

OSSAMA ABDELKHALIK

Professor, Vance D. Coffman Faculty Chair
Department of Aerospace Engineering
Iowa State University (ISU)
<http://www.aere.iastate.edu/ossama>

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Ames, IA 50010
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EDUCATION

PhD Aerospace Engineering Texas A&M University, College Station, TX	2005
MSc Aerospace Engineering Cairo University, Egypt	2001
BS Aerospace Engineering Cairo University, Egypt	1996

ACADEMIC APPOINTMENTS

Department of Aerospace Engineering | Iowa State University, Ames, IA

Professor 2022 - current

Associate Professor 2018 - 2022

**Department of Mechanical Engineering – Engineering Mechanics |
Michigan Technological University, Houghton, MI, USA**

Associate Professor 2015 - 2018

Assistant Professor 2007 - 2015

**College of Engineering | Embry-Riddle Aeronautical University, Daytona
Beach, FL, USA**

Visiting Assistant Professor 2006 - 2007

Dept. of Aerospace Engineering | Texas A&M University, College Station

Postdoctoral Research Associate 2005 - 2006

OTHER PROFESSIONAL EMPLOYMENTS

Carlo Gavazzi Space (CGS) Company, Milan, Italy

Visiting Researcher 2000 - 2001

**Egyptian Space Program, National Authority for Remote Sensing and Space
Sciences (NARSS), Cairo, Egypt**

Research Engineer 1999 - 2001

ORASCOM Engineering Design Office, Cairo, Egypt

HVAC mechanical Design Engineer 1998 - 1999

High Institute for Computer and Management Technology, Egypt

Teaching Assistant 1996 - 1997

HONORS AND AWARDS

Vance D. Coffman Faculty Chair, Department of Aerospace Engineering, Iowa State University	July 2023 – current
AIAA Associate Fellow	January 2001
IEEE Senior Member	January 2024
Exemplary Faculty Mentor, Iowa State University	2024
Best Paper Award, 2 nd Asia Pacific Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES), Gold Coast, Australia, 2-5 April, 2024.	April 2024

MEMBERSHIP

AIAA	1999
IEEE Senior Member	January 2004

FUNDED GRANTS AND CONTRACTS

#	Grant	Total Project	Abdelkhalik's share
27	D. Lee (PI), O. Abdelkhalik (Co-PI) , S. Servadio (Co-PI), "A Deep-Space Navigation System using Double Planetary Cameras for Lunar Meteorite Flash Monitoring CubeSat", NASA, August 2024 – August 2027.	\$1,038,477	\$311,543.10
26	O. Abdelkhalik (PI) , P. Sarkar (Co-PI), "Control and Experimental Validation of A Novel Wave-Augmented Floating Offshore Wind Turbine", NSF, September 2023 – August 2026.	\$402,389	\$201,195
25	O. Abdelkhalik (PI) , "Developing A Demo Model for The JellyWEC", I-Corps Mini-grant, Iowa State University, April 2022.	\$5,050	\$5,050
24	O. Abdelkhalik (PI) , "Modeling and Control of Novel Variable-Shape Converters for Natural Harvesting of Ocean Wave Energy", NSF, October 2020 – September 2023.	\$481,824	\$481,824
23	O. Abdelkhalik (PI) , "U.S.-Ireland R&D Partnership: Control Co-Design of Heterogeneous Arrays of Wave Energy Converters", NSF, January 2021 – December 2023.	\$393,291	\$393,291
22	O. Abdelkhalik (PI) , Vijay Kalivarapu (Co-PI) "Enhancements to The NASA Evolutionary Mission Trajectory Generator", NASA, November 2019 – November 2022.	\$299,434	299,434
21	O. Abdelkhalik (PI) , "Collaboration with NASA on developing tools for trajectory optimization", NASA Iowa Space Grant Consortium, November 2019 – June 2020.	\$15,670	\$15,670
20	O. Abdelkhalik (PI) , Foreign Travel Grant, Iowa State University, April 2022.	\$750	\$750
19	O. Abdelkhalik (PI) , Foreign Travel Grant, Iowa State University, April 2020.	\$937	\$937

18	O. Abdelkhalik (PI) , “Advanced control of Multi Degree of Freedom Wave Energy Converters”, Sandia National Lab, July 2016 – June 2017	\$99,682	\$99,682
17	O. Abdelkhalik (PI) , “CPS: Breakthrough: Toward Revolutionary Algorithms for Cyber-Physical Systems Architecture Optimization”, NSF, January 2015 – January 2018.	\$255,470	\$255,470
16	O. Abdelkhalik (PI) and Rush Robinett (Co-PI), “Making Small Wave Energy Converters Cost-effective for Underwater Microgrids Through a 10-fold Improvement in Year-round Productivity”, subcontract from South Dakota School of Mines and Technology, Sponsor: DARPA, August 2016 – August 2017	\$250,000	\$25,000
15	O. Abdelkhalik (PI) , “REU: CPS: Breakthrough: Toward Revolutionary Algorithms for Cyber-Physical Systems Architecture Optimization”, NSF, May 2015 – April 2016.	\$8,600	\$8,600
14	O. Abdelkhalik (PI) , “Advanced control of Multi Degree of Freedom Wave Energy Converters”, Sandia National Lab, November 2014 – September 2015.	\$50,000	\$50,000
13	O. Abdelkhalik (PI) and Rush Robinett (Co-PI), “Collaborative Research: On making wave energy an economical and reliable power source for ocean measurement applications”, NSF, July 1 2016 – June 30 2018.	\$132,541	\$132,541
12	O. Abdelkhalik (PI) , and Rush Robinett (Co-PI) , “On integrating new capability into coastal energy conversion systems”, Subcontract from South Dakota School of Mines and Technology, Sponsor: Office of Naval Research, April 2016 – March 2017	\$30,000	\$30,000
11	Umesh Korde (PI), O. Abdelkhalik (Co-PI) , and Rush Robinett (Co-PI), “On integrating new capability into coastal energy conversion systems”, Sponsor: Office of Naval Research, April 2017 – April 2018	\$133,330	\$39,879
10	Brad L. King (PI), O. Abdelkhalik (Co-PI) , Michael Roggeman (Co-PI) “Stratus: A CubeSat to Measure Cloud Structure and Winds”, NASA, June 2016 – June 2018.	\$199,867	\$5,190
9	Brad L. King (PI) , O. Abdelkhalik (Co-PI) , Michael Roggeman (Co-PI), “Auris: A CubeSat to Measure The Location of a GEO Satellite”, Utah State University Research Foundation, Jan 2016 – Jan 2018.	\$55,000	\$5,190
8	O. Abdelkhalik (PI) , “Trajectory Planning for NASA Asteroid Retrieval Mission”, ExoTerra Resource LLC, September – November 2014.	\$10,000	\$10,000
7	W. Weaver (PI) , O. Abdelkhalik (Co-PI) , “Advanced control and energy storage architectures for microgrids”, Sandia National Lab, January 1, 2014 – August 31, 2014.	\$18,200	\$18,200
6	W. Weaver (PI) , O. Abdelkhalik (Co-PI) , “Optimization of energy storage architectures for microgrids - extension”, Sandia National Lab, September 2014 – April 2015.	\$18,000	\$18,000
5	O. Abdelkhalik (PI) , “Trajectory Optimization for Solar Electric Propulsion Satellites”, ExoTerra Resource LLC, September – November 2013.	\$10,250	\$10,250
4	O. Abdelkhalik (PI) , R. Zekavat , “Estimation of Relative Positions and Attitudes of Microsatellites Constellations Using Wireless Local Positioning System,” Michigan Space Grant Consortium, NASA, February 2009 – February 2010.	\$5,000	\$5,000
3	B. Chen (PI) , O. Abdelkhalik (Co-PI) , “Initial Analysis for a Semi-Active Vibration Damping System for Spacecraft in Launch Vehicles,” Michigan Space Grant Consortium, NASA, Feb. 2009- Feb. 2010.	\$5,000	\$0
2	O. Abdelkhalik (PI) , “Feasibility study for a Non-GPS Auto Navigation system,” MUCI, February 2008-August 2008	\$6,914	\$6,914

I	O. Abdelkhalik (PI) , "Feasibility Study for repeated shadow track mission," <i>Advanced Technology Solutions LLC</i> , October 15, 2008 - August 14, 2009.	\$27,539	\$27,539
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SUPERVISION OF STUDENTS AS MAJOR PROFESSOR

PhD Students

1. Shangyan Zou, MS, then PhD, **2014 - 2018**, “Optimal Control of Wave Energy Converters with Excitation Force Estimation and Hydraulic Take Off”, now Post-Doc at Oregon State University
2. Ehsan Taheri, PhD, Fall **2010- 2014**, “Rapid Space Trajectory Generation Using A Fourier Series Shape- Based Approach”, now Assistant Professor at Auburn University.
3. Ahmed Gad, PhD, **2008- 2011**, “Space Trajectories Optimization Using Variable-Chromosome-Length Genetic Algorithms”, now Assistant Professor at Taibah University at Yanbu, Saudi Arabia.
4. Shadi Darani, PhD, **2015- 2018**, “System Architecture Optimization Using Hidden Genes Genetic Algorithms with Applications in Space Trajectory Optimization”, now at Ford Motor Company, MI, USA.
5. Mohamed Desouky, PhD, **2017- 2019**, “Algorithms and Optimal Control for Spacecraft Magnetic Attitude Maneuvers”, now at Aerospace Research Center, Egypt.
6. Shu Ting Goh, PhD, (Reza Zekavat, co-Advisor), **2008-2012**, “Spacecraft Formation Flying Navigation via a Novel Wireless Positioning System”, now Research Fellow at National University of Singapore
7. Jiayang Lyu, MS then PhD, **2014- 2019**, “Optimization and Control of Arrays of Wave Energy Converters”, started a new company in China
8. Jiajun Song, PhD, **2015-2020**, “Optimization of Shape and Control of Linear and Nonlinear Wave Energy Converters” now Post-doc at Zhejiang University in China
9. Xiang Zhou PhD, **2017 – 2021** (Advisor is Dr. Wayne Weaver and co-advisors is Dr. Ossama Abdelkhalik)
10. Ahmed Ellithy, PhD, **fall 2019- spring 2023**.
11. Mohamed Shabara, PhD, **fall 2020-Fall 2023**.
12. Madhusudan Vijayakumar, PhD, **2021- Fall 2023**
13. Habeebullah Abdulkadir, PhD, **spring 2021 – Fall 2023**
14. Sugmoon Choi, **fall 2021 – current**
15. Aimar Negrete, **fall 2021 – current**
16. David Knapick, **fall 2022 – current**
17. Andrea Boord, **fall 2023 – current**
18. Mohammed Atallah, **spring 2024 - current**
19. Alexander Perruci, (co-advisors are Lee and Abdelkhalik) **2021 – current**
20. Gage Harris, (co-advisors are Ping He and Abdelkhalik) **2021 – current**
21. Liu Yen-Chen, (co-advisors are Leifur and Abdelkhalik) **2023 – current**

