

BIOGRAPHICAL DATA

- Tuhin K. Das
- Education:
 1. PhD, Mechanical Engineering, Michigan State University, 2002,
Feedback Stabilization of the Rolling Sphere: An Intractable Nonholonomic System
 2. MS, Mechanical Engineering, Michigan State University, 2000,
Dynamics of Self-Propulsion with Rolling Constraints
 3. B.Tech. (Honors), Mechanical Engineering, Indian Institute of Technology, Kharagpur, 1997
- Professional Positions Held:
 1. Professor, (08/23 – present) Department of Mechanical and Aerospace Engg., University of Central Florida, Orlando, FL
 2. Associate Professor, (08/17 – 07/23) Department of Mechanical and Aerospace Engg., University of Central Florida, Orlando, FL
 3. Assistant Professor, (06/11 – 07/17) Department of Mechanical and Aerospace Engg., University of Central Florida, Orlando, FL
 4. Assistant Professor, (09/07 – 05/11) Department of Mechanical Engineering, Rochester Institute of Technology, Rochester, NY
 5. Visiting Assistant Professor, (08/06 – 08/07) Department of Mechanical Engineering, Michigan State University, East Lansing, MI
 6. Control Systems Engineer, (09/02 – 08/06) Emmeskay Inc. (Now LMS International), Plymouth, MI (www.emmeskay.com)
 7. Intern Engineer, (05/02 – 08/02) Emmeskay Inc. (Now LMS International), Plymouth, MI (www.emmeskay.com)
 8. Research Assistant, (01/99 – 08/02) Department of Mechanical Engineering, Michigan State University, East Lansing, MI
 9. Teaching Assistant, (08/98 – 12/98) Department of Mechanical Engineering, Michigan State University, East Lansing, MI
 10. Graduate Engineer Trainee, (06/97 – 07/98) Tata Motors, Jamshedpur, India (www.tatamotors.com)
 11. Industrial Training, (05/96 – 07/96) Tata Motors, Pune, India

TEACHING

Summary of Teaching Activity	
Total number years worked at UCF	12
Total number of classes taught at UCF (excluding advising)	37
Average number of classes/year taught at UCF	3
Number of classes taught for the first time	11
Number of classes taught at undergraduate level	22

Number of graduate classes taught	15
Number of new courses developed	5.5 (0.5 for new lab)

Semester-wise Break-down and Instructor Rating from Student Evaluations:

Course Number	Course Title	Credits	Class	Semester	# of Students	Overall instructor rating (out of 5)
EML4312C	Feedback Control	3	Senior	Fall 11	161	3.021
EML4804C	Digital Control in Mechatronics (new offering)	3	Senior	Spring 12	39	2.375
EAS4404C	Discrete Control in Aero. Vehicles (new offering)	3	Senior	Spring 12	9	2.6
EML5937	Special Topic: Turbomachinery Design for Mechanical & Dynamics Integrity and Reliability (new course)	3	Grad	Spring 12	8	4.25
EML6938	Special Topics: Multivariable control systems (new course)	3	Grad	Fall 12	14	3.2857
EML4312C	Feedback Control (new laboratory)	3	Senior	Fall 12	134	3.0000
EML4312C	Feedback Control	3	Senior	Spring 13	98	3.20
EML4225	Introduction to Vibrations and Control (new course)	3	Senior	Fall 2013	75	3.04
EML5311	System Control	3	Grad	Fall 2013	16	4.57
EML4313	Intermediate System Dynamics and Control (new course)	3	Senior	Spring 2014	20	3.92
EML3990	ME Career Faculty Advising I	0	Junior	Fall 2014	6	4.00
EML4313	Intermediate System Dynamics and Control	3	Senior	Fall 2014	66	4.51
EML5311	System Control	3	Grad	Fall 2014	21	4.31
EML4225	Introduction to Vibrations and Control	3	Senior	Spring 2015	169	4.10
EML4804C	Digital Control in Mechatronics	3	Senior	Spring 2015	9	4.83
EML3990	ME Career Faculty Advising I	0	Junior	Spring 2015	7	4.00
EML5311	System Control	3	Grad	Fall 2015	22	4.93

EML3990	ME Career Faculty Advising I	0	Junior	Fall 2015	10	4.11
EGN3321*	<i>Engineering Analysis-Dynamics</i>	3	<i>Junior</i>	<i>Spring 2016</i>	199	3.70
EGN3321H*	<i>Honors Engineering Analysis-Dynamics</i>	3	<i>Junior</i>	<i>Spring 2016</i>	12	3.80
EML3990	ME Career Faculty Advising I	0	Junior	Spring 2016	8	5.00
EML4225*	<i>Intro. to Vibrations Controls</i>	3	<i>Senior</i>	<i>Spring 2016</i>	235	4.15
EML3933	ME Career Faculty Advising I	0	Junior	Fall 2016	9	3.75
EML4313	Intermediate System Dynamics and Control	3	Senior	Fall 2016	197	4.17
EML5311	System Control	3	Grad	Fall 2016	21	4.67
EML5271	Intermediate Dynamics	3	Grad	Spring 2017	71	4.33
EML3933	ME Career Faculty Advising I	0	Junior	Spring 2017	9	3.00
EML3933	ME Career Faculty Advising I	0	Junior	Fall 2017	10	4.20
EML4313	Intermediate System Dynamics and Control	3	Senior	Fall 2017	136	4.35
EGN3321H	Honors Engineering Analysis-Dynamics	3	Junior	Spring 2018	16	4.20
EML5271	Intermediate Dynamics	3	Grad	Spring 2018	74	4.64
EML3933	ME Career Faculty Advising I	0	Junior	Spring 2018	10	4.71
EML4313	Intermediate System Dynamics and Control	3	Senior	Fall 2018	109	4.13
EML3933	ME Career Faculty Advising I	0	Junior	Fall 2018	8	3.50
EAS4700C	Aerospace Design 1	3	Senior	Spring 2019	18	4.06
EML3933	ME Career Faculty Advising I	0	Junior	Spring 2019	10	5.00
EML5271	Intermediate Dynamics	3	Grad	Spring 2019	48	4.64
EML4313	Intermediate System Dynamics and Control	3	Senior	Fall 2019	50	4.71
EML3933	ME Career Faculty Advising I	0	Junior	Fall 2019	7	3.67
EAS4700C	Senior Design II	3	Senior	Fall 2019	18	4.53
EML3933	ME Career Faculty Advising I	0	Junior	Spring 2020	7	4.40
EML5271	Intermediate Dynamics	3	Grad	Spring 2020	89	3.98

EML3933, EAS3933	ME/AE Career Faculty Advising I	0	Junior	Fall 2020	12	4.62
EML4313	Intermediate System Dynamics and Control	3	Senior	Fall 2020	80	4.26
EML5271	Intermediate Dynamics	3	Grad	Spring 2021	118	3.48
EML4225H	Introduction to Vibrations and Control	3	Senior	Spring 2021	10	4.2
EML3933	ME Career Faculty Advising I	0	Junior	Spring 2021	8	4.0
EAS3933	AE Career Faculty Advising I	0	Junior	Spring 2021	5	4.0
EML3933	ME Career Faculty Advising I	0	Junior	Fall 2021	9	4.67
EML4313	Intermediate System Dynamics and Control	3	Senior	Fall 2021	73	4.09
EML5311	System Control	3	Grad	Fall 2021	75	4.42
EML5271	Intermediate Dynamics	3	Grad	Spring 2022	100	4.09
EML3933, EAS3933	ME/AE Career Faculty Advising I	0	Junior	Spring 2022	8	5.00
EML4313	Intermediate System Dynamics and Control	3	Senior	Fall 2022	71	4.16
EML5311	System Control	3	Grad	Fall 2022	52	4.38
EML3933, EAS3933	ME/AE Career Faculty Advising I	0	Junior	Fall 2022	16	4.63
EML3933, EAS3933	ME/AE Career Faculty Advising I	0	Junior	Spring 2023	10	4.00
EML5271	Intermediate Dynamics	3	Grad	Spring 2023	90	3.81
EML4225H	Introduction to Vibrations and Control	3	Senior	Spring 2023	27	4.28
EML3933, EAS3933	ME/AE Career Faculty Advising I	0	Junior	Fall 2023	18	--
EML5311	System Control	3	Grad	Fall 2023	83	--
EML4313	Intermediate System Dynamics and Control	3	Senior	Fall 2023	50	--

Note: Italicized rows & starred course names represent courses where I substituted for about 3 weeks each.

