD, Oct. 2018.

[11] "Data/Information Fusion for Advanced Space Situational Awareness of Resident Space Objects," *Los Alamos National Laboratory*, Los Alamos, NM, Aug. 2018.

[12] "Attitude Estimation Employing Common Frame Error Representations," *Syracuse University*, Syracuse, NY, Oct. 2017.

[13] "Attitude Estimation Employing Common Frame Error Representations," *Georgia Tech*, Atlanta, GA, April 2017.

[14] "Introduction to Data/Information Fusion with an Overview of UB's Center for Multisource Information Fusion Center," *Sandia National Laboratories*, Albuquerque, NM, Feb. 2017.

[15] "Attitude Estimation Employing Common Frame Error Representations," *University of Texas*, Austin, TX, Feb. 2017.

[16] "Attitude Estimation Employing Common Frame Error Representations," *Texas A&M University*, College Station, TX, Jan. 2017.

[17] "Space Debris: It's Just Floating Space Junk, So Why Do We Care?" *New York State Master Teacher Program*, April 2016.

[18] "Attitude Estimation Using Rate-Integrating Gyroscopes?" (with F. Landis Markley) *Texas A&M University*, *Society of Engineering Science, 52nd Annual Technical Meeting*, College Station, TX, Oct. 2015.

[19] "Has 45 Years of Attitude Estimation Been Wrong?" *Rutgers University*, New Brunswick, NJ, Sept. 2015.

[20] "An Introduction to Data/Information Fusion" *Rochester Institute of Technology*, Rochester, NY, March 2015.

[21] "Space Debris: It's Just Floating Space Junk, So Why Do We Care?" *American Institute of Aeronautics and Astronautics-Niagara Frontier Section*, Buffalo, NY, April 2012.

[22] "Sensor, Data, and Information Fusion: Facing Modern Challenges," (with James Llinas, Moises Sudit and Jason Corso) *National Reconnaissance Office*, Chantilly, VA, March 2012.

[23] "Astrometric and Photometric Data Fusion for Resident Space Object Orbit, Attitude, and Shape Determination," *Rochester Institute of Technology*, Rochester, NY, Dec. 2011.

[24] "Astrometric and Photometric Data Fusion for Resident Space Object Orbit, Attitude, and Shape Determination," *Cornell University*, Ithaca, NY, Nov. 2011.

[25] "Deterministic Relative Attitude Determination of Formation Flying Vehicles," *University of Texas*, Austin, TX, Oct. 2011.

[26] "Research in Attitude and Orbit Estimation for Space Situational Awareness," *Moog, Inc.*, East Aurora, NY, Oct. 2010.

[27] "Research in Attitude and Orbit Estimation for Space Situational Awareness," *Orbital Sciences Corporation*, Dulles, VA, Sept. 2010.

[28] "Deterministic Relative Attitude Determination of Formation Flying Vehicles," *University of Glasgow*, Glasgow, Scotland, UK, July 2010.

[29] "Exploring the Moon and Beyond," *Clarence Center Elementary School*, Clarence Center, NY, Dec. 2009.

[30] "Deterministic Relative Attitude Determination of Formation Flying Vehicles," *Michigan Technological University*, Houghton, MI, March 2009.

[31] "Deterministic Relative Attitude Determination of Formation Flying Vehicles," *Rochester Institute of Technology*, Rochester, NY, Jan. 2009.

[32] "ISS Leak Localization Based on Attitude Response," *Worcester Polytechnic Institute*, Worcester, PA, March 2008.

[33] "ISS Leak Localization Based on Attitude Response," *Erie-Niagara Chapter of The New York State Society of Professional Engineers, National Engineers Week Seminar Series*, Buffalo, NY, Feb. 2008.

[34] "Generalized Multiple Model Adaptive Estimation," *Texas A&M University*, College Station, TX, June 2007.

[35] "Why NASA is Important," *Mill Middle School*, Williamsville, NY, March 2004.

[36] "ISS Leak Localization Based on Attitude Response," *Virginia Polytechnic Institute*, Blacksburg, VA, Oct. 2002.