MS Students

1. Neelima Addanki, MS, **2008-2011**, “Orbit Design for Remote Sensing Missions”, now at Ford Motor Company, USA.
 2. Nick Masticola, MS, **2008- 2010**, “Quantification of Relativistic Perturbation Forces on Spacecraft Trajectories”, now at Honda R&D Americas, Inc., USA
 3. Nirag Sheth, MS, **2014- 2015**, “Attitude control of the OCULUS-ASR Nano-Satellite using Magnetic Torquers”, now at Caterpillar Inc., USA
 4. Karthik Mysore Srinivasa, MS, **2013- 2015**, “Spacecraft Attitude Control Using Magnetic Actuators”, now at JET Engineering Inc., USA
 5. Jonathan Curtis, MS, **2013-2015**, “Variable Length Optimization Algorithms with Application to Space Trajectory Planning”, now at Open Systems International, USA
 6. Omkar Dilip Rane, MS, **2015- 2017**, “Multi Resonant Feedback Control of Wave Energy Converters Using Recursive Least Squares”, now at FCA Fiat Chrysler Automobiles, USA
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7. Sanil Mhatre, MS, **2015- 2017**, “Application of a Linear Estimator on a Wave Energy Converter using Bang-Singular-Bang”.
 8. Ved Prakash, MS, **2018-2020**, “Shape Approximation for Low-Thrust Constrained Space Trajectories Using Fourier Series with a Penalty on Transfer Cost”.
 9. Madhusudan Vijayakumar, MS, **2019-2022**, “A Robust FFS Method for Quick Low Thrust Earth-Moon Trajectory Design in a Three Body Environment”.
 10. Aditi Sawant, MS, **2019-2022**
 11. David Kendhammer, MS, **Fall 2020 - 2022**
 12. Benjamin Schimke, MS, **Spring 2021 – 2022**
 13. Mohammad Ahmad Siddique, (Co-Advisor) **2020-2021**, “An Experimental Study On The Effects Of Adverse Weathers On The F Light Performance Of An Unmanned Aerial System,” Major Advisor: Dr. Hui Hu.

Supervision of Post-Doctoral Students and Professional Staff

1. Shangyan Zou, **August 2018 – January 2021**, *Optimal Control of Variable-Shape Wave Energy Converters*.

Service on Graduate Student Committees

1. Youngro Lee, Department of Aerospace Engineering, Iowa State University, PhD, committee member, 2020 - current, Major Professor: Dr. Dae-Young Lee
 2. Lean Fang, Department of Aerospace Engineering, Iowa State University, PhD, committee member, 2023 - current, Major Professor: Dr. Ping He
 3. Luke Gordon, Department of Aerospace Engineering, Iowa State University, MS, committee member, graduated spring 2022, Major Professor: Dae-Young Lee
 4. Zachary Luppen, Department of Aerospace Engineering, Iowa State University, PhD, committee member, since Spring 2021, Major Professors: Dae-Young Lee and Kristin Rozier-Yvonne.
 5. Tanaka Nozomu, Department of Kinesiology, Iowa State University, PhD, committee member, since Spring 2021, Major Professor: Tim Derrick. Preliminary Exam in fall 2023.
 6. Yen-Chen Liu, Department of Aerospace Engineering, Iowa State University, PhD, committee member, since Fall 2020, Qualifying exam on 12/2/2020, Prelim Exam 11/08/2021.
 7. Mohammad Hashemi, Department of Aerospace Engineering, Iowa State University, PhD, committee member, since Fall 2019.
 8. Bingxi Li, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, committee member, PhD defense, December 2018.
 9. Leslie Castelino, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, committee member, MS defense, July 2017.
 10. Guilherme Aramizo Ribeiro, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, committee member, MS defense and PhD proposal, July 2017.
 11. Luting Wang, PhD student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, committee member, PhD defense March 2018.
 12. Chaofeng Wang, PhD student, Electrical and Computer Engineering Department, Michigan Technological University, committee member, PhD defense summer 2018.
 13. Baifan Wu, MS student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, committee member, defense in 2013
 14. Hui Meen Nyew, PhD student, Computer Science Department, Michigan Technological University, committee member, proposal defense in August 2012.
 15. Mohsen Pourkhaatoun, PhD student, Electrical and Computer Engineering Department, Michigan Technological University, committee member, Defended April 2011.
 16. Wenjia Liu, PhD student, Electrical and Computer Engineering Department, committee member, MTU
 17. Mehmet Bicak, PhD dissertation, “Application of Squeeze film dampers for Reducing Vibration” Electrical and Computer Engineering Department, Michigan Technological University, committee member, Defended April 2011.
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18. Zhonghai Wang, PhD dissertation, "High Performance Localization via Multi-Node TOA-DOA Fusion" Electrical and Computer Engineering Department, Michigan Technological University, committee member, Defended December 2010.
 19. Marie-Emmanuelle Ricour, Master thesis, "Optimization of active rendezvous trajectories by genetic algorithms," Aerospace Engineering Department, Embry-Riddle Aeronautical University, committee member, 2006

Supervision of Independent Study and Undergraduate Research

1. Mihir N. Modi, Boeing fellowship, ISU. Trajectory planning using Machine Learning, fall 2023 - Spring 2024.
 2. Michael Miller, ISU, AerE 490, 2 credits, project "Modeling and Control of Novel Variable-Shape Converters for Natural Harvesting of Ocean Wave Energy," Spring 2024
 3. Aidan Furlley, Honors Program, ISU, AerE 490H, project "Modeling and Control of Novel Variable-Shape Converters for Natural Harvesting of Ocean Wave Energy," Fall 2023
 4. Zach Capron, NSF REU, project "Modeling and Control of Novel Variable-Shape Converters for Natural Harvesting of Ocean Wave Energy," Fall 2023
 5. Ricardo Herrera "Spacecraft Trajectory Optimization," AER E 490D: Aerospace Engineering Independent Study, 2 credits, Fall 2023
 6. Varad Vasant Kulkarni, NSF REU, project "Modeling and Control of Novel Variable-Shape Converters for Natural Harvesting of Ocean Wave Energy," Fall 2023
 7. Qais Okasha, NSF REU, project "Modeling and Control of Novel Variable-Shape Converters for Natural Harvesting of Ocean Wave Energy," Fall 2023
 8. Bohorquez, Valentina, NSF REU, project "Modeling and Control of Novel Variable-Shape Converters for Natural Harvesting of Ocean Wave Energy," January 2023 – May 2023
 9. Shayit, Alma, NSF REU, project "U.S.-Ireland R&D Partnership: Control Co-Design of Heterogeneous Arrays of Wave Energy Converters" January 2023 – May 2023
 10. Rolwes, Daniel J , NSF REU, project "U.S.-Ireland R&D Partnership: Control Co-Design of Heterogeneous Arrays of Wave Energy Converters" January 2023 – December 2023
 11. William Skamser, Boeing fellowship, ISU. Trajectory planning using GMAT, fall 2022 - Spring 2023.
 12. Ben Jones, undergraduate researcher, NSF project, "U.S.-Ireland R&D Partnership: Control Co-Design of Heterogeneous Arrays of Wave Energy Converters", Published a conference paper in NCUR 2023 in Eau Claire, Wisconsin, January 2022 – December 2022.
 13. Hannah Blumhoefer, undergraduate researcher, NSF project, "Modeling and Control of Novel Variable-Shape Converters for Natural Harvesting of Ocean Wave Energy," Published a conference paper in NCUR 2023 in Eau Claire, Wisconsin, January 2022 – December 2022.
 14. Samuel Lanz, First Year Honors Program, ISU, HON 290H, " Heterogeneous Arrays of Wave Energy Converters," 1 cr. Spring 2022
 15. Groe Anthony, First Year Honors Program, ISU, HON 290H, " Heterogeneous Arrays of Wave Energy Converters," 1 cr. Spring 2022
 16. David Seals, Honors Program, ISU, AerE 490H, 3 cr. Spring 2022
 17. Fields Jacob Matthew, Honors Program, ISU, AerE 490H, 2 cr. Spring 2022
 18. Scott Nguyen, McNair student, 2019 – 2022, Undergraduate Researcher, Aer E 590, presented a paper "Comparing 3 different methods to solving Lambert's Problem", at NCUR 2022 @Home, April 4-8, 2022.
 19. Justin Trenkamp, January 2019 – May 2019, Undergrad Researcher, "Enhancement to the NASA EMTG Trajectory Optimization Tool".
 20. Matthew J Paavola, January 2019 – May 2019, Undergrad Researcher, "Enhancement to the NASA EMTG Trajectory Optimization Tool".
 21. Alexander Scott, January 2019 – August 2019, Undergrad Researcher, "CubSat mission design for magnetic field observation"
 22. Abbey Senczyszyn, summer 2015, Undergrad Researcher, Toward Revolutionary Algorithms for Cyber-Physical Systems Architecture Optimization
 23. David S. Plotnik, August 2018 – April 2019, Undergrad Researcher, Iowa State University Honors Mentor Program, "3D Visualization of Spacecraft Attitude Maneuver Simulations"
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24. Reed D. Kohlmeyer, August 2018 – April 2019, Undergrad Researcher, Iowa State University Honors Mentor Program, “3D Visualization of Spacecraft Attitude Maneuver Simulations”
 25. Sebastian J. Johanson, August 2018 – April 2019, Undergrad Researcher, Iowa State University Honors Mentor Program, “3D Visualization of Spacecraft Attitude Maneuver Simulations”
 26. Madhusudan Vijayakumar, August 2019- December 2019, MS student, Independent Study course Aer E 690 E, “Space Trajectory Optimization.”
 27. CanSat student team – Aerospace Enterprise – 2009/2010 and 2010/2011
 28. Space Based Power Satellite systems - Aerospace Enterprise –Spring 2011
 29. Interplanetary Trajectory Optimization Team – started Spring 2014
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Service on Graduate Student Committees