MS thesis, PhD dissertations, Post-Doc supervision, Undergraduate research:

Summary Statistics	#
Number of MS degrees completed as faculty	23
Number of MS degrees completed at UCF	13
Number of PhD degrees completed as faculty	11*

* 8 are my own PhD students + 3 PhD students transferred to my supervision during their graduating semester.

Number of PhD degrees completed at UCF	11
Total number of graduate degrees completed as faculty	34
Total number of graduate degrees completed at UCF	24
Current number of graduate students (7 PhD, 1 MS)	8
Total number of Post-Doctoral researchers supervised	1
Total number of undergraduate researchers	9
Total # of minority/women students advised at grad./undergrad. levels	12

1. PhD dissertation *in progress* by Dung Tran. *Topic to be finalized.*
2. PhD dissertation *in progress* by Saad Rahman. *Topic to be finalized.*
3. PhD dissertation *in progress* by Md. Sakif. *Topic to be finalized.*
4. “Hydrodynamic Modeling of Floating Offshore Wind Turbines,” PhD dissertation *in progress* by Doyal Kumar Sarker.
5. “Control of Floating Offshore Wind Turbines,” PhD dissertation *in progress* by Kazi Ishtiak Mohsin.
6. “Control of Tethered UAVs for Energy Efficient Flight under Autorotation and Power-Flight Modes,” PhD Dissertation *in progress* by Tasnia Noboni*.
7. “Acausal modeling and dynamics of Floating Offshore Wind Turbine,” PhD dissertation *in progress* by Mohammad Odeh.
8. “A Study of Autorotation: Samara Seed Pods and Tethered Autogyros,” PhD Dissertation completed by Jonathan McConnell, Fall 2022. *Committee: Dr. Alain Kassab (MAE), Dr. Michael Kinzel (MAE), Dr. Nazanin Rahnavard (ECE).*
9. “An MRI-Guided, Registration-Free Needle Guide for Prostate Biopsy and Study of Needle-Template Interaction,” PhD Dissertation completed by Pankaj Pramod Kulkarni, Fall 2022. *Committee: Dr. Samik Bhattacharya (MAE), Dr. Sagnik Mazumder (MAE), Dr. Talat Rahman (Physics).*
10. “Robotic Mechanisms for Surgery: Applications in Orthopedics and Prostate Biopsy,” PhD Dissertation completed by Pradipta Biswas, Fall 2022. *Committee: Dr. Samik Bhattacharya (MAE), Dr. Sagnik Mazumder (MAE), Dr. Talat Rahman (Physics).*
11. “Development of Robotic Medical Devices: Applications in Tele-Palpation, Training, and in Orthognathic Surgery,” PhD Dissertation completed by Sakura Sinkander*, Fall 2022. *Committee: Dr. Samik Bhattacharya (MAE), Dr. Sagnik Mazumder (MAE), Dr. Talat Rahman (Physics).*
12. “Power Sharing Control of Microgrids using Multi-agent Systems Methodology,” PhD Dissertation completed by Farzad Aalipour-Hafshejani, Summer 2021. *Committee: Dr. Yunjun Xu (MAE), Dr. Tarek Elgohary (MAE), Dr. Azadeh Vosoughi (ECE).*

* Indicates woman or minority student.

13. "Robust Flight Control Design with Parameter Space Method Enhanced by Neural Network Adaptive Control," PhD Dissertation completed by Sun Kim, Spring 2020. *Committee: Dr. Yunjun Xu (MAE), Dr. Tarek Elgohary (MAE), Dr. Michael Haralambous (ECE).*
14. "Linear Systems with Integral Constraints on Transient Step-Response," PhD Dissertation completed by Bilal Salih, Summer 2019. *Committee: Dr. Jeffrey Kauffman (MAE), Dr. Tarek Elgohary (MAE), Dr. Aman Behal (ECE).*
15. "Energy Optimal Guidance of an AUV under Flow Uncertainty and Fluid-Particle Interaction," PhD Dissertation completed by Singith Abeysiriwardena, Summer 2018. *Committee: Dr. Ranganathan Kumar (MAE), Dr. Tarek Elgohary (MAE), Dr. Aman Behal (ECE).*
16. "Spatial and Temporal Compressive Sensing for Vibration-based Monitoring: Fundamental Studies with Beam Vibration," PhD Dissertation completed by Vaahini Ganesan*, Spring 2017. *Committee: Dr. Jeffrey L. Kauffman (MAE), Dr. Alain Kassab (MAE), Dr. Nazanin Rahnavard (ECE).*
17. "Transient CFD Analysis of Autorotation using Hybrid LES and Adaptive Mesh Morphing Techniques," PhD Dissertation completed by Patricia Coronado Domenge*, Spring 2016. *Committee: Dr. Ranganathan Kumar (MAE), Dr. Alain Kassab (MAE), Dr. Aniket Bhattacharya (Physics), Dr. Gordon Leishman (Embry-Riddle)*
18. "Decentralized Power Management and Transient Control in Hybrid Fuel Cell Ultra-Capacitor System," PhD dissertation completed by Omid Madani, Fall 2014. *Committee: Dr. Kuo-Chi Lin (MAE), Dr. Alain Kassab (MAE), Dr. Marwan Simaan (ECE).*
19. "Acausal Modeling of Wind Turbines with Validation and Control Studies," MS thesis *completed* by Kazi Mohsin, Fall 2023.
20. "Control of the Spar-Buoy based Wind Turbine Floating Platform Through Mooring Line Actuation," MS thesis *completed* by Tajnuba Hasan*, Fall 2023.
21. "Modeling and Simulation of a Power Plant Boiler Including the Dynamics of Swell and Shrink," MS thesis *completed* by Richard Perman, Summer 2022.
22. "Simulation of A Comprehensive Heat Recovery Steam Generator," MS thesis *completed* by Jose Chalarca, Summer 2022.
23. "Dynamic Modeling and Simulation of a Power Plant Steam Condenser on the Siemens SPPA-T3000 Platform" MS thesis *completed* by Mohammad Odeh, Spring 2020.
24. "Modeling and Transient Simulation of a Fully Integrated Multi-Pressure Heat Recovery Steam Generator Using Siemens T3000," MS thesis *completed* by Jonathan McConnell, Summer 2019.
25. "Conceptualization and Fabrication of a Bioinspired Mobile Robot Actuated by Shape Memory Alloy Springs," MS thesis *completed* by Lietsel Richardson*, Spring 2019.
26. "Thermodynamic Modeling and Transient Simulation of a Low Pressure Heat Recovery Steam Generator using Siemens T3000," MS thesis *completed* by Andres Caesar, Summer 2018.

* Indicates woman or minority student.

