

Dr. Ossama O. Abdelkhalik

Associate Professor

Department of Mechanical Engineering-Engineering Mechanics
Michigan Technological University

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Citizenship: Citizen of USA

EDUCATION

Ph.D. (September 2001 – December 2005)

- Texas A&M University, College Station, TX, USA; Aerospace Engineering Department
- Advisor: Prof. Daniele Mortari
- Dissertation title: Orbit Design And Estimation For Ground Surveillance Missions Using Genetic Algorithms

M. Sc. (September 1997 – December 2000)

- Aerospace Engineering Department, Cairo University, Egypt
- Thesis title: Remote Sensing Satellites Orbits Design And Control

B. Sc. (September 1991 – May 1996)

- Aerospace Engineering Department, Cairo University, Egypt (**Honor**)
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PROFESSIONAL EXPERIENCE

2015 – Current: Associate Professor

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

2007 – 2015: Assistant Professor

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

2006 – 2007: Visiting Assistant Professor

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

2006 – 2006: Postdoctoral Research Associate

Aerospace Engineering Department, Texas A&M University, College Station, TX, USA

2001 – 2005: Graduate Student

Aerospace Engineering Department, Texas A&M University, College Station, TX, USA

2000 – 2001: Visiting Researcher

Carlo Gavazzi Space (CGS) Company, Milan, Italy

1999 – 2001: Research Engineer

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

1998 – 1999: HVAC mechanical Design Engineer

ORASCOM Engineering Design Office, Cairo, Egypt

1996 – 1997: Teaching Fellow

High Institute for Computer and Management Technology, Egypt

COURSES TAUGHT

Undergraduate Level Courses at Michigan Tech University:

- ✓ Dynamic Systems and Controls
- ✓ Space Mechanics (Top 10% among MTU faculty in students evaluations during 2010/2011 academic year)
- ✓ Heat Transfer

Graduate Level Courses at Michigan Tech University:

- ✓ Optimization
- ✓ Intermediate Dynamics
- ✓ Space Mechanics
- ✓ Advanced Thermodynamics
- ✓ Orbit Determination Methods

Undergraduate Level Courses at Embry-riddle University:

- ✓ Spacecraft Attitude Dynamics and Controls
- ✓ Controls Systems Analysis and Design
- ✓ Space Mechanics

HONORS AND AWARDS

- Top 10% in Michigan Tech University faculty in student evaluations in fall 2010
- Medal for Distinction in Undergraduate Studies, Cairo University, 1996
- B.Sc. Dean's list of Recognition (1991-1996)

FUNDED RESEARCH PROJECTS

- **O. Abdelkhalik (PI)**, “CPS: Breakthrough: Toward Revolutionary Algorithms for Cyber-Physical Systems Architecture Optimization”, *National Science Foundation*, January 2015 – January 2018.
- **O. Abdelkhalik (PI)**, “REU: CPS: Breakthrough: Toward Revolutionary Algorithms for Cyber-Physical Systems Architecture Optimization”, *National Science Foundation*, May 2015 – April 2016.
- **O. Abdelkhalik (PI)**, “Advanced control of Multi Degree of Freedom Wave Energy Converters”, *Sandia National Lab*, November 2014 – September 2015.
- **O. Abdelkhalik (PI)**, “Trajectory Planning for NASA Asteroid Retrieval Mission”, *ExoTerra Resource LLC*, September – November 2014.
- W. Weaver (PI), **O. Abdelkhalik (Co-PI)**, “Advanced control and energy storage architectures for microgrids”, *Sandia National Lab*, January 1, 2014 – August 31, 2014.
- W. Weaver (PI), **O. Abdelkhalik (Co-PI)**, “Optimization of energy storage architectures for microgrids - extension”, *Sandia National Lab*, September 2014 – April 2015.
- **O. Abdelkhalik (PI)**, “Trajectory Optimization for Solar Electric Propulsion Satellites”, *ExoTerra Resource LLC*, September – November 2013.
- **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.
- 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.
- **O. Abdelkhalik (PI)**, “Feasibility study for a Non-GPS Auto Navigation system,” *MUCI*, February 2008-August 2008.
- **O. Abdelkhalik (PI)**, “Feasibility Study for repeated shadow track mission,” *Advanced Technology Solutions LLC*, October 15, 2008 - August 14, 2009.