[37] "Unscented Filtering for Spacecraft Attitude Estimation," *Jet Propulsion Laboratory*, Pasadena, CA, Aug. 2002.

[38] "ISS Leak Localization Based on Attitude Response," *Rochester Institute of Technology*, Rochester, NY, Nov. 2001.

[39] "Attitude Determination and Control of Spacecraft," *University at Buffalo*, Amherst, NY, June 2000.

[40] "New Methods for GPS Attitude Determination," *NASA-Johnson Space Center*, Houston, TX, Sept. 1998.

[41] "New Methods for GPS Attitude Determination," *NASA-Goddard Space Flight Center*, Greenbelt, MD, July 1998.

[42] "Predictive Attitude Determination of Spacecraft," *Computer Sciences Corporation*, Seabrook, MD, July 1998.

[43] "Predictive Attitude Determination of Spacecraft," *Applied Physics Laboratory*, Laurel, MD, June 1998.

[44] "Predictive Attitude Determination of Spacecraft," *University of Rhode Island*, Kingston, RI, March 1998.

[45] "Predictive Attitude Determination of Spacecraft," *Calspan Corporation*, Buffalo, NY, March 1998.

[46] "Predictive Attitude Determination of Spacecraft," *NASA-Wallops Flight Facility*, Wallops Island, VA, March 1998.

[47] "Predictive Attitude Determination of Spacecraft," *NASA-Langley Research Center*, Hampton, VA, Jan. 1998.

[48] "Predictive Attitude Determination of Spacecraft," *Texas A&M University*, College Station, TX, Jan. 1998.

[49] "Predictive Attitude Determination of Spacecraft," *University of Maryland*, College Park, MD, Dec.1997.

[50] "Predictive Attitude Determination of Spacecraft," *State University of New York at Buffalo*, Buffalo, NY, Aug.1997.

[51] "Attitude Determination Using Global Positioning System Signals," *NASA-Goddard Space Flight Center*, Greenbelt, MD, June 1997.

[52] "Robust Predictive Filtering for Nonlinear Systems," *University of Virginia*, Charlottesville, VA, Oct. 1995.

[53] "Robust Predictive Filtering for Nonlinear Systems," *Catholic University of America*, Washington, D.C., Oct. 1995.

[54] "Contingency Designs for Attitude Determination of TRMM," *Howard University*, Washington, D.C., Sept. 1995.

[55] "A Real-Time Model Error Filter and State Estimator," *Old Dominion University*, Norfolk, VA, Nov. 1993.

[56] "Robust Identification and Vibration Suppression of a Flexible Structure-Theory and Experiments," *Eastman Kodak*, Rochester, NY, Sept. 1993.

[57] "Integrated Estimation and Identification for Robust Control of Multivariable Systems," *Rochester Institute of Technology*, Rochester, NY, April 1993.

[58] "Robust Tracking and Control Laws for an Automatic Carrier Landing System," *Carrier Suitability Division,* U.S. Naval Air Station at Patuxent River, MD, March 1992.

REVIEWER

ASEE Postdoctoral Fellowship Program
AIAA Journal of Guidance, Control, and Dynamics
AIAA Journal of Spacecraft and Rockets
AIAA Journal
IEEE Transactions on Automatic Control
IEEE Transactions on Education
IEEE Transactions on Control Systems Technology
IEEE Sensors Journal
ASME Journal of Vibration and Acoustics
ASME Journal of Dynamic Systems, Measurement and Control
AAS Journal of the Astronautical Sciences
Journal of Sound and Vibration
Journal of Applied Mathematics
Journal of Systems and Control Engineering
Measurement Science and Technology
Aerospace Science and Technology
Journal of the Franklin Institute
International Journal of Aerospace Engineering
International Journal of Modelling and Simulation
Canadian Foundation for Innovation
The Natural Sciences and Engineering Research Council of Canada
Canada First Research Excellence Fund
National Science Foundation
Israel Science Foundation
AIAA Atmospheric Flight Mechanics Conference, '99
Decision and Control Conference, '00-'09
American Control Conference, '98-'16
8th Biennial Conference on Mechanical Vibration and Control, '01
AIAA Guidance, Navigation, and Control Conference, '98-'16