27. "Dynamic Modeling of Autorotation for Simultaneous Lift and Wind Energy Extraction," MS thesis *completed* by Sadaf Mackertich, Spring 2016.
28. "Decentralized Power Management in Microgrids," MS thesis *completed* by Amit Bhattacharjee, Fall 2014.
29. "A Study of Compressive Sensing for Application to Structural Health Monitoring," MS thesis *completed* by Vaahini Ganesan*, Summer 2014.
30. "A Lab-Scale Experimental Framework for Studying the Phenomenon of Autorotation" MS thesis *completed* by Sigitas Rimkus, Spring 2014.
31. "An Introductory Study of the Dynamics of Autorotation for Wind Energy Harvesting," MS thesis *completed* by Bilal Salih, Spring 2014.
32. "Switching-Based State-of-Charge Estimation of Lithium-Ion Batteries." MS Thesis by Ying Chen Su*, 2011.
33. "Investigating Controller Performance in Hybrid SOFC Systems in the Presence of Unknown Nonlinearities." MS Thesis by William Nowak, 2011.
34. "Robust Adaptive Control for a Hybrid Solid Oxide Fuel Cell System." MS Thesis by Steven Snyder, 2011.
35. "Minimizing Temperature Droop and Power-line Flicker in a Lamp-heated Xerographic Fusing System." MS Thesis by Jeffrey Swing, 2011.
36. "Modeling and Start-up Simulation of a Hybrid SOFC System with JP-8 Fuel." MS Thesis by Kalyan Nishtala, 2010.
37. "Dynamic Modeling and Characterization of a Wind Turbine System Leading to Control Development." MS Thesis by Greg Semrau, 2010.
38. "Robust Control Strategies for Hybrid Solid Oxide Fuel Cell Systems." MS Thesis by Tahar Allag, 2010.
39. "Locomotion of Circular Robots with Diametrically Translating Legs: Design, Analysis and Fabrication." MS Thesis by Eric Steffan, 2010.
40. "Dynamic Modeling and Analysis of Multiple SOFC System Configurations." MS Thesis by Andrew Slippey, 2009.
41. "Steady-State and Transient Analysis of a Steam Reformer Based Solid Oxide Fuel Cell System." MS Thesis by Sridharan Narayanan, 2008.

Undergraduate Researchers: Jose Chalarca (former), Richard Perman (former), Raul Quintana (former), Caroline Anderson* (former), Yasmeen El-Sheikh* (former), Richard Carrillo* (former).

* Indicates woman or minority student.

Educational Contributions/Activities:

1. **Mixed Mode Delivery of EML4313:** In fall 2020, I offered the EML4313 (Intermediate System Dynamics and Control) course in mixed mode. In this offering, *the lectures are video recorded and posted on webcourses*. Face-to-face instruction was offered at a lower frequency of once a week, as customary in mixed mode. Due to COVID19 restrictions, the face-to-face instruction was delivered over Zoom.
2. **Digital Education/IDL6543:** In summer 2019, I completed the IDL6543 course, which is offered by the Center for Distributed Learning. During the course, I developed the structure of the EML4313 (Intermediate System Dynamics and Control) course, along with one complete module on webcourses (<https://webcourses.ucf.edu/courses/1331816>). The course EML4313 is currently being offered in mixed mode (Fall 2020). During IDL6543, I developed an introductory video of the course, (https://player.vimeo.com/video/348869594?app_id=122963) and multiple lightboard lectures (one of which can be seen by following the link: https://player.vimeo.com/video/347337317?app_id=122963).
3. **ABET:** Member of the undergraduate curriculum committee and specifically involved in *data collection and organization* of the dynamics, vibrations, feedback control sequence in the MAE requirement, with ABET related activities as the main focus. Participation in departmental efforts towards ABET accreditation in 2014. Involved with several aspects of the *self-study report*. *Worked in a team, participated in weekly meetings, completed multiple sections of the report containing evaluation of data from prior years and mapping them to educational outcomes and measures. Involved in design, review and editing of measures. Involved in developing and implementing assessment plans for multiple outcomes, by translating them to course specific tasks.*
4. **New Feedback Control Lab:** Worked in collaboration with MMAE department chair Dr. Jayasuriya during summer 2011, Fall 2011 and Spring 2012, to restructure the Feedback control EML-4312C and EML-4804/EAS-4404 labs. *Involved in proposing new experiments. Lab equipment was purchased from Quanser. Participated in training provided by Quanser in running the new experiments. Completed final documentation of each lab, designed the sequence of labs, carried out all labs in person to get a hands-on experience of each lab, before rolling off to students. Fine-tuned the experiments to improve student experience and to ensure a reasonable lab sequence.*
5. **New EML-4804C Digital Controls Course:** Course coverage was altered to shift emphasis to fundamental scientific and mathematical principles instead of providing a broad overview of sensors, actuators and digital controllers. *Complete of overhaul of the course was done. In the new offering students learn the science behind digital implementation and the fundamental techniques in controller design for the digital domain. In Spring 2015, held lab sessions in person to develop a new set of experiments while teaching the revised course content. My goal was to improve student's appreciation of this course by demonstrating the importance of the theory of digital in lab. The effort was very well received by students.*
6. **New course on Turbomachinery Design for Mechanical & Dynamics Integrity and Reliability**, in Spring 2012. Involved in developing the rotor-dynamics and vibrations component of this course, that spanned one-thirds of the semester. *Interfaced with industry personnel and faculty in our department in developing this component. Consulted multiple books to create a sequence of topics, developed the course content from scratch, and taught them in class.* The course forms an ideal preparatory course for research on rotor-dynamics in turbo-machinery applications.
7. **New Course on Multivariable Feedback Control (EML6938)** during Fall 2012. This course is designed to follow the Systems and Control course EML5311 that mostly emphasizes on single input/output systems. The new course extends frequency domain control design to multivariable

systems. Included advanced topics of servomechanism problem, multivariable robust control, singular value decompositions and frequency domain design using singular values. Multivariable LQR, LQG, LTR, H_∞ . The course is heavy on applied mathematics as well and forms an ideal preparatory course for advanced control systems research in the department.

8. **Faculty advisor for the UCF-SAE student organization (2012 – 2015):** Responsibilities included
 - a. working with the organization to advise students on senior design projects,
 - b. to explore external and internal funding for the organization,
 - c. helping students with travel to competitions and purchasing,
 - d. serving as a liaison between the organization and MAE department, and working to address funding, space, equipment issues, etc.,
 - e. coordinating student activities and equipment usage.

9. **Newly structured EML4312C lab in Fall 2012:** The new lab was successfully executed over the semester. It was offered again in Spring 2013. The lab is now fully functional and is being handled by other faculty who are teaching EML4312C. In addition, experiments of this lab are also used in EML4301C, the new structured measurements lab offered to senior students.

10. **New Course EML4225:** This course was offered for the first time in Fall 2013 as part of the efforts taken to restructure the vibrations/controls course sequence at the undergraduate level. The course aims to cover the foundational and introductory topics of vibrations and feedback control and is a mandatory course offered at the senior level. The course combines topics from the traditional Vibrations course EML4220 and the Feedback Controls course EML4312C. These two existing courses will be phased out over the course of the next few years. *I prepared the syllabus for this new EML4225 course in consultation with faculty in the undergraduate curriculum committee in the department, designed a sequence of topics to be covered over the semester, and taught the first offering of this course.*

11. **New Course EML4313:** The course is introduced as part of the efforts taken to restructure the vibrations/controls course sequence at the undergraduate level. The course aims to build on the EML4225 course by introducing more advanced topics in vibrations and control, and is an elective course offered at the senior level. The course combines topics from the Vibrations course EML4220 and the Feedback Controls course EML4312C. *I have prepared the syllabus for this new EML4313 course in consultation with faculty in the undergraduate curriculum committee in the department, designed a sequence of topics to be covered over the semester, and taught the first offering of the course.*

RESEARCH

- **Keywords:** Dynamics, Control, Nonlinear Control, Adaptive Control, Robust Control, Observer Design, Transient Control, Distributed Control, Energy Systems, Renewable Energy, Modeling, Simulation, Real-Time Simulation, Fuel Cells, Power Conversion, Wind Energy, Wind Turbine, Floating Offshore Wind Turbine, Airborne Wind Energy, Aerodynamics, Hydrodynamics, Autorotation, Robotics, Nonholonomic Systems, Attitude Control, Switched Systems.