INVITED TALKS/SEMINARS

- **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.
- **O. Abdelkhalik.** ``*Interplanetary Trajectory Optimization,*” the International Congress of Mechanical Engineering IMPULSO 25, Monterrey, Mexico, 15-17 November 2012
- **O. Abdelkhalik.** ``*Solution To The Sixth Global Trajectory Optimization competition,*” GTOC6 workshop, International Symposium on Space Flight Dynamics, Pasadena, CA, October 2012.
- **O. Abdelkhalik.** ``*Interplanetary Trajectory Optimization,*” invited in the schools:
 - Aerospace Engineering Department, Cairo University, Egypt, July 2012
 - Mechanical and Aerospace Engineering Department, West Virginia University, February 2012
- **O. Abdelkhalik.** ``*Dynamic Penalty Function Evolutionary Algorithms for Oil and Gas Reservoir History Matching,*” Qatar Petroleum Research and Technology Office, Doha, Qatar, July 2012.
- **O. Abdelkhalik.** ``*Novel Algorithms for Variable Size Design Space Optimization,*” General Electric, Qatar Science and Technology Park, Doha, Qatar, June 2012.
- **O. Abdelkhalik.** ``*Interplanetary Trajectory Optimization,*” Department of Aerospace Engineering, Khalifa University, UAE, June 2011
- **(Teleconference presentation) O. Abdelkhalik.** ``*Rapid Shape Based Trajectory Construction using Fourier Series Approach,*” NASA Johnson Space Center, May 2011
- **O. Abdelkhalik.** ``*Dynamic Penalty Function Evolutionary Algorithms for Oil and Gas Reservoir History Matching,*” MAERSK, Qatar Science and Technology Park, Doha, Qatar, March 2011.
- **O. Abdelkhalik.** ``*Interplanetary Trajectory Optimization,*” Department of Mechanical and Aerospace Engineering, New Mexico State University, Feb 2010
- **O. Abdelkhalik.** ``*Orbit design for remote sensing missions using genetic algorithms,*” Aerospace Engineering Dept. at San Jose State University, April 2009
- **O. Abdelkhalik.** ``*Orbit design for remote sensing missions using genetic algorithms,*” Aerospace Engineering Dept. at Mississippi State University, March 2009
- **O. Abdelkhalik.** ``*Optimal Space Orbits Design,*” Signal and System Seminar Series, ECE Department, MTU, October 2008.
- **O. Abdelkhalik.** ``*Optimal Space Orbits Design,*” I/UCRC Space Propulsion and Power Research, Hartford, CT, July 24 2008.
- **O. Abdelkhalik.** ``*Orbit Design for Ground Surveillance Missions Using Genetic Algorithms,*” invited in the following schools:
 - Mechanical & Industrial Engineering Dept. at Concordia University, Montreal, Canada, June 2006.
 - Aerospace Engineering Dept. at Embry-Riddle Aeronautical University, May 2006.
 - Aerospace Engineering Dept. at Mississippi State University, March 2006.

RESEARCH SUPERVISION

➤ *PhD students:*

Graduated

1. Ahmed Gad, graduated in Summer 2011
2. Shu-Ting Goh, graduated in Summer 2012
3. Ehsan Taheri, graduated in Fall 2014

Current

4. Shadi Darani, will start in Spring 2014
5. Shangyan Zou, started Fall 2015
6. Jiajun Song, started Fall 2015
7. Joe Tripp. Started Fall 2015

Graduated

➤ *MS students:*

1. Neelima Addanki, graduated in Spring 2011
2. Nick Masticola, graduated in Fall 2010
3. Shangyan Zou, graduated 2015
4. Nirag Sheth, graduated 2015
5. Karthik Mysore Srinivasa, graduated 2015
6. Jonathan Curtis, graduated 2015

➤ **Undergraduate Students Groups:**

1. CanSat student team – Aerospace Enterprise – 2009/2010 and 2010/2011
2. Space Based Power Satellite systems - Aerospace Enterprise –Spring 2011
3. Interplanetary Trajectory Optimization Team – started Spring 2014

➤ *Graduate Advising Committee member:*

1. Baifan Wu, MS student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, defense in 2013
2. Hui Meen Nyew, PhD student, Computer Science Department, Michigan Technological University, proposal defense in August 2012.
3. Mohsen Pourkhaatoun, PhD student, Electrical and Computer Engineering Department, Michigan Technological University, Defended April 2011.
4. Wenjia Liu, PhD student, Electrical and Computer Engineering Department, MTU
5. Mehmet Bicak, PhD dissertation, “Application of Squeeze film dampers for Reducing Vibration” Electrical and Computer Engineering Department, Michigan Technological University, Defended April 2011.
6. Zhonghai Wang, PhD dissertation, “High Performance Localization via Multi-Node TOA-DOA Fusion” Electrical and Computer Engineering Department, Michigan Technological University, Defended December 2010.

7. Marie-Emmanuelle Ricour, Master thesis, "Optimization of active rendezvous trajectories by genetic algorithms," Aerospace Engineering Department, Embry-Riddle Aeronautical University, 2006

➤ *PhD Qualifying Exam Committee member:*

1. Amanda O'Neil, PhD student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, Spring 2015
2. Brandon Jackson, PhD student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, Fall 2014
3. Xin Wang, PhD student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, Spring 2014
4. Edmond Mayer, PhD student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, passed qualifying spring 2012.
5. Mark Hopkins, PhD student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, passed qualifying spring 2012.
6. Kurt Terhune, PhD student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, passed qualifying spring 2012.
7. Yun Wang, PhD student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, qualifying exam fall 2012.
8. Ming Cheng, PhD student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, qualifying exam Spring 2013.
9. Zicheng Ge, PhD student, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University, qualifying exam fall 2012.