1. Youngro Lee, Department of Aerospace Engineering, Iowa State University, PhD, committee member, 2020 - current, Major Professor: Dr. Dae-Young Lee
 2. Lean Fang, Department of Aerospace Engineering, Iowa State University, PhD, committee member, 2023 - current, Major Professor: Dr. Ping He
 3. Mohamed Abdeldayem, Department of Mechanical Engineering, Iowa State University, PhD, committee member, 2023 - current, Major Professors: Dr. Mehari Tekeste, and Dr. Mark Mba-Wright. Qualifying exam fall 2023.
 4. Luke Gordon, Department of Aerospace Engineering, Iowa State University, MS, committee member, graduated spring 2022, Major Professor: Dae-Young Lee
 5. Zachary Luppen, Department of Aerospace Engineering, Iowa State University, PhD, committee member, since Spring 2021, Major Professors: Dae-Young Lee and Kristin Rozier-Yvonne.
 6. Tanaka Nozomu, Department of Kinesiology, Iowa State University, PhD, committee member, since Spring 2021, Major Professor: Tim Derrick.
 7. Yen-Chen Liu, Department of Aerospace Engineering, Iowa State University, PhD, committee member, since Fall 2020, Qualifying exam on 12/2/2020, Prelim Exam 11/08/2021.
 8. Mohammad Hashemi, Department of Aerospace Engineering, Iowa State University, PhD, committee member, since Fall 2019.
 9. Bingxi Li, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, committee member, PhD defense, December 2018.
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 12. Luting Wang, PhD student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, committee member, PhD defense March 2018.
 13. Chaofeng Wang, PhD student, Electrical and Computer Engineering Department, Michigan Technological University, committee member, PhD defense summer 2018.
 14. Baifan Wu, MS student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, committee member, defense in 2013
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 17. Wenjia Liu, PhD student, Electrical and Computer Engineering Department, committee member, MTU
 18. Mehmet Bicak, PhD dissertation, “Application of Squeeze film dampers for Reducing Vibration” Electrical and Computer Engineering Department, Michigan Technological University, committee member, Defended April 2011.
 19. Zhonghai Wang, PhD dissertation, “High Performance Localization via Multi-Node TOA-DOA Fusion” Electrical and Computer Engineering Department, Michigan Technological University, committee member, Defended December 2010.
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20. *Marie-Emmanuelle Ricour, Master thesis, "Optimization of active rendezvous trajectories by genetic algorithms," Aerospace Engineering Department, Embry-Riddle Aeronautical University, committee member, 2006*

INSTITUTIONAL SERVICE

University Level

At ISU:

Representing ISU in the University Space Research Association, Fall 2018 – current

At Michigan Tech University:

Representing the University in the University Space Research Association, Spring 2009 – Summer 2018

Member of the Review Committee for Marshal Scholarship Applications, 2017

Judge (reviewed at least three papers in each)

- ✓ 2011 AIAA Student Conference Region VII-AU, Melbourne, 24-25 November
- ✓ 2012 International Student Paper Conference, 9 January, Nashville, TN
- ✓ 2011 International Astronautical Congress

Participated in the following events

- ✓ Graduate School Orientation, Fall 2008
- ✓ Graduate Student Council (GSC) Research Symposium, Spring 2008
- ✓ Mechanical Engineering – Engineering Mechanics Department Preview Day, Spring 2009
- ✓ Annual Western Upper Peninsula Science Fair – Spring 2008, 2010, 2011
- ✓ Advisor/Campus Security Act Training Workshop, 25 September 2012
- ✓ Foreign National Security and Export Control Workshop, 11 April 2013

College-Level Service

1. Member of the College of Engineering curriculum committee, August 2019 – current
2. Member, search committee, Aerospace Engineering Department chair, 2023 - 2024

Department-Level Service

At ISU:

3. Chair, curriculum committee, August 2019 – current
 4. Faculty Mentor for Dr. Simone Servadio, fall 2023 – spring 2024
 5. Chair, tenure subcommittee for two external candidates for the Department Chair, fall 2023.
 6. Chair, promotion subcommittee of Dr. Anupam Sharma, 2023 – 2024
 7. Member, contract renewal review committee of Dr. Thomas Chiou, fall 2023
 8. Chair, faculty search committee, FD&C and Astronautics area, 2022- 2023
 9. Member, NTE faculty search committee, FD&C and Astronautics area, 2022- 2023
 10. Member, NTE renewal review committee, fall 2022 – spring 2023
 11. Faculty Mentor for Dr. Dale Chimenti, fall 2022
 12. Chair, faculty search subcommittee, FD&C and Astronautics area, 2021- 2022
 13. Member, promotion and tenure subcommittee of Dr. Dae-Young Lee, Fall 2020
 14. Member, CPS minor committee, 2020
 15. Chair, promotion and renewal subcommittee of Dr. Oleg Zarechnyy, Fall 2019
 16. Chair, Renewal subcommittee of Tomas Gonzalez-Torres, Fall 2019
 17. Member, faculty search committee, Fall 2019 – 2020
 18. Member, Graduate committee, Fall 2018 – Fall 2020
 19. Member, the P&T Committee: Spring 2019 – current
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At Michigan Tech University:

20. Alternate senator: September 2017 – August 2018
 21. Faculty Development Committee member: September 2017 – September 2019
 22. Graduate Seminar Committee member: September 2007 – August 2011
 23. Curriculum Committee member: September 2011 – August 2013
 24. Computer Committee member: September 2010 – August 2011
 25. Faculty search committee member – Design and Dynamical Systems: Spring 2010, 2016
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PROFESSIONAL SERVICE

Editorial and Review Service for Manuscripts

1. Associate Editor: Springer, Journal of Astroynamics, August 2021 – Current
2. Associate Editor: IEEE Transactions on Sustainable Energy, December 2021 – Current
3. Associate Editor: IFAC Conference on Control Applications in Marine Systems (CAMS), Blacksburg, VA, 2024.
4. Associate Editor: AIAA, Journal of Spacecraft and Rockets, Feb. 2020 – Dec. 2022
5. Section Editor: Elsevier, “Encyclopedia of Renewable Energy, Sustainability, and The Environment.” Section: Hydropower And Marine Energies. Contract Signed October 2021
6. Guest Editor: MDPI Journal of Marine Science & Engineering, ISSN 2077-1312, Special issue “Ocean Wave Energy Conversion”, 2019,
http://www.mdpi.com/journal/jmse/special_issues/bz_advances_ocean_wave_energy_conversion
7. Journal Editorial Board:
 - a. MDPI Journal of Marine Science & Engineering (JMSE), June 2019 – current.
http://www.mdpi.com/journal/jmse/sectioneditors/ocean_engineering
<https://www.mdpi.com/journal/jmse/editors>
 - b. Journal of International Society for Science and Engineering (JISSE).
December 2019 – current. <https://jisse.journals.ekb.eg/>
8. Book Reviewer: Space Mission Engineering: The NewSMAD, Jim Wertz, Microcosm. *Chapters reviewed: 1. History of Spaceflight, 9. Orbits and Astroynamics, 18. Space Mission Geometry, 20.1 American versus international approaches to space logistics and manufacturing*
9. Reviewer: Conference Abstracts: AIAA SciTech 2020, RAST 2023, AAS/AIAA ASC 2023.
10. Journal Reviewer: in more than 25 different journals. Below is a screen shot of my verified reviews on Publons.com, where the journals are listed along with the number of papers reviewed in each journal.
 - Excellent Reviewer in The AIAA Journal of Guidance, Control, and Dynamics, 2021

Summary
Metrics
Publications
Peer review

Verified reviews [®]