- **Google Scholar Statistics:**

1. Total number of citations in google scholar: 925
2. H index in google scholar: 18
3. I10 index in google scholar: 24

- Publication Statistics:

Number of journal papers appeared + accepted	36
Number of journal papers under review currently	2
Number of journal papers close to submission or resubmission	1
Number of journal papers at UCF appeared + accepted	25
Number of conference papers appeared + accepted	47
Number of conference papers under review currently	1
Number of conference papers at UCF appeared + accepted	22
Total # of papers at UCF appeared/accepted	47
Total # of papers at UCF accepted, in review or under preparation	51

- List of Publications:

Journal paper(s) under review

1. “Mooring Actuation for Stabilization of Floating Offshore Wind Turbines (FOWT),” T. Ngo, T. Hasan, D. Sarker, T. Das, *submitted to Wiley Advanced Control for Applications*.
2. “Causality-Free Modeling of a Floating Wind Turbine Semi-Submersible Platform with Validation Results,” D. Sarker, T. Hasan, T. Ngo, T. Das, *submitted to IEEE Journal of Oceanic Engineering*.

Refereed journal papers (Impact factors were current when the papers appeared)

1. “Experimental Validation of Models of a Hull-Based Tuned Mass Damper System for a Semisubmersible Floating Offshore Wind Turbine Platform,” L. Wang, R. Bergua, A. Robertson, J. Jonkman, T. Ngo, T. Das, D. Sarker*, F. Fabregas Flavia, R. Harries, M. Fowler, E. Lenfest, J. López Muro, L. Burlion, O. Bilgen, *Journal of Physics: Conference Series*, 2023, 2626, 012067 (13 pages), (<https://doi.org/10.1088/1742-6596/2626/1/012067>) **IF: 0.482**
2. “Development of a Wind Turbine Model and Simulation Platform Using an Acausal Approach: Multi-Physics Modeling, Validation and Control,” M. Odeh*, K. Mohsin*, T. Ngo, D. Zalkind, J. Jonkman, A. Wright, A. Robertson, T. Das, Accepted in *Wind Energy*, 985-1011, 26(9), June 2023. (<https://doi.org/10.1002/we.2853>) **IF: 4.1**
3. "Control Oriented Modeling, Experimentation, and Stability Analysis of an Autorotating Samara," J. McConnell*, T. Das, *ASME Journal of Dynamic Systems, Measurement, and Control*, June 2023, 145(6), 061004 (13 pages) (<https://doi.org/10.1115/1.4062438>) **IF: 1.64**
4. “Verification and Validation of Model-Scale Turbine Performance and Control for the IEA Wind 15 MW Reference Wind Turbine,” N. Mendoza, A. Robertson, A. Wright, J. Jonkman, L. Wang, R.

* Student who was involved in corresponding research.

- Bergua, T. Das, T. Ngo, M. Odeh*, K. Mohsin*, O. Bilgen, X. Du, K. Zhang, L. Burlion, F. Fabregas, B. Child, M. Fowler, A. Goupee, R. Kimball, E. Lenfest, A. Viselli, Energies, Vol. 15(20), 2022 (<https://doi.org/10.3390/en15207649>) **IF: 3.004**
5. "Modeling and Simulation of a Multistage Heat Recovery Steam Generator," J. McConnell*, T. Das, A. Caesar, P. Veeravalli, Simulation: Transactions of The Society for Modeling and Simulation International, 2022 (<https://doi.org/10.1177/003754972211300>) **IF: 1.699**
 6. "Transient Response Shaping for Nonlinear Systems to Satisfy Integral Constraints," F. Aalipour-Hafshejani*, T. Das, Wiley Advanced Control for Applications, May 2022. (<https://doi.org/10.1002/adc2.110>)
 7. "Equilibrium Behavior of a Tethered Autogyro for Extended Flight and Power Generation," J. McConnell*, T. Das, ASME Journal of Applied Mechanics, Vol. 89(9), pages 091003 (11 pages), September 2022. (<https://doi.org/10.1115/1.4054927>) **IF: 2.168**
 8. "Equations of Motion of Dynamical Systems from Kinematic Characteristics of the Phase Space," T. Das, ASME Letters in Dynamic Systems and Control, Vol. 2(3), pages 031002 (7pages), July 2022 (<https://doi.org/10.1115/1.4053660>)
 9. "Asymptotic Stability of the Sphere's Rolling Equilibrium," T. Das, ASME Letters in Dynamic Systems and Control, Vol. 2(1), May 2021. (<https://doi.org/10.1115/1.4050980>)
 10. "Mobile Robots and Unmanned Ground Vehicles," G. Reina, T. Das, G. Quaglia, R. Vidoni, *Editorial in ASME Journal of Mechanisms and Robotics*, Vol. 13(5), pages 050301 (2 pages), Oct 2021. (<https://doi.org/10.1115/1.4051702>) **IF: 2.085**
 11. "Proportional Power-Sharing Control of Distributed Generators in Microgrids," F. Aalipour*, T. Das, IEEE Transactions on Control Systems Technology, Vol. 30(2), pages 481-494, March 2022, (10.1109/TCST.2021.3068386) **IF: 5.312**
 12. "Transient Response of Linear Systems Under Integral Constraints," B. Salih*, T. Das, ASME Journal of Dynamic Systems, Measurement, and Control, Vol. 142, No. 12, 2020, (doi: 10.1115/1.4048106) **IF: 1.304**
 13. "Bio-Inspired Locomotion of Circular Robots with Diametrically Translating Legs," E. Steffan*, S. Pal, T. Das, ASME Journal of Mechanisms and Robotics, Vol. 12, No. 1, 2020, pages 011005-(1-14), (doi: 10.1115/1.4044738) **IF: 2.377**
 14. "Energy-Optimal Guidance of an AUV Under Disturbance and Fluid-Particle Interaction," S. Abeyisiriwardena*, T. Das, AIAA Journal of Guidance, Control, and Dynamics, Vol. 42, No. 6, 2019, pages 1393-1401, (doi: 10.2514/1.G003695) **IF: 2.286**
 15. "Integral Feedback for a Class of Nonlinear Systems: Absolute Stability and Induced Limit Cycles." S. Abeyisiriwardena*, T. Das, ASME Journal of Dynamic Systems, Measurements and Control, Vol. 140, Apr. 2018, pages 041009-(1-8) (doi:10.1115/1.4037837) **IF: 1.388**

* Student who was involved in corresponding research.