JGCD	(18) Journal of Guidance, Control, and D...	WOS	JSR	(17) Journal of Spacecraft and Rockets	WOS
IEEE	(12) IEEE Transactions on Aerospace a...	WOS	ASRS	(9) Advances in Space Research	WOS
IEEE	(8) IEEE Transactions on Sustainable E...	WOS	ASRS	(5) Acta Astronautica	WOS
ASCE	(5) Journal of Aerospace Engineering	WOS	SPRINGER NATURE	(4) Astrophysics and Space Science	WOS
SPRINGER NATURE	(4) Celestial Mechanics and Dynamical ...	WOS	IEEE	(4) Renewable Energy	WOS
IEEE	(3) Aerospace Science and Technology	WOS	IEEE	(3) The Journal of the Astronautical Sci...	WOS
ASME	(2) ASME Power & Energy Conference	WOS	IEEE	(2) Chinese Journal of Aeronautics	WOS
WILEY	(2) Energies	WOS	IEEE	(2) Gyroscopy and Navigation	WOS
ASME	(2) Journal of Dynamic Systems, Measu...	WOS	SPRINGER NATURE	(2) Journal of Global Optimization	WOS
ASME	(2) Power Conference and Nuclear Forum	WOS	IEEE	(1) Applied Energy	WOS
IEEE	(1) Automatica	WOS	IEEE	(1) Engineering Optimization	WOS
IEEE	(1) European Wave and Tidal Energy Conference	WOS	IEEE	(1) IEEE Access	WOS
IEEE	(1) IEEE Transactions on Evolutionary C...	WOS	IEEE	(1) IET Renewable Power Generation	WOS
IEEE	(1) IIUM Engineering Journal	WOS	IEEE	(1) International Conference on Ocean, Offsho...	WOS
IEEE	(1) International Journal of Aerospace E...	WOS	WILEY	(1) International Journal of Robust and ...	WOS

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Service to Professional Societies

1. Member, AIAA Technical Committee on Astrodynamics, 2009 – current.
 - a. Chair, Best paper award committee, February 2013-September 2018
 - b. Educational Point Of Contact, 2009- September 2018
 - c. Prepared Abstracts for the annual AIAA Undergrad Team Space Competition:
 - *Space-Based Power Satellite System Design, 2012 (accepted, and also prepared the RFP)*
 - *Space-Based Power Satellite System Design, 2011*
2. Senior Member, IEEE
 - a. Technical Committee on Power Generation, in the IEEE Control Systems Society, 2022 – current.
 - b. Control Systems Society
 - c. Power & Energy Society
3. Conference General Chair:
 - a. AAS/AIAA Space Flight Mechanics Meeting, Santa Fe, NM, USA, January 2014
 - b. AAS/AIAA Astrodynamics Specialist Conference, Charlotte NC, USA, August 2022
4. Conference Track Co-Organizer:
 - a. ASME Power & Energy conference, June 2017: Renewable Energy Systems
 - b. ASME Power & Energy conference, June 2018: Renewable Energy Systems
5. Conference Session co-organizer / co-chair:
 - a. IEEE Aerospace Conference, Session: Space-Based Solar Power Transfer, March 2011, and March 2012.
 - b. ASME Power & Energy conference, June 2018: Renewable Energy Systems
 - c. ASME Power & Energy conference, June 2017: Distributed and Small Scale Generation
 - d. OCEANS 17, Anchorage, Alaska, USA, September 18-21, 2017. Session # AK-3: Energy from the oceans, coasts and rivers 3 - Wave Energy
 - e. The American Control Conference, May 31 – June 2, 2023, San Diego, CA: Dynamics and Control of Marine Energy Systems
6. Conference Session Chair:
 - AIAA/AAS Astrodynamics Specialist Conference, 2-5 August 2010, Toronto, Ontario, Canada, Session # ASC-13: Tracking and Estimation
 - 20th AAS/AIAA Space Flight Mechanics Meeting, February 14-17, 2010, San Diego, California, Session # 4: Atmospheric Re-entry and Lunar Mission Analysis
 - AAS/AIAA Astrodynamics Specialist Conference, Girdwood, Alaska, USA, July 31 - August 4, 2011. Session # 15: Satellite Constellations
 - AAS/AIAA Astrodynamics Specialist Conference, Minneapolis, MN, USA, August 13-16, 2012. Session # 100-ASC-15: Formation Flying III, and Session #120-ASC-18: Constellations
 - AAS/AIAA Space Flight Mechanics Meeting, Kauai, Hawaii, USA, February 10 - 14, 2013. Session # 21: Rendezvous and Formation Flying
 - AIAA Space and Astronautics Forum and Exposition, San Diego, CA, USA, August 4 – 7, 2014. Session # 21: Rendezvous and Formation Flying
 - AAS/AIAA Astrodynamics Specialist Conference, Vail, CO, USA, August 9-13, 2015. Session: Astrodynamics–I.
 - OCEANS 17, Anchorage, Alaska, USA, September 18-21, 2017. Session # AK-2: Energy from the oceans, coasts and rivers 2 - Wave Energy.
 - Asian Wave and Tidal Energy Conference (AWTEC), Taipei, Taiwan, September 9-13, 2018, Session #4-B: Future Markets and Financing & and Wave Device Development and Testing (II).
 - AAS/AIAA Astrodynamics Specialist Conference, Portland, ME, USA, August 6-11, 2019. Session: Asteroid & Non-Earth Orbiting Missions I

- AIAA SciTech, Space Flight Mechanics Conference, Orlando, FL, USA, January, 2020.
Session: Orbit Perturbations
 - AAS/AIAA Astrodynamics Specialist Conference, Virtual, Lake Tahoe, CA, USA, August 9-11, 2020. Session: Attitude Dynamics, Determination and Control - II
 - AAS/AIAA Space Flight Mechanics Meeting, Virtual, February 1 -3, 2021. Session: Spacecraft Control II
 - AAS/AIAA Astrodynamics Specialist Conference, Virtual, Big Sky, Montana, USA, August 9-11, 2021. Session: Mission Design and Trajectory Optimization
 - European Wave and Tidal Energy Conference (EWTEC), Plymouth, UK, September 5-9, 2021, chaired two sessions:
 - Grid Integration, Power take-off and Control, 9/9/2021
 - Grid Integration, Power take-off and Control, 9/8/2021
 - The IEEE MTS Global OCEANS Conference, San Diego, CA, September 20-23, 2021.
Session: 9.1-I Ocean Energy I, 9/22/2021
 - AAS/AIAA Astrodynamics Specialist Conference, Big Sky, Montana, USA, August 13-17, 2021. Session: Trajectory, Mission, and Maneuver Design and Optimization I
7. Member of the Advisory Committee, 10th International Conference on Recent Advances in Air and Space Technologies (RAST), June 2023
8. Associate Chair, AIAA Iowa section, 2022 - current

Grant Review Activities

- NSF, May 2022, DCSD program.
- NASA, 2016 and 2017, panel member, NASA postdoctoral Program
- ARPA-E, summer 2018 and summer 2019, panel member
- University Space Research Association (USRA) Scholarship Award program, NASA scholarships, 2018 and 2019

Other Professional Service

- External reference for three promotion and tenure cases
- External examiner for PhD dissertations:
 - Darcey Graham, The University of Auckland, New Zealand, 2023
 - Mohammad Tolba, United Arab Emirates University, 2023
 - Ibrahim Shaaban Sanad, The University of British Columbia, Vancouver, Canada, 2019
 - Mohamed Okasha, IIUM, Malaysia, 2015

OTHER ACTIVITIES

Served as faculty moderator at the ISU 15th Annual Symposium on Undergraduate Research and Creative Expression, Student Innovation Center, April 21, 2021.

Served as faculty advisor for the Muslim student Association at ISU, fall 2023 – current

Participated in 5 editions of the prestigious worldwide Global Trajectory Optimization Competition (GTOC):

- GTOC 5, October 2010

- GTOC 6, August 2012, Ranked 13
- GTOC 7, May 2014, Ranked 20
- GTOC 9, May 2017, Ranked 16
- GTOC X, May 2019, Ranked 35

Judge (reviewed at least three papers in each)

- 2011 AIAA Student Conference Region VII-AU, Melbourne, 24-25 November
- 2012 International Student Paper Conference, 9 January, Nashville, TN
- 2011 International Astronautical Congress

PUBLICATIONS

+ Denotes my student co-author.