16. "Vibration-based Monitoring and Diagnostics using Compressive Sensing." V. Ganesan*, T. Das, N. Rahnavard, J. L. Kauffman, Journal of Sound and Vibration, Vol. 394, April 2017, pages 612-630 (doi: 10.1016/j.jsv.2017.02.002). **IF: 2.3**
17. "Feedforward based Transient Control in Solid Oxide Fuel Cells," O. Madani*, T. Das, Control Engineering Practice, Vol. 56, Nov. 2016, pages 86-91, (doi: 10.1016/j.conengprac.2016.08.008). **IF: 2.22**
18. "An Adaptive Observer for Recirculation based Solid Oxide Fuel Cells," S. Abeyisiriwardena*, T. Das, ASME Journal of Dynamic Systems Measurement and Control, Vol. 138, No. 8, 081004, May 2016, (doi: 10.1115/1.4033271). **IF: 1.04**
19. "Large-Eddy Simulations of an Autorotating Square Flat Plate," P. X. C. Domenge*, C. A. Velez, T. Das, Applied Mathematical Modeling, Vol. 40, No. 13, pp. 6576-6587, July 2016, (doi:10.1016/j.apm.2016.01.058). **IF: 2.251**
20. "Absolute Stability Analysis Using the Li'enard Equation: A Study Derived from Control of Fuel Cell Ultra-Capacitor Hybrids," W. Nowak*, D. Geiyer*, T. Das, ASME Journal of Dynamic Systems Measurement and Control, Vol. 138, No. 3, March 2016, pp. 031007-1 - 031007-10 (doi:10.1115/1.4032318). **IF: 1.04**
21. "Invariant Properties of Solid Oxide Fuel Cell Systems with Integrated Reformers," A. Slippey*, O. Madani*, K. Nishtala*, T. Das, Energy, Vol. 90, Part 1, October 2015, pp. 452-463. **IF: 5.153**
22. "Decentralized Power Management in a Hybrid Fuel Cell Ultra-capacitor System," O. Madani*, A. Bhattacharjee*, T. Das, IEEE Transactions on Control Systems Technology, Vol. 24, No. 3, 2015, pp. 765-778 (doi: 10.1109/TCST.2015.2464295). **IF: 2.521**
23. "Nonlinear Systems Analysis and Control of Variable Speed Wind Turbines for Multi-regime Operation," G. Semrau*, S. Rimkus*, T. Das ASME Journal of Dynamic Systems Measurement and Control, Vol. 137, No. 4, 2015. **IF: 1.04**
24. "Robust Adaptive Control of Solid Oxide Fuel Cell Ultra-Capacitor Hybrid Systems," T. Das, S. Snyder*, IEEE Transactions on Control Systems Technology, Vol. 21, No.2, March 2013. **IF: 2.521**
25. "Robust Control of Solid Oxide Fuel Cell Ultra-Capacitor Hybrid Systems," T. Allag*, T. Das, IEEE Transactions on Control Systems Technology, Vol. 20, No.1, January 2012. **IF: 2.521**
26. "Steady-State and Transient Analysis of a Steam Reformer based Solid Oxide Fuel Cell System," T. Das, S. Narayanan*, R. Mukherjee, ASME Journal of Fuel Cell Science and Technology, Vol. 7, No.1, February 2010. **IF: 1.00**
27. "Experimental Study of a Planar Atmospheric-pressure Plasma Operating in the Microplasma Regime," A. J. Wagner, D. Mariotti, K. J. Yurchenko, T. K. Das, Physical Review E, Vol. 80, 2009. **IF: 2.288**
28. "Swing-Up Control of the Pendubot: An Impulse-Momentum Approach," T. Albahkali, R. Mukherjee, T. Das, IEEE Transactions on Robotics, Vol. 25, No. 4, August 2009, pp. 975-982. **IF: 2.649**

* Student who was involved in corresponding research.

29. "Fractional Derivative Reconstruction of Forced Oscillators," G. Lin, B. F. Feeny, T. Das, Nonlinear Dynamics, Vol. 55, No. 3, February 2009, pp. 239-250. **IF: 3.009**
30. "Shared Sensing and Control using Reversible Transducers," T. Das, R. Mukherjee, IEEE Transactions on Control Systems Technology, Vol. 17, No. 1, 2009, pp. 242-248. **IF: 2.521**
31. "Real Time Software-in-the-loop Simulation for Control performance Validation," X. Chen, M. Salem, T. Das, and C. Xiaoqun, Simulation: Transactions of The Society for Modeling and Simulation International, Vol. 84, No. 8-9, 2008, pp. 457-471. **IF: 0.818**
32. "Optimally Switched Linear Systems." T. Das, R. Mukherjee, Automatica, Vol. 44, No. 5, 2008, pp. 1437-1441. **IF: 4.363**
33. "Reconfiguration of a Rolling Sphere: A Problem in Evolute-Involute Geometry," T. Das, R. Mukherjee, ASME Journal of Applied Mechanics, Vol. 73, No. 4, July 2006, pp. 590-597. **IF: 1.248**
34. "Exponential Stabilization of the Rolling Sphere: An Intractable Nonholonomic System." T. Das, R. Mukherjee, Automatica, Vol. 40, 2004, pp. 1877-1889. **IF: 4.363**
35. "Optimal Trajectory Planning for Hot-Air Balloons in Linear Wind Fields," T. Das, R. Mukherjee, J. Cameron, AIAA Journal of Guidance, Control, and Dynamics, Vol. 26, No. 3, May-June 2003, pp. 416-424. **IF: 1.151**
36. "Dynamic Analysis of Rectilinear Motion of a Self-Propelling Disk with Unbalance Masses," T. Das, R. Mukherjee, ASME Journal of Applied Mechanics, Vol. 68, No. 1, Jan. 2001, pp. 58-66. **IF: 1.248**

Refereed publications in conference proceedings:

1. T. Hasan*, D. Sarker*, T. Ngo, T. Das, "Stabilization of the Wind Turbine Floating Platform Using Mooring Actuation," Proceedings of the 2023 Modeling, Estimation and Control Conference, Lake Tahoe, NV, October 2-5, 2023.
2. D. Sarker*, T. Hasan*, T. Ngo, T. Das, "Causality-Free Modeling of a Floating Wind Turbine Semisubmersible Platform with Validation Results," Proceedings of the 2023 Modeling, Estimation and Control Conference, Lake Tahoe, NV, October 2-5, 2023.
3. T. Noboni*, J. McConnell*, T. Das, "Altitude Control of a Tethered Multi-Rotor Autogyro in 2-D Using Pitch Actuation Via Differential Rotor Braking," Proceedings of the 2023 American Control Conference, San Diego, CA, May 31 - June 2, 2023, (10.23919/ACC55779.2023.10155811)
4. K. Mohsin*, M. Odeh*, T. Ngo, T. Das, "Load Reduction of Wind Turbines Using Integrated Torque, Collective Pitch, and Individual Pitch Control Actions," Proceedings of the 2023 American Control Conference, San Diego, CA, May 31 - June 2, 2023, (10.23919/ACC55779.2023.10156361)
5. J. McConnell*, T. Das, "Reduced-Order Modeling of an Autorotating Samara for Steady-State and Dynamic Analysis," Proceedings of the 2022 Modeling, Estimation and Control Conference, Jersey City, NJ, October 2-5, 2022, (<https://doi.org/10.1016/j.ifacol.2022.11.163>).

* Student who was involved in corresponding research.

6. K. Mohsin*, M. Odeh*, T. Ngo, T. Das, "Causality-Free Modeling of a Wind Turbine with Open-Loop and Closed-Loop Validation Results," *Accepted in Proceedings of the 2022 Modeling, Estimation and Control Conference*, Jersey City, NJ, October 2-5, 2022, (<https://doi.org/10.1016/j.ifacol.2022.11.166>)
7. J. McConnell*, T. Das, A. Caesar*, J. Hoy, P. Veeravalli, "Multi-Physics Dynamic Modeling and Transient Simulation of a Multi-Stage Heat Recovery Steam Generator (HRSG)," *Proceedings of the ASME 2019 Dynamic Systems and Control Conference*, Park City, UT, October 8–11, 2019, (doi: 10.1115/DSCC2019-9084)
8. S. Abeysiriwardena*, T. Das, "Optimal Guidance of a Self-propelled Particle in a Non-uniform Flow," *Proceedings of the 2019 American Control Conference*, Philadelphia, PA, 10-12 July 2019, pages 3587-3592 (doi: 10.23919/ACC.2019.8814316)
9. B. Salih*, T. Das, "Adaptive Feedforward Control of Linear Systems to Satisfy Integral Constraints Imposed on Transients," *Proceedings of the 2019 American Control Conference*, Philadelphia, PA, 10-12 July 2019, pages 5792-5797, (doi: 10.23919/ACC.2019.8814816)
10. F. Aalipour*, T. Das, "Proportional Power Sharing Consensus in Distributed Generators," *Proceedings of the ASME 2018 Dynamic Systems and Control Conference*, DSCC2018, Atlanta, GA, Sep 30-Oct 3, 2018, (doi: 10.1115/DSCC2018-9023)
11. S. Abeysiriwardena*, T. Das, "Optimal Control of a Self-propelled Particle in a Fluid Flow Field," *Proceedings of the 2018 American Control Conference*, Milwaukee, WI, June 2018, (doi: 10.23919/ACC.2018.8430993)
12. V. Ganesan*, T. Das, N. Rahnavard, J. Kauffman, "Including Vibration Characteristics within Compressive Sensing formulations for Structural Monitoring of Beams," *Proceedings of the ASME Dynamic Systems and Control Conference*, Tyson's Corner, VA, October 2017, (doi:10.1115/DSCC2017-5213)
13. B. Salih*, T. Das, "Placing Minimum Phase Zeros to Shape Transient Response: Generalization from Control of Hybrid Power Systems," *Proceedings of the ASME Dynamic Systems and Control Conference*, Tyson's Corner, VA, October 2017, (doi:10.1115/DSCC2017-5234)
14. S. Mackertich*, T. Das, "Quantitative Energy Analysis and a Control Design Framework for Airborne Wind Energy Conversion using Autorotation," *Proceedings of the 2016 American Control Conference (ACC)*, Boston, MA, July 6-8, 2016, Acceptance rate:68%
15. O. Madani*, T. Das, "Decentralized Control of a Fuel Cell Ultra-Capacitor Hybrid Network" *Proceedings of 2013 American Control Conference (ACC)*, Washington, DC, USA, June 17-19, 5362 – 5367, 2013, INSPEC 13809276, Acceptance rate: 61%.
16. S. Rimkus*, T. Das, R. Mukherjee, "Stability Analysis of a Tethered Airfoil" *Proceedings of 2013 American Control Conference (ACC)*, Washington, DC, USA, June 17-19, 5601 - 5606, 2013, INSPEC 13794017, Acceptance rate: 61%.
17. O. Madani*, T. Das, "Transient Control in Multivariable Systems: A Study Motivated by Fuel Cells" *Proceedings of ASME 2013 Dynamic Systems and Control Conference*, October 21–23, 2013, Palo Alto, California, USA, Paper #DSCC2013-4063, doi:10.1115/DSCC2013-4063, Acceptance rate: 72%.

* Student who was involved in corresponding research.

18. S. Rimkus*, T. Das, "An Application of the Autogyro Theory to Airborne Wind Energy Extraction" Proceedings of ASME 2013 Dynamic Systems and Control Conference, October 21–23, 2013, Palo Alto, California, USA, Paper #DSCC2013-3840, doi:10.1115/DSCC2013-3840, Acceptance rate: 72%.
19. "Investigating Controller Performance in Hybrid SOFC Systems with Unknown Nonlinearities," T. Das, and W. Nowak*, American Control Conference, Montreal, Canada, 2012.
20. "Nonlinear Control of Variable Speed Wind Turbines With Switching Across Operating Regimes," T. Das, G. Semrau, and S. Rimkus*, ASME 2011 Dynamic Systems and Control Conference (DSCC2011), October 31–November 2, 2011, Arlington, VA
21. "Two Dimensional Modeling and Simulation of a Tethered Airfoil System for Harnessing Wind Energy," T. Das, R. Mukherjee, R. Sridhar* and A. Hellum, ASME 2011 Dynamic Systems and Control Conference (DSCC2011), October 31–November 2, 2011, Arlington, VA
22. "Adaptive Control of a Solid Oxide Fuel Cell Ultra-Capacitor Hybrid System," T. Das, S. Snyder*, American Control Conference, San Francisco, CA, 2011.
23. "Observer based Transient Fuel Utilization Control for Solid Oxide Fuel Cells," T. Das, A. Slippey*, ASME Dynamic Systems and Control Conference, September 2010, Cambridge, MA.
24. "Robust Nonlinear Control of Fuel Cell Ultra-Capacitor Hybrid System," T. Allag*, T. Das, American Control Conference, June 2010, Baltimore, MD.
25. "Locomotion of Circular Robots with Diametrically Translating Legs" E. Steffan*, T. Das, ASME Dynamic Systems and Control Conference, October 12-14, 2009, Hollywood, CA.
26. "An Adaptive Observer Design for Recirculation based Solid Oxide Fuel Cell Systems using Cell Voltage Measurement," T. Das, American Control Conference, June 2009, St. Louis, MO.
27. "A Feedback based Load Shaping Strategy for Fuel Utilization Control in SOFC Systems," T. Das, R. Weisman*, American Control Conference, June 2009, St. Louis, MO.
28. "An Impulse-Momentum Approach to Swing-Up Control of the Pendubot," T. Albahkali, R. Mukherjee, T. Das, IEEE/RSJ International Conference on Intelligent Robots and Systems, September 2008, Nice, France.
29. "Observer Design For A Steam Reformer Based Solid Oxide Fuel Cell System With Anode Recirculation," T. Das, R. Mukherjee, ASME International Mechanical Engineering Congress and Exposition, November 2007, Seattle, WA.
30. "Model Based Characterization of Transient Response of Solid Oxide Fuel Cell Systems," T. Das, S. Narayanan*, R. Mukherjee, ASME International Mechanical Engineering Congress and Exposition, November 2007, Seattle, WA.
31. "Control of a Double Pendulum through Energy Management of the Underactuated Link," T. Albahkali, R. Mukherjee, T. Das, ASME International Mechanical Engineering Congress and Exposition, November 2007, Seattle, WA.

* Student who was involved in corresponding research.

32. "Design of Switching Laws for Shared Sensing and Control by Reversible Transducers," T. Das, R. Mukherjee, 26th American Control Conference, July 2007, New York City.
33. "An Extension of the Minimum Principle with Application to Switched Linear Systems," T. Das, R. Mukherjee, 25th American Control Conference, June 2006, Minneapolis, MN.
34. "Speed Control for a Switched Reluctance Motor Drive Powered by a Fuel Cell," X. Chen, M. Salem, T. Das, S. Gopalswamy, 24th American Control Conference, June 2005, Portland, OR.
35. "Real Time Simulation for Speed Control of Switched Reluctance Motor Drive Powered by a Fuel Cell System," M. Salem, T. Das, X. Chen, S. Akella, S. Sivashankar, ASME Power Congress, April 2005, Chicago, IL.
36. "Reconfiguration of a Rolling Sphere: A Problem in Evolute-Involute Geometry," T. Das, R. Mukherjee, ASME IMECE November 2004, Anaheim, CA.
37. "Exponential Stabilization of the Rolling Sphere: Stability Analysis," T. Das, R. Mukherjee, 42nd IEEE Conference on Decision and Control, December 2003, Maui, HI.
38. "Reconstructing the Phase Space with Fractional Derivatives," B. F. Feeny, G. Lin, T. Das, Proceedings of ASME International Design Engineering Technical Conferences, September 2003, Chicago, IL.
39. "Feedback Stabilization of a Spherical Mobile Robot," T. Das, R. Mukherjee, 2002 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2002), September 2002, Lausanne, Switzerland.
40. "Optimal Trajectory Control of Hot Air Balloons in Linear Wind Fields," T. Das, R. Mukherjee, J. M. Cameron, 40th AIAA Aerospace Science Meeting & Exhibit, January 2002, Reno, NV.
41. "Dynamics of a Self-Propelling Wheel with Three Eccentric Masses," T. Das and R. Mukherjee, Proc. ASME International Mechanical Engineering Congress and Exposition (IMECE), Dynamics and Controls Division, Orlando, FL, November 2000.