Articles in Peer-Reviewed Journals – In Print or Accepted

1. H. Abdulkadir⁺ and O. Abdelkhalik. "Control co-design optimization of nonlinear wave energy converters". Ocean Engineering, Elsevier, accepted April 2024.
 2. Gage Harris, Ping He, Ossama Abdelkhalik. "Control Co-Design Optimization of Spacecraft Trajectory and System for Interplanetary Missions" Journal of Spacecraft and Rockets, AIAA, accepted, 2023.
 3. Habeebullah Abdulkadir⁺ and Ossama Abdelkhalik. "Optimal Constrained Control of Arrays of Wave Energy Converters." Journal of Marine Science and Engineering. 2024; 12(1):104.
<https://doi.org/10.3390/jmse12010104>
 4. Benjamin Schimke⁺, Ossama Abdelkhalik, "Rapid Sub-Optimal Low-Thrust Space Trajectory Design," Journal of Guidance, Control, and Dynamics, AIAA, Vol. 46, No. 6, June 2023.
<https://doi.org/10.2514/1.G007001>
 5. M. A. Shabara⁺ and O. Abdelkhalik, "Optimal Control of Variable-Shape Wave Energy Converters," IEEE Control Systems Letters, vol. 7, pp. 1333-1338, 2023.
doi: 10.1109/LCSYS.2023.3235836
 6. Shangyan Zou⁺, Jiajun Song⁺, Ossama Abdelkhalik, "A Sliding Mode Control for Wave Energy Converters in Presence of Unknown Noise and Nonlinearities". Elsevier, Renewable Energy, Vol. 202, pp. 432-441, January 2023.
 7. M. Shabara⁺ and O. Abdelkhalik. "Dynamic modelling of the motions of variable-shape wave energy converters". Renewable and Sustainable Energy Reviews, Elsevier, Vol. 173, March 2023.
 8. H. Abdulkadir⁺ and O. Abdelkhalik. "Optimization of heterogeneous arrays of wave energy converters". Ocean Engineering, Elsevier, Vol. 272, March 2023.
 9. Ahmed Ellithy⁺, Ossama Abdelkhalik, and Jacob Englander, "Multi-Objective Hidden Genes Genetic Algorithm for Multi Gravity-Assist Trajectory Optimization," J. of Guidance, Control, and Dynamics, AIAA, Vol. 45, No. 7 (2022), pp. 1269-1285 doi: doi/abs/10.2514/1.G006415.
 10. Madhusudan Vijayakumar⁺, Ossama Abdelkhalik, "Shape-Based Approach For Low-Thrust Earth-Moon Trajectories Initial Design," Journal of Guidance, Control, and Dynamics, AIAA, Vol. 45, No. 1 (2022), pp. 103-120 doi: doi/abs/10.2514/1.G006182.
 11. Ellithy⁺, A., Abdelkhalik, O. & Englander, J. "Impact of Using Analytic Derivatives In Optimization For N-Impulse Orbit Transfer Problems." Journal of Astronautical Sciences (2022).
<https://doi.org/10.1007/s40295-022-00318-y>
 12. Mohammed Desouky ⁺, Ossama Abdelkhalik, "A Recursive Approach for Magnetic Field Estimation in Spacecraft Magnetic Attitude Control" Aerospace 9, no. 12: 833. (2022)
<https://doi.org/10.3390/aerospace9120833>.
 13. Xiang Zhou, Shangyan Zou⁺, Wayne Weaver, and Ossama Abdelkhalik, "Assessment of Electrical Power Generation of Wave Energy Converters With Wave-to-Wire Modeling," IEEE Transactions on Sustainable Energy, vol. 13, no. 3, pp. 1654-1665, July 2022, doi: 10.1109/TSTE.2022.3168040.
 14. Shangyan Zou⁺, Ossama Abdelkhalik, "Modelling Of A Variable-Geometry Wave Energy Converter". IEEE Journal of Ocean Engineering, vol. 46, no. 3, pp. 879-890, July 2021, doi: 10.1109/JOE.2020.3016073.
 15. Shangyan Zou⁺, Ossama Abdelkhalik, "A Numerical Simulation of a Variable-Shape Buoy Wave Energy Converter". MDPI, Journal of Marine Science and Engineering, (Feature Paper by invitation), Vol. 9, No. 6: 625. May 2021. <https://doi.org/10.3390/jmse9060625>
 16. M. Desouky⁺ and O. Abdelkhalik. "A New Variant of the B-dot Control for Spacecraft Magnetic Detumbling". Elsevier, Acta Astronautica, Volume 171, pp. 14-22, 2020.
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17. M. Desouky⁺ and O. Abdelkhalik. “Time-Optimal Magnetic Attitude Detumbling”, *AIAA Journal of Spacecraft and Rockets*, Vol. 57, No. 3, May – June 2020, pp 549 - 564
<https://arc.aiaa.org/doi/10.2514/1.A34583>.
 18. Shangyan Zou⁺, Ossama Abdelkhalik, “A Control System For Constrained Wave-Powered Oceanographic Buoys”. *International Marine Energy Journal*, 2 (1 (Nov)), 2020, pp. 51-61.
<https://doi.org/10.36688/imej.2.51-61>
 19. Xiang Zhou⁺, Ossama Abdelkhalik, Wayne Weaver, “Power Take-off and Energy Storage System Static Modeling and Sizing for Direct Drive Wave Energy Converter to Support Ocean Sensing Applications”. *MDPI Journal of Marine Science and Engineering*, 8(7), 513, 2020. Link
 20. Shangyan Zou⁺, Ossama Abdelkhalik, “Collective Control In Arrays Of Wave Energy Converters”. Elsevier, *Renewable Energy*, Vol. 156, pp 361—369, 2020
 21. Shangyan Zou⁺, Ossama Abdelkhalik, “Time-Varying Linear Quadratic Gaussian Optimal Control for Three-Degree-of-Freedom Wave Energy Converters”. Elsevier, *Renewable Energy*, Volume 149, pp. 217-225, April 2020.
 22. David Wilson, Rush Robinett, Giorgio Bacelli, Ossama Abdelkhalik, and Ryan Coe. “Extending Complex Conjugate Control to Nonlinear Wave Energy Converters”. *MDPI Journal of Marine Science and Engineering*, Vol. 8, No. 2, January 2020. <https://www.mdpi.com/2077-1312/8/2/84>
 23. Jianyang Lyu⁺, Ossama Abdelkhalik, Lucia Gauchia, “Optimization of Dimensions and Layout of an Array of Wave Energy Converters”, Elsevier *Journal of Ocean Engineering*, Vol. 195, pp. 106543, November (2019).
 24. M. Dessouki⁺ and O. Abdelkhalik. “Improved Spacecraft Magnetic Attitude Maneuvering”, *AIAA J. of Spacecraft and Rockets*, Vol. 56, No. 5, pp. 1611-1623, (2019), <https://doi.org/10.2514/1.A34452>.
 25. Shangyan Zou⁺ and Ossama Abdelkhalik, “Consensus Estimation in Arrays of Wave Energy Converters”, *IEEE Transactions on Sustainable Energy*, Vol. 10, Issue No. 2, pp.943-951, April (2019), DOI: 10.1109/TSTE.2018.2856118.
 26. Ossama Abdelkhalik and Shangyan Zou⁺. “Control of Wave Energy Converters Using a Simple Dynamic Model”, *IEEE Transactions on Sustainable Energy*, Vol. 10, No. 2, pp.579-585, April (2019), DOI: [10.1109/TSTE.2018.2838768](https://doi.org/10.1109/TSTE.2018.2838768).
 27. Ossama Abdelkhalik and Shangyan Zou⁺, “Control of small two-body heaving wave energy converters for ocean measurement applications”, Elsevier, *Renewable Energy*, Vol. 132, (2019), pp. 587-595, <https://doi.org/10.1016/j.renene.2018.08.004>.
 28. Shadi Darani⁺, Casey D. Majhor, Wayne Weaver, Rush D. Robinett, Ossama Abdelkhalik. “Optimal Positioning of Energy Assets in Autonomous Robotic Microgrids for Power Restoration”, *IEEE Transactions on Industrial Informatics*, special issue on Resilience in Energy Industries – Recent Advances, Open Challenges, and Future Directions, Vol. 15, No. 7, pp. 4370-4380, July (2019).
 29. Shadi Darani⁺, Ossama Abdelkhalik, Rush D. Robinett, David Wilson. “A Hamiltonian Surface Shaping Approach for Control System Analysis and Design of Nonlinear Wave Energy Converters”, *MDPI Journal of Marine Science and Engineering*, special issue on Advances in Ocean Wave Energy Conversion, Vol 7, Issue No. 2, 48, (2019).
 30. Mohammed Dessouki⁺ and Ossama Abdelkhalik. “Wave Prediction using Wave Rider Position Measurements and NARX Network in Wave Energy Conversion”, *Applied Ocean Research*, Elsevier, Vol. 82, pp. 10-21, (2019).
 31. Shadi Darani⁺ and Ossama Abdelkhalik, “Space Trajectory Optimization Using Hidden-Genes Genetic Algorithms”, *AIAA Journal of Spacecraft and Rockets*, Vol. 55, No. 3, pp. 764-774, (2018), <https://doi.org/10.2514/1.A33994>.
 32. Ossama Abdelkhalik, and Shadi Darani⁺, “Evolving Hidden Genes in Genetic Algorithms for Systems Architecture Optimization”, *ASME Journal of Dynamic Systems, Measurement and Control*, Vol. 140, No. 10, pp. 101015-1 -- 101015-11, October (2018).
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33. Ossama Abdelkhalik, and Shadi Darani⁺, “*Optimization of Nonlinear Wave Energy Converters*”, Ocean Engineering, Elsevier, Vol. 162, pp. 187-195, May (2018)
<https://www.sciencedirect.com/science/article/pii/S0029801818307881>
 34. Shadi Darani⁺ and Ossama Abdelkhalik, “*Convergence Analysis of Hidden Genes Genetic Algorithms in Space Trajectory Optimization*”, AIAA Journal of Aerospace Information Systems, Vol. 15, No. 4, pp. 228-238, April (2018),
<http://arc.aiaa.org/doi/abs/10.2514/1.1010564>
 35. Shangyan Zou⁺ and Ossama Abdelkhalik, “*Control of Wave Energy Converters with Discrete Displacement Hydraulic Power Take-Off Units*”. MDPI Journal of Marine Science and Engineering, Special issue on Advances in Ocean Wave Energy Conversion, Vol. 6, No. 2, JSME-275888,