Non-refereed publications:

1. "Development of an Automated Verification and Validation Platform Using Hardware-In-the-Loop Simulation for a Solid Oxide Fuel Cell Control System," J. Absmeier, T. Das, S. Gopalswamy, R. Paik, 4th International ASME Conference on Fuel Cell Science, Engineering and Technology, June 2006, Irvine, CA.
2. "Real-Time Simulation of Proton Exchange Membrane Fuel-Cell Hybrid Vehicle", C. Dufour, T. Das, S. Akella, Global Powertrain Congress, September 2005, Ann Arbor, MI.
3. "Reconfiguration of a Rolling Sphere: A Problem in Evolute-Involute Geometry", T. Das, R. Mukherjee, AAS Shuster Symposium, Buffalo, NY, 2005.
4. "Configuration Control of a Rolling Sphere: Application to a Spherical Mobile Robot," T. Das, R. Mukherjee, 14th US National Congress on Theoretical and Applied Mechanics, Blacksburg, VA, 2002.

5. “Design Considerations in the Development of a Spherical Mobile Robot,” T. Das, R. Mukherjee, H. Yuksel, Proc. SPIE Vol. 4364, SPIE 15th Annual International Symposium on Aerospace/Defense Sensing, Simulation, and Controls, Orlando, FL, April 2001.

Invited Presentations:

1. Control Co-Design of FOWTs Using Acausal Modeling and Simulations. *Presentation at the Wind Energy Science Conference in Mini-Symposium: Controls Co-Design of Floating Offshore Wind Turbine, Hanover, Germany, May 2021.*
2. Application of Control Principles to Co-Design. *Presentation at ARPA-e Control Co-design Workshop, Washington DC, July 2018.*
3. Optimal and Adaptive Control in Dynamical Systems: Applications Ranging from Balloons to Fuel Cells. *Presentation at Lockheed Martin Corporation, Orlando, FL, May 2015.*
4. An Integrated Approach to Energy Systems Research. *Presentation at Mechanical Engineering and Mechanics Department, Drexel University, May 2014.*
5. Dynamics and Control of Energy Systems: Application in Hybrid Fuel Cells and Wind Energy. *Presentation at Mechanical Engineering Department at the University of Washington, Seattle, WA, February 2013.*
6. Dynamic Analysis and Control Design in Mechatronics: Application to Robotics and Energy Systems. *Presentation at Mechanical and Aerospace Engineering Department at SUNY, Buffalo, NY, November 2008.*
7. A Control Strategy for Load Distribution in Hybrid Fuel Cell Systems. *Presentation at ONR Industry Day on High Temperature Fuel Cell, Arlington, VA, August 2008.*
8. “Evaluation of the Simplorer Modeling Platform for Automotive Powertrain Applications,” T. Das, M. Tiller, S. Gopalswamy, *Presentation at CONVERGE, An Application Workshop for High Performance Design, Ansoft, November 2005, Detroit, MI.*

• **Grants and Contracts:**

Funding Summary:

1.	Total funding as faculty: \$6.406M (Start-up funds excluded)
2.	Total funding at UCF: \$5.97M (Start-up funds excluded)

1. Model-Based Systems Engineering and Control Co-Design of Floating Offshore Wind Turbines – Phase-II, PI (ARPA-E) **\$3,333,333** (2023-2026)
2. FHTCC: Power Plant Dynamic Modeling on the Siemens T3000 Simulation Platform for Transient Simulations – Phase H – PI (Siemens Energy, Inc., FHTCC), **\$41,446** (2022-2023)
3. Power Plant Dynamic Modeling on the Siemens T3000 Simulation Platform for Transient Simulations – Phase H - PI (Siemens Energy, Inc.), **\$82,891** (2022-2023)

4. FHTCC: Power Plant Dynamic Modeling on the Siemens T3000 Simulation Platform for Transient Simulations – Phase G - PI (Siemens Energy, Inc., FHTCC), **\$41,981** (2020-2022)
5. Power Plant Dynamic Modeling on the Siemens T3000 Simulation Platform for Transient Simulations – Phase G - PI (Siemens Energy, Inc.), **\$83,961** (2020-2022)
6. FHTCC: Power Plant Dynamic Modeling on the Siemens T3000 Simulation Platform for Transient Simulations – Phase F - PI (Siemens Energy, Inc.), **\$38,713** (2019-2020)
7. Model-Based Systems Engineering and Control Co-Design of Floating Offshore Wind Turbines – PI (ARPA-E) **\$771,992** (2019-2022)
8. Power Plant Dynamic Modeling on the Siemens T3000 Simulation Platform for Transient Simulations – Phase F - PI (Siemens Energy, Inc.), **\$77,426** (2019-2020)
9. Dynamics and Control of Tethered Multi-Rotor Unmanned Aerial Vehicles with Switchable Powered and Autorotation Modes – PI (National Science Foundation), **\$313,499** (2018-2022)
10. Power Plant Dynamic Modeling on the Siemens T3000 Simulation Platform for Transient Simulations – Phase E - PI (Siemens Energy, Inc.), **\$108,116** (2018-2019)
11. Power Plant Dynamic Modeling on the Siemens T3000 Simulation Platform for Transient Simulations – Phase D – PI (Siemens Energy, Inc.), **\$72,000** (2018)
12. FHTCC: Power Plant Dynamic Modeling on the Siemens T3000 Simulation Platform for Transient Simulations - Phase C – PI (Siemens Energy, Inc., FHTC), **\$26,855** (2017)
13. Power Plant Dynamic Modeling on the Siemens T3000 Simulation Platform for Transient Simulations (Phase C) – PI (Siemens Energy, Inc.), **\$80,564** (2017)
14. Power Plant Dynamic Modeling on the Siemens T3000 Simulation Platform for Transient Simulations. – PI (Siemens FHTC), **\$23,089** (2016)
15. *Siemens T3000 modeling platform and server system (1 unit) – donation to PI's lab at UCF (Siemens Energy, Inc.), **\$46,000 (approx. value)** (2016)**
16. Power Plant Dynamic Modeling on the Siemens T3000 Simulation Platform for Transient Simulations (Phase B) – PI (Siemens Energy, Inc.), **\$37,540** (2016)
17. Power Plant Dynamic Modeling on the Siemens T3000 Simulation Platform for Transient Simulations – PI (Siemens Energy, Inc.), **\$69,291** (2014 – 2016)
18. Dynamic Modeling for Powerplant Simulation and Transient Analysis in Collaboration with Siemens Energy, Inc. – PI (FHTC), **\$25,000** (2014 – 2015)
19. Consulting with Redox for Fuel Cell System and Controller Design and Implementation – PI (Redox Power Systems LLC), **\$11,974** (2013 – 2015)

* T3000 is Siemens' commercial plant control and simulation platform. In addition to the software, T3000 includes the server and appropriate ports for communicating with power plant sensors and actuators.