<http://www.mdpi.com/2077-1312/6/2/31>, April (2018).
 36. Ehsan Taheri, Di Wu, Ossama Abdelkhalik, Shangyan Zou⁺, Kaushik Prabhu⁺, Shadi Darani⁺, Brandon Jackson⁺. “*GTOC 9: Results from Michigan Technical University and University of Michigan (team MTU-UoM)*”, ESA Acta Futura, Issue 11, pp.99-107, January (2018).
<http://www.esa.int/gsp/ACT/publications/ActaFutura/index.html>
 37. Ossama Abdelkhalik, Shangyan Zou⁺, Rush Robinett, Giorgio Bacelli , David Wilson, Ryan Coe, “*Control of Three-Degree-of-Freedom Wave Energy Converters Using Pseudo-Spectral Methods*”, ASME Journal of Dynamic Systems, Measurement and Control, Vol. 140, No. 7, pp. 074501 (9 pages), January (2018).
 38. Ryan Coe, Giorgio Bacelli, David G Wilson, Ossama Abdelkhalik, Umesh A Korde, Rush D Robinett, “*A comparison of control strategies for wave energy converters*”, International Journal of Marine Energy, Elsevier, Vol. 20, pp. 45-63, December (2017).
 39. Shangyan Zou⁺, Ossama Abdelkhalik, Rush Robinett, Giorgio Bacelli , David Wilson, Ryan Coe, and Umesh Korde, “*Model Predictive Control of Parametric Excited Pitch-Surge Modes in Wave Energy Converters*”, Elsevier, International Journal of Marine Energy, Vol. 19, pp. 32-46, September (2017).
 40. Umesh A Korde, Jiajun Song⁺, Rush D Robinett, and Ossama Abdelkhalik, “*Hydrodynamic Considerations in Near-Optimal Control of a Small Wave Energy Converter for Ocean Measurement Applications*”, Marine Technology Society Journal, MTS, Vol. 51, No. 6, pages 44-57, December (2017)
 41. Ossama Abdelkhalik, Shangyan Zou⁺, Rush Robinett, Giorgio Bacelli , David Wilson, Ryan Coe, and Umesh Korde, “*Multi Resonant Feedback Control of Three-Degree-of Freedom Wave Energy Converters*”, IEEE Transactions on Sustainable Energy, Vol. 8, No. 4, pages 1518-1526, October (2017).
 42. Umesh A Korde, Jianyang Lyu⁺, Rush D Robinett, David Wilson, Giorgio Bacelli, and Ossama Abdelkhalik, “*Constrained near-optimal control of a wave energy converter in three oscillation modes*”, Applied Ocean Research, Elsevier, Vol. 69, pages 126-137, December (2017).
 43. Shangyan Zou⁺, Ossama Abdelkhalik, Rush Robinett, Giorgio Bacelli, and David Wilson, “*Optimal Control of Wave Energy Converters*”, Elsevier, Renewable Energy, Vol 103, pages 217-225, April (2017).
 44. Jiajun Song⁺, Ossama Abdelkhalik, Rush Robinett , Giorgio Bacelli , David Wilson , and Umesh Korde, “*Multi Resonant Feedback Control of Wave Energy Converters*”, Ocean Engineering, Elsevier, Vol. 127, pages 269-278, (2016).
<http://www.sciencedirect.com/science/article/pii/S0029801816304346>
 45. Ossama Abdelkhalik, Shangyan Zou⁺, Rush Robinett, Giorgio Bacelli, and David Wilson, “*Estimation of Excitation Forces For Wave Energy Converters Control Using Pressure Measurements*”, International Journal of Control, Taylor & Francis, Vol. 90, No. 8, pp. 1793-1805, (2016).
<http://dx.doi.org/10.1080/00207179.2016.1222555>.
 46. O. Abdelkhalik , R. Robinett , S. Zou⁺, G. Bacelli , R. Coe, D. Bull , D. Wilson, and U. Korde, “*On The Control Design of Wave Energy Converters With Wave Prediction*”, Springer Journal of Ocean
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- Engineering and Marine Energy, Vol. 2, No. 4, pp 473-483, (2016). Doi: 10.1007/s40722-016-0048-4
47. E. Taheri⁺, and O. Abdelkhalik, “*Initial Three-Dimensional Low-Thrust Trajectory Design*”, *Advances in Space Research*, Elsevier, Vol 57, No. 3, pp. 889-903, (2016).
 48. E. Taheri⁺, and O. Abdelkhalik, “*Fast Initial Trajectory Design for Low-Thrust Restricted-Three Body Problems*”. *Journal of Guidance, Control, and Dynamics*, AIAA, Vol 38, No. 11, pp. 2146-2160, November (2015).
 49. H.M. Nyew⁺, O. Abdelkhalik, and N. Onder, “*Structured-Chromosome Evolutionary Algorithms For The Variable-Size Autonomous Interplanetary Trajectory Planning Optimization*”, *Journal of Aerospace Information Systems*, AIAA, Vol. 12, No. 3 (2015), pp. 314-328. doi: 10.2514/1.1010272.
 50. Shu Ting Goh⁺, Seyed A.(Reza) Zekavat, and Ossama Abdelkhalik, “*LEO Satellite Formation for SSP: Energy and Doppler Analysis*”, *IEEE Transactions on Aerospace and Electronic Systems*, IEEE, Vol. 51, No. 1, doi: 10.1109/TAES.2014.120333, Jan. (2015).
 51. S.T. Goh⁺, O. Abdelkhalik and S. R. Zekavat, “*A Weighted Measurement Fusion Kalman Filter Implementation for UAV Navigation*”, *Aerospace Science and Technology*, Elsevier, Volume 28, Number 1, pp 315 – 323, (2013).
 52. O. Abdelkhalik, “*Hidden Genes Genetic Optimization for Variable-Size Design Space Problems*”, *Journal of Optimization Theory and Applications*, Springer, Volume 156, Number 2, February (2013).
 53. O. Abdelkhalik, “*Autonomous Planning of Multi gravity-Assist Trajectories with Deep Space Maneuvers Using a Differential Evolution Approach*”. *International Journal of Aerospace Engineering*, Hindawi, vol. (2013), Article ID 145369, (2013).
 54. Nicholas Masticola⁺ and Ossama Abdelkhalik, “*Comparison of Relativistic Perturbations on Spacecraft Earth Orbits*”, *IJUM Engineering Journal*, Volume 14, Number 1, (2013).
 55. O. Abdelkhalik and E. Taheri⁺, “*Approximate On-Off Low-Thrust Space Trajectories using Fourier Series*”. *AIAA Journal of spacecraft and rockets*, Volume 49, Number 5, September-October (2012).
 56. O. Abdelkhalik and A. Gad⁺, “*Dynamic-Size Multi-Population Genetic Optimization for Multi-Gravity-Assist Trajectories*”, *AIAA Journal of Guidance, Control, and Dynamics*, Volume 35, Number 2, pp 520–529, March-April (2012).
 57. S. T. Goh⁺, O. Abdelkhalik and S.R. Zekavat, “*Constraint estimation of spacecraft formations orbits using relative positions measurements*”. *AIAA Journal of Guidance, Control, and Dynamics*, Volume 35, Number 2, pp 387-397, March-April (2012).
 58. S.T. Goh⁺, O. Abdelkhalik and S. R. Zekavat, “*Implementation of Differential Geometric Filter For Spacecraft Formation Orbit Estimation*”, *International Journal of Aerospace Engineering*, Hindawi, vol. (2012), Article ID 910496, (2012). doi:10.1155/2012/910496.
 59. E. Taheri⁺ and O. Abdelkhalik, “*Shape Based Approximation of Constrained Low-Thrust Space Trajectories using Fourier Series*”. *AIAA Journal of spacecraft and rockets*, Volume 49, Number 3, May - June (2012).
 60. Gad⁺, O. Abdelkhalik. “*Hidden Genes Genetic Algorithm for Multi-Gravity-Assist Trajectories Optimization*”, *AIAA Journal of Spacecraft and Rockets*, AIAA, Vol. 48, No 4, pp 629-641, July-August (2011).
 61. S. T. Goh⁺, O. Abdelkhalik and S.R. Zekavat, “*Spacecraft Formation Orbit Estimation using WLPS-based Localization*”, *International Journal of Navigation and Observation*, Hindawi, Volume (2011), Article ID 654057, (2011).
 62. O. Abdelkhalik, A. Gad⁺. “*Optimization of space orbits design for Earth orbiting missions*”, *Acta Astronautica*, Elsevier, Vol. 68, No. 7-8, pp 1307–1317, April-May (2011). doi:10.1016/j.actaastro.2010.09.029.
 63. O. Abdelkhalik. “*Initial Orbit Design from Ground Track Points*”, *Journal of Spacecraft and Rockets*, AIAA, Vol. 47, No 1, Jan.-Feb. (2010).
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64. Gad⁺, and O. Abdelkhalik. "Repeated Shadow Track Orbits for Space-SunSetter Missions". International Journal of Aerospace Engineering, Volume 2009 (2009), Article ID 561495, doi:10.1155/2009/561495. <http://www.hindawi.com/journals/ijae/2009/561495.html>
 65. O. Abdelkhalik[#], D. Mortari. "On The N-Impulse Orbit Transfer Using Genetic Algorithms", Journal of Spacecraft and Rockets, AIAA, Vol. 44, No 2, March-April (2007).
 66. O. Abdelkhalik[#], D. Mortari. "Orbit Design for Ground Surveillance Missions Using Genetic Algorithms". Journal of Guidance Dynamics and Control, AIAA, Vol. 29, No 3, Sep. (2006).
 67. O. Abdelkhalik[#], D. Mortari. "On The Two-Way Orbits". Journal of Celestial Mechanics and Dynamical Astronomy, Springer, Vol. 94, No 4, April (2006), pp 399-410.
 68. O. Abdelkhalik[#], B. Nairouz, T. Weaver, B. Newman. "MicroMaps Space Mission Analysis and Design". Journal of Space Mission Architecture - NASA Jet Propulsion Lab, pp 61-100, Fall (2003).

Non-Refereed Scholarly Contributions: (Presenter underlined)

The conference papers below are published in top conferences.

1. Aimar Negrete⁺, Ossama Abdelkhalik, "A Geometric Approach to Deep Space Navigation Using Angles-Only Measurements," AIAA SCITECH 2024 Forum, AIAA 2024-0512, Orlando, FL, January 8-12, 2024.
 2. Sungmoon Choi⁺, David Knapick⁺, Madhusudan Vijayakumar⁺, Ossama Abdelkhalik, "Hidden Genes Genetic Algorithm with Low-Thrust Shaped-Based Method," AIAA SCITECH 2024 Forum, AIAA 2024-0629, Orlando, FL, January 8-12, 2024.
 3. Aimar Negrete⁺, Gage W. Harris, Ossama Abdelkhalik, and Ping He, "A Suboptimal Three Body Shape Based Approach to Trajectory Design," AIAA SCITECH 2024 Forum, AIAA 2024-0209, Orlando, FL, January 8-12, 2024.
 4. Madhusudan Vijayakumar⁺, Aimar Negrete⁺, Ossama Abdelkhalik, "A Semi-Analytic Approach for Low-Thrust Cislunar Trajectories Design And Control," AAS/AIAA Astrodynamics Specialist Conference, AAS 23-383, Big Sky, Montana, August 14-17, 2023.
 5. Ahmed Ellithy⁺, Jacob Englander, Ossama Abdelkhalik, "Hidden Genes Genetic Algorithm and Resonance Operator in Moon Tour Design Optimization," AAS/AIAA Astrodynamics Specialist Conference, Big Sky, Montana, August 14-17, 2023.
 6. Hannah Blumhoefer⁺ and Ossama Abdelkhalik "A Continued High Fidelity Numerical Analysis of Variable-shape Wave Energy Converters," National Conference on Undergraduate Research, University of Wisconsin, Eau Claire, April 13 – 15, 2023.
 7. Ben Jones⁺ and Ossama Abdelkhalik "Experimental investigation of the radiated waves from variable-shape wave energy converters," National Conference on Undergraduate Research, University of Wisconsin, Eau Claire, April 13 – 15, 2023.
 8. Aimar Negrete⁺ and Ossama Abdelkhalik. "Semi-Analytical Optimal Orbit Raising Using Hill's Equations", AAS/AIAA Astrodynamics Specialist Conference, AAS 22-621, Charlotte, NC, August 7-11, 2022.
 9. Benjamin Schimke⁺ and Ossama Abdelkhalik. "Low Thrust Trajectory Design Using A Semi-Analytic Approach", AAS/AIAA Astrodynamics Specialist Conference, AAS 22-565, Charlotte, NC, August 7-11, 2022.
 10. Gage Harris⁺, Ping He, and Ossama Abdelkhalik. "A coupled spacecraft system and trajectory optimization framework using GMAT and OpenMDAO", AAS/AIAA Astrodynamics Specialist Conference, AAS 22-614, Charlotte, NC, August 7-11, 2022.
 11. Ahmed Ellithy⁺, Jacob Englander, and Ossama Abdelkhalik. "Global Optimization of The Moon Tour Problem", AAS/AIAA Astrodynamics Specialist Conference, AAS 22-544, Charlotte, NC, August 7-11, 2022.
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12. Madhusudan Vijayakumar⁺ and Ossama Abdelkhalik. "Rapid Finite Fourier Series Approximations of Sub-Optimal Low-Thrust Space Trajectories", AAS/AIAA Astrodynamics Specialist Conference, AAS 22-553, Charlotte, NC, August 7-11, 2022.
 13. Madhusudan Vijayakumar⁺ and Ossama Abdelkhalik. "Medium High-Fidelity Cislunar Trajectory Optimization in EMTG Using Robust-FFS Initial Guess", 2022 AIAA SciTech Forum, San Diego, CA, January 3-7, 2022.
 14. Ahmed Ellithy⁺ and Ossama Abdelkhalik. "Integration of The Hidden Genes Genetic Algorithm In The Evolutionary Mission Trajectory Generator", 2022 AIAA SciTech Forum, San Diego, CA, January 3-7, 2022.
 15. Madhusudan Vijayakumar⁺ and Ossama Abdelkhalik. "A Robust Finite Fourier Series Approach For Low-Thrust Earth-Moon Trajectories Design", 31st AAS/AIAA Astrodynamics Specialist Conference, AAS 21-535, Big Sky, Montana, Virtual, August 9-11, 2021.
 16. Caleb Gunsaulus⁺, Carl De Vries⁺, William Brown⁺, Youngro Lee⁺, Madhusudan Vijayakumar⁺, and Ossama Abdelkhalik. "Sub-Optimal Fast Fourier Series Approximation for Initial Trajectory Design", 31st AAS/AIAA Astrodynamics Specialist Conference, AAS 21-776, Big Sky, Montana, Virtual, August 9-11, 2021.
 17. Ahmed Ellithy⁺, Ossama Abdelkhalik, and Jacob Englander. "Multi-Objective Hidden Genes Optimization Of Space Trajectories", 31st AAS/AIAA Astrodynamics Specialist Conference, AAS 21-653, Big Sky, Montana, Virtual, August 9-11, 2021.
 18. Ahmed Ellithy⁺, Ossama Abdelkhalik, and Jacob Englander. "Impact of Analytic Derivatives On Optimization Of N-Impulse Orbit Transfer", 30th AAS/AIAA Astrodynamics Specialist Conference, AAS 20-491, Lake Tahoe, August 9-12, 2020.
 19. Mohammed A. A. Desouky⁺ and Ossama Abdelkhalik. "Stability and Steady State Error Analysis For Satellite Magnetic Attitude Regulation", 30th AAS/AIAA Astrodynamics Specialist Conference, AAS 20-477, Lake Tahoe, August 9-12, 2020.
 20. Mohammed A. A. Desouky⁺, Ossama Abdelkhalik, and Lucia Gauchia. "Optimization of Magnetic Attitude Maneuvers", AIAA SciTech, AAS Space Flight Mechanics Conference, AIAA 2020-1202, Orlando, FL, January 6-10, 2020.
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Peer-Reviewed Conference Proceedings – In Print/Accepted

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1. **Best Paper Award:** Mehdi Neshat, Nataliia Y. Sergiienko, Leandro S.P. da Silva, Erfan Amini, Mahdieh Nasiri, Seyedali Mirjalili, Amir H. Gandomi, Ossama Abdelkhalik and John Boland, "Hybrid Wave-wind Energy Site Power Output Augmentation Using Self-adaptive Meta-optimization Algorithm with Novelty Search," 2nd Asia Pacific Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES), Gold Coast, Australia, 2-5 April, 2024.
 2. H. Abdulkadir and O. Abdelkhalik, "Control Co-design of Linear and Nonlinear Wave Energy Converters," 2024 4th International Conference on Smart Grid and Renewable Energy (SGRE), Doha, Qatar, 2024, pp. 1-7, doi: 10.1109/SGRE59715.2024.10428723.
 3. Habeebullah Abdulkadir⁺ and Ossama Abdelkhalik, "Optimization of Heterogeneous Arrays of Wave Energy Converters." Proceedings of the 15th European Wave and Tidal Energy Conference (EWTEC), Paper #286, Bilbao, Spain, 3-7 September 2023.
 4. Mohamed Shabara⁺ and Ossama Abdelkhalik. "A Time Domain Approach for The Optimal Control of WEC Arrays." Proceedings of the 15th European Wave and Tidal Energy Conference (EWTEC), Paper #472, Bilbao, Spain, 3-7 September 2023.
 5. Aimar Negrete, Madhusudan Vijayakumar, Ossama Abdelkhalik, "A Semi-Analytic Approach for Trajectory Design Optimization Using Linearized Equations of Motion," The 10th International Conference on Recent Advances in Air and Space Technologies (RAST 2023), Istanbul, Turkey, June 7-9, 2023.
 6. *Invited paper.* Habeebullah Abdulkadir⁺ and Ossama Abdelkhalik. "Power Constrained Optimal Control of Wave Energy Converters." Proceedings of the 14th IFAC Conference on Control Applications in Marine Systems, Robotics, and Vehicles, (CAMS 2022), Technical University of Denmark - Kongens Lyngby, Denmark, September 14-16, 2022.
 7. *Invited paper.* Mohamed Shabara⁺ and Ossama Abdelkhalik. "Bang-Bang Control Of Spherical Variable-Shape Buoy Wave Energy Converters." Proceedings of the 2022 American Control Conference, Atlanta, Georgia, USA, June 6, 2022.
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 9. Shangyan Zou, Xiang Zhou, Wayne Weaver, Ossama Abdelkhalik, “Deep Reinforcement Learning Control of Wave Energy Converters,” The Joint 9th IFAC Symposium on Mechatronic Systems and The 16th International Conference on Motion and Vibration Control (MoViC), Los Angeles, September 7-9, 2022.
 10. Mohamed Shabara⁺ and Ossama Abdelkhalik. “Dynamics of Flexible Spherical Point Absorbers.” The Pan American Marine Energy Conference Association Conference (PAMEC 2022), Ensenada, Mexico, June 19-22, 2022.
 11. Ossama Abdelkhalik and Habeeb Abdulkadir. Optimal Control of Wave Energy Converters. OCEANS 2021: San Diego – Porto, 2021, pp. 1-5,
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 13. Shangyan Zou⁺ and Ossama Abdelkhalik. “Assessment of a Novel Application of Sliding Mode Control for Wave Energy Converters Using High-Fidelity Numerical Simulations”. The 14th European Wave and Tidal Energy Conference (EWTEC), Paper #2052, Plymouth, UK, 5-10 September 2021.
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 16. Xiang Zhou⁺, Shangyan Zou⁺, Wayne Weaver, and Ossama Abdelkhalik. “Control of Wave Energy Converter With Losses in Electrical Power Take-Off System.” POWER2021-64938, the 2021 ASME Power Conference, Online, July 19 – 21, 2021.
 17. Jiajun Song⁺ and Ossama Abdelkhalik. “Genetic Optimization of Shape and Control of Nonlinear Wave Energy Converters.” OMAE2020-19156, ASME 2020 OMAE, Fort Lauderdale, FL, June 28 – July 3, 2020.
 18. Jianyang Lyu⁺ and Ossama Abdelkhalik. “Optimization of Both the Layout of an Array and the Buoy Dimension for Two Types of Arrays.” OMAE2020-19155, ASME 2020 OMAE, Fort Lauderdale, FL, June 28 – July 3, 2020.
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Books and Book Chapters