20. First Steps toward the Development of a T3000 based Dynamic Process Simulation Module – PI (Siemens Energy, Inc.), **\$25,000** (2013 – 2014)
21. A Novel Approach for Oceanographic Explorations: Multi-Scale Modeling and Simulation using CFD Enabled by AUVs Data – PI (National Science Foundation), **\$462,577** (2012 – 2017) (PI's part is 2/3 and Co-PI is Dr. R. Kumar of MAE)
22. Controlling Transient Behavior of Solid Oxide Fuel Cells Using an Invariant Property – PI (National Science Foundation), **\$240,000** (2010 – 2014)
23. Novel Techniques for Control of Distributed Energy Systems with Application to Smart Grids – PI (RIT, Office of the Vice-President of Research), **\$24,600** (2009 – 2010)
24. Model based Design Optimization and Control Development for Integrated High Temperature Fuel Cell Systems – PI (Office of Naval Research), **\$157,535** (2009 – 2010)
25. Design and implementation of a novel mobile robot conducive to miniaturization – PI (RIT, Office of the Dean of Engineering), **\$10,000** (2009)
26. Application of atmospheric micro-plasma to fuel reforming – Co-PI (National Science Foundation), **\$53,390** (2008-2009)
27. Model-based Performance Characterization and Control Design for Integrated Fuel Cell Systems – PI (Office of Naval Research), **\$77,655** (2008 – 2009)
28. Fuel cell Systems Research Initiation Grant – PI (RIT, Office of the Vice-President of Research), **\$70,000** (2007 – 2008)

SERVICE ACTIVITIES (AT UCF):

1. Served on ORC internal proposal review panel. Evaluated proposals for grants internal to UCF. Evaluated internal proposals for limited submission opportunities.
2. Served as the *co-chair* on the Annual Evaluation Standards and Procedures (AESP) Committee in the MAE department. Involved in revising tenure and promotion criteria in conjunction with department chair, external members, and departmental faculty. Completed in 2021. New AESP is currently in use.
3. Member of the Cumulative Progress Evaluation (CPE) committee. Responsibilities include reading annual CPE reports submitted by tenure track faculty, preparing summary statements for select CPE reports, participating in department wide CPE meeting(s) and making departmental recommendations about progress towards tenure.
4. Serving on the Undergraduate Curriculum Committee in the MAE department. Involved in regular meetings of the committee, decisions involving curriculum changes, introduction of new courses, phasing-out or restructuring of old courses, course sequence decisions, etc.
5. Served in multiple qualifying exam committees within the MAE department. Responsibilities include, making exams in conjunction with other faculty, grading exams and making pass/fail decisions for graduate students taking the exam (2011-present). *Currently serving as a member of the controls qualifying exam.*
6. Served on search committees within the MAE department, involving hiring of a *senior laboratory engineer, a senior information specialist, the coordinator of administrative services, and senior design coordinator* (2012, 2013, 2015). Involved in reviewing applications, conducting interviews, checking references, and reporting outcomes to the department chair.
7. Served on search committees within the MAE department for *recruiting lecturers* (2012, 2015). Involved in reviewing applications, conducting interviews and reporting outcomes and making recommendations to the department chair.
8. Served as a judge on for MAE research day in Spring 2016: Attended and graded all presentations and delivered grades to the research day organizing faculty.

SERVICE ACTIVITIES (EXTERNAL TO UCF):

1. Articles reviewed for:
 - IET Control Theory and Applications
 - Control Engineering Practice (Elsevier)
 - International Journal of Robust and Nonlinear Control (Wiley)
 - Wind Energy (Wiley)
 - ASME Journal of Computational and Nonlinear Dynamics
 - SAGE: Journal of Vibration and Control
 - ASME Journal of Dynamic Systems, Measurement and Control (JDSMC)
 - ASME Journal of Solar Engineering
 - IEEE Transactions on Automatic Control (TAC)
 - IEEE Transactions on Control Systems Technology (TCST)
 - IEEE Transactions on Robotics (TRO)
 - IEEE Transactions on Cybernetics

- IEEE Transactions on Energy Conversion
 - IEEE Control Systems Letters
 - Energy (Elsevier)
 - Automatica (Elsevier)
 - Robotica (Cambridge)
 - Journal of Power Sources (Elsevier)
 - International Journal of Hydrogen Energy (Elsevier)
 - SIAM Journal of Control and Optimization
 - IEEE/ASME Transactions on Mechatronics (TMech)
 - ACM Transactions on Embedded Computing Systems
 - ASME Journal of Thermal Science and Engineering Applications
 - IEEE Conference on Decision and Control (CDC)
 - American Control Conference (ACC)
 - ASME International Mechanical Engineering Congress and Exposition (IMECE)
 - IEEE International Conference on Robotics and Automation (ICRA)
 - ASME Dynamic Systems and Control Conference (DSCC)
 - ASME International Design Engineering Technical Conference (IDETC)
 - IEEE International Conference on Intelligent Robots and Systems (IROS)
 - IEEE Conference on Control Technology and Applications (CCTA)
 - Modeling, Estimation and Control Conference (MECC)
 - Proceedings of ASME Turbo Expo
2. Publicity Chair, American Control Conference (ACC), 2024.
 3. Finance Chair, Modeling, Estimation and Control Conference, Lake Tahoe, NV, 2023
 4. Finance Chair, Modeling, Estimation and Control Conference, Jersey City, NJ, 2022
 5. Associate Editor, ASME Journal of Mechanisms and Robotics (2018-present).
 6. Served on NSF proposal review panels (2009, 2010, 2014, 2016, 2021, 2023).
 7. Served on ARPA-e proposal review panel (2018, 2020, 2021).
 8. Newsletter Editor, ASME Dynamic Systems and Control Division (2020 – 2021).
 9. Webmaster for ASME Dynamic Systems and Control Division (2019 – 2021).
 10. Multiple session chair/co-chair assignments at ACC and DSCC (2009 – present).
 11. Conference chair for ASME DSCD Robotics technical committee (2009-2010).
 12. Organized invited sessions and Frontier industry/educational session at the ASME Dynamic Systems and Control Conference and American Control Conference (2009 – 2014).
 13. Serving on the ASME DSCD conference editorial board responsible for conducting reviews of DSCC and ACC conference papers (2018 – 2021)

14. Inaugural member and co-chair of the Energy Systems Technical Committee (ESTC) within the ASME Dynamic Systems and control division (2012-2015). Actively participated in all TC activities at ASME DSCC and ACC conferences, in the form of session organizer, meeting organizer, networking with other members, seeking membership in ESTC, etc. The ESTC is the newest TC to be formed in the ASME Dynamic Systems and Control Division. The ESTC is responsible for typically organizing 4 invited sessions each year, since its inception, at ACC and DSCC together.
15. Participated in several outreach activities, such as presentation of research at UCF CECS open house (2012), Camp Connect (2013, 2015), CECS open house (2013), Scholar's day open house (2014), Meeting with National Merit Scholar(s) (2015), etc. Collaborated with UCF's *iSTEM* initiative for STEM DAY activities (2015, 2016).
16. Volunteered as Career Coach and Career Facilitator for *Orlando Cares* through the *Pathfinders* after-school program.

RECOGNITION AND AWARDS:

1. Third place in ARPA-e ATLAS Offshore Wind Challenge, 2019, (\$25,000.00 award).
2. UCF College of Engineering *Excellence in Graduate Teaching Award*, 2016.
3. Honorary Pi Tau Sigma inductee, 2009.