1. Ossama Abdelkhalik. "Algorithms for Variable-Size Optimization, Applications in Space Systems and Renewable Energy" CRC Press, Taylor & Francis Group, ISBN 9780815360162, 2021. My Role: Book Author
2. Raed Kafafy and Ossama Abdelkhalik; "Space Mechanics for Engineers", 2nd edition, Perpustakaan Negara Malaysia Cataloguing-in-Publication Data, ISBN 978-983-259998-2, (2013). My Role: Book co-author
3. Ossama Abdelkhalik; "Implementation Of Kalman Filter For Localization", chapter 19 in "Handbook of Position Location: Theory, Practice and Advances," 1st Edition, John Wiley-IEEE Press, Vol 27, 9 September 2011. My Role: Chapter author
4. Shu Ting Goh, Sayed Reza Zekavat, Ossama Abdelkhalik; "An Introduction to Kalman Filter Implementation For Localization", chapter 19 in "Position Location - Theory, Practice and Advances: A Handbook for Engineers and Academics," 2nd Edition, John Wiley-IEEE Press, pp. 143-195, 2018. My Role: Chapter co-author
5. Wilson, Zanetti, Mackison, Abdelkhalik. "Spaceflight Mechanics 2014. Advances in the Astronautical Sciences", Vol. 152, 2014. American Astronautical Society. My Role: Proceedings Book co-editor

Formally Invited Seminars and Presentations

1. O. Abdelkhalik. "Control, Optimization and Estimation in Wave Energy Conversion," Invited seminar in Hamad Bin Khalifa University, Doha, Qatar, January 10, 2024.
 2. O. Abdelkhalik. "Control, Optimization and Estimation in Wave Energy Conversion," National Renewable Energy Lab (NREL), Golden, CO, October 19, 2023.
 3. O. Abdelkhalik. "Recent Advances in Space Trajectory Optimization," Invited seminar in the Faculty of Aeronautics and Astronautics, Istanbul Technical University, Turkey, June 12, 2023.
 4. O. Abdelkhalik. "Optimal Control Of Flexible Ocean Wave Energy Converters," Invited talk at the Aerospace Engineering Program (AEP) Seminar Series, University of Hawaii, Manoa, April 27 2023.
 5. O. Abdelkhalik. "Recent Advances in Wave Energy Conversion," Keynote Speech at The Eighth European Conference on Renewable Energy Systems (ECRES2020), Istanbul, Turkey, 9-11 August 2020.
 6. O. Abdelkhalik. "Recent Advances in Wave Energy Conversion," University of Iowa, Iowa City, February 27, 2020.
 7. O. Abdelkhalik. "Evolutionary Algorithms in Space Trajectory Optimization," Keynote Speech at the 4th World Conference on Aerospace and Aeronautical Engineering, Valencia, Spain, October 25-27, 2021.
 8. O. Abdelkhalik. "Systems Architecture Optimization Using Hidden Genes Genetic Algorithms," University of New Mexico, Albuquerque, NM, April 2017.
 9. O. Abdelkhalik. "Systems Architecture Optimization Using Hidden Genes Genetic Algorithms," Air Force Research Lab, Albuquerque, NM, February 2017.
 10. O. Abdelkhalik. "Systems Architecture Optimization Using Hidden Genes Genetic Algorithms," Sandia National Labs, October 2016.
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11. O. Abdelkhalik. "Variable-Size Optimization with application to Interplanetary Space Trajectories Design," Department of Aerospace Engineering, University of Illinois, Urbana Champaign, Graduate seminar series, February 2013.
 12. O. Abdelkhalik. "Interplanetary Trajectory Optimization," the International Congress of Mechanical Engineering IMPULSO 25, Monterrey, Mexico, 15-17 November 2012
 13. O. Abdelkhalik. "Solution To The Sixth Global Trajectory Optimization competition," GTOC6 workshop, International Symposium on Space Flight Dynamics, Pasadena, CA, October 2012.
 14. O. Abdelkhalik. "Interplanetary Trajectory Optimization," Aerospace Engineering Department, Cairo University, Egypt, July 2012
 15. O. Abdelkhalik. "Interplanetary Trajectory Optimization," Mechanical and Aerospace Engineering Department, West Virginia University, February 2012
 16. O. Abdelkhalik. "Dynamic Penalty Function Evolutionary Algorithms for Oil and Gas Reservoir History Matching," Qatar Petroleum Research and Technology Office, Doha, Qatar, July 2012.
 17. O. Abdelkhalik. "Novel Algorithms for Variable Size Design Space Optimization," General Electric, Qatar Science and Technology Park, Doha, Qatar, June 2012.
 18. O. Abdelkhalik. "Interplanetary Trajectory Optimization," Department of Aerospace Engineering, Khalifa University, UAE, June 2011
 19. (Teleconference presentation) O. Abdelkhalik. "Rapid Shape Based Trajectory Construction using Fourier Series Approach," NASA Johnson Space Center, May 2011
 20. O. Abdelkhalik. "Dynamic Penalty Function Evolutionary Algorithms for Oil and Gas Reservoir History Matching," MAERSK, Qatar Science and Technology Park, Doha, Qatar, March 2011.
 21. O. Abdelkhalik. "Interplanetary Trajectory Optimization," Department of Mechanical and Aerospace Engineering, New Mexico State University, Feb 2010
 22. O. Abdelkhalik. "Orbit design for remote sensing missions using genetic algorithms," Aerospace Engineering Dept. at San Jose State University, April 2009
 23. O. Abdelkhalik. "Orbit design for remote sensing missions using genetic algorithms," Aerospace Engineering Dept. at Mississippi State University, March 2009
 24. O. Abdelkhalik. "Optimal Space Orbits Design," I/UCRC Space Propulsion and Power Research, Hartford, CT, July 24 2008.
 25. O. Abdelkhalik. "Orbit Design for Ground Surveillance Missions Using Genetic Algorithms," Aerospace Engineering Dept. at Mississippi State University, March 2006
 26. O. Abdelkhalik. "Orbit Design for Ground Surveillance Missions Using Genetic Algorithms," Aerospace Engineering Dept. at Embry-Riddle Aeronautical University, May 2006
 27. O. Abdelkhalik. "Orbit Design for Ground Surveillance Missions Using Genetic Algorithms," Mechanical & Industrial Engineering Dept. at Concordia University, Montreal, Canada, June 2006

Contributed Presentations

1. O. Abdelkhalik and H. Abdulkadir. *Heterogeneous versus homogeneous arrays of wave energy converters*, The 3rd Pan-American Marine Energy Conference (PAMEC), Barranquilla, Colombia January 22-24, 2024
 2. O. Abdelkhalik, R. Robinett, G. Bacelli, D. Wilson, and Umesh Korde. *Optimal Control of Wave Energy Converters*, The 11th MTS Buoy Workshop 2016, Woods Hole Oceanographic Institution, Quissett Campus, Woods Hole, MA. April 18-21, 2016
 3. Abdelkhalik O., Rush Robinett, Giorgio Bacelli, Ryan Coe, Diana Bull, David Wilson, and Umesh Korde. *Control Optimization of Wave Energy Converters Using a Shape-Based Approach*. ASME Power & Energy 2015 conference, San Diego, CA, June 28 – July 2, 2015
 4. O. Abdelkhalik. "Systems Architecture Optimization Using Hidden Genes Genetic Algorithms," Sandia National Labs, October 2016.
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5. O. Abdelkhalik. ``*Solution To The Sixth Global Trajectory Optimization competition,*'' GTOC6 workshop, International Symposium on Space Flight Dynamics, Pasadena, CA, October 2012
 6. O. Abdelkhalik. ``*Optimal Space Orbits Design,*'' I/UCRC Space Propulsion and Power Research, Hartford, CT, July 24, 2008.

Patents, Disclosures, and Technology Transfer

Issued Patents

1. Ossama Abdelkhalik, Rush Robinett, Shangyan Zou⁺, Giorgio Bacelli, and David Wilson. "Optimal Control of Wave Energy Converters." US Patent **10,197,040**. Pub. No.: US2017/0298899A1. Filed March 22, 2017. Application Granted **February 05, 2019**.
 2. Ossama Abdelkhalik, Giorgio Bacelli, Shangyan Zou⁺, Rush D. Robinett, III, David G. Wilson, Ryan G. Coe. "Pseudo-spectral method to control three-degree-of-freedom wave energy converters." US Patent **10,344,736**. Pub. No.: US 20180163690 A1. Filed Dec 09, 2016. Application Granted **July 09, 2019**.
 3. Ossama Abdelkhalik, Rush D. Robinett, III, Shangyan Zou⁺, David G. Wilson, Giorgio Bacelli, Umesh Korde, Ryan G. Coe "Model predictive control of parametric excited pitch-surge modes in wave energy converters." Patent No.: **10,415,537**. US Application. No. 62/432,417, Date of Patent **09/17/2019**.
 4. David G. Wilson, Rush D. Robinett, III, Ossama Abdelkhalik, Jiajun Song⁺, Giorgio Bacelli. "Multi-resonant feedback control of a single degree-of-freedom wave energy converter." US Patent **10,423,126 B2**. Pub. No.: US 2018/0164754 A1. Filed Dec 04, 2017. Application Granted **September 24, 2019**.
 5. Ossama Abdelkhalik, Shangyan Zou⁺, Rush Robinett, David Wilson, Giorgio Bacelli, Ryan Geoffrey Coe and Umesh Korde. "Multi-Resonant Feedback Control of Multiple Degree-of-Freedom Wave Energy Converters." US Patent **10,488,828**. Filed December 04, 2017. Application Granted **November 26, 2019**.
 6. David Wilson, Giorgio Bacelli, Rush Robinett, and Ossama Abdelkhalik. "Nonlinear Controller for Nonlinear Wave Energy converters." Pub. No.: US 2020-0088154 A1. Filed September 11, 2019. Application No. 16/534,746. Application Docketed March 19, 2020. US Patent No.: **10,823,134**. Issue Date: **November 3, 2020**
 7. David Wilson, Giorgio Bacelli, Ryan Geoffrey Coe, Rush Robinett III, and Ossama Abdelkhalik. "Nonlinear Hydrostatic Control of a Wave Energy Converter." US Patent No.: **US 11,326,574 B2**. Issue Date: **May 10, 2022**.
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