SERVICE AND ACTIVITIES

Conference General Chair:

1. AAS/AIAA Space Flight Mechanics Meeting, Santa Fe, NM, USA, January 2014

Conference Session co-organizer / co-chair:

1. IEEE Aerospace Conference, Session: Space-Based Solar Power Transfer, March 2011, and March 2012.

Conference Session Chair:

1. AIAA/AAS Astrodynamics Specialist Conference, 2-5 August 2010, Toronto, Ontario, Canada, Session # ASC-13: Tracking and Estimation
2. 20th AAS/AIAA Space Flight Mechanics Meeting, February 14-17, 2010, San Diego, California, Session # 4: Atmospheric Re-entry and Lunar Mission Analysis
3. AAS/AIAA Astrodynamics Specialist Conference, Girdwood, Alaska, USA, July 31 - August 4, 2011. Session # 15: Satellite Constellations
4. 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
5. AAS/AIAA Space Flight Mechanics Meeting, Kauai, Hawaii, USA, February 10 - 14, 2013. Session # 21: Rendezvous and Formation Flying
6. AIAA Space and Astronautics Forum and Exposition, San Diego, CA, USA, August 4 - 7, 2014. Session # 21: Rendezvous and Formation Flying
7. AAS/AIAA Astrodynamics Specialist Conference, Vail, CO, USA, August 9-13, 2015. Session: Astrodynamics-1.

Technical Program Committee Member of the International Conference on Recent Developments in Control, Automation and Power Engineering (RDCAPE 2015), <http://rdcape.com/>, 12-13 March 2015, Noida (UP) India

Technical Committee Member:

Astrodynamics Technical Committee, American Institute of Aeronautics and Astronautics (AIAA), 2009 - current. Duties:

- ✓ Best paper award committee, chair. February 2013-current
- ✓ Educational Point Of Contact, 2009-current

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

Participated in three editions of the Global Trajectory Optimization Competition (GTOC)

- GTOC 5, October 2010, <http://mech.math.msu.su/gtoc5/>
- GTOC 6, August 2012, Rank 13
- GTOC 7, May 2014, Rank 20

Book Reviewer

1. Space Mission Engineering: The NewSMAD, *Jim Wertz*, Microcosm.
Chapters reviewed: 1. History of Spaceflight, 9. Orbits and Astrodynamics, 18. Space Mission Geometry, 20.1 American versus international approaches to space logistics and manufacturing

Member of the International Advisory Committee of the International Islamic University in Malaysia (IIUM) Engineering Journal

Journal Reviewer:

1. Journal of Guidance Dynamics and Controls, AIAA
Number of Papers Reviewed: 23
Years: (1 papers) 2014, (2 papers) 2013, (2 papers) 2012 , (4 papers) 2011 , (6 papers) 2010, (3 papers) 2009, (5 papers) 2008
2. Journal of Spacecraft and Rocket, AIAA
Number of Papers Reviewed: 7
Years: (2 papers) 2014, (2 papers) 2013, (2 papers) 2010, (1 paper) 2008
3. IEEE Transactions on Aerospace and Electronic Systems
Number of Papers Reviewed: 10
Years: (1 paper) 2014, (2 paper) 2012, (1 paper) 2010, (2 paper) 2009, (4 papers) 2008, (1 paper) 2007
4. Journal of Astronautical Sciences, AAS
Number of Papers Reviewed: 2
Years: (one paper) 2014, (one paper) 2009
5. Journal of Dynamic Systems, Measurement and Control, ASME
Number of Papers Reviewed: 1
Years: (one paper) 2009
6. Acta Astronautica, Elsevier
Number of Papers Reviewed: 3
Years: (1 papers) 2014, (2 papers) 2013
7. Journal of Aerospace Science and Technology, Elsevier
Number of Papers Reviewed: 4
Years: (2 papers) 2014, (2 papers) 2013
8. Proceedings of the Institution of Mechanical Engineers, Part G, Journal of Aerospace Engineering
Number of Papers Reviewed: 1
Years: (1 papers) 2011, (1 papers) 2012
9. Chinese Journal of Aeronautics
Number of Papers Reviewed: 1
Years: (one paper) 2010
10. IWCMC 2008 Communication and Information Theory Symposium
Number of Papers Reviewed: 1
Years: (one paper) 2008

11. Online Journal of Space Communication
Number of Papers Reviewed: 1
Years: (one paper) 2010
12. Journal of Aerospace Engineering, Sage Publications, UK
Number of Papers Reviewed: 1
Years: (one paper) 2014
13. IIUM Engineering Journal
Number of Papers Reviewed: 1
Years: (one paper) 2011

Committee Member in the Department of Mechanical Engineering-Engineering Mechanics at MTU:

- ✓ Graduate Seminar Committee: September 2007 – August 2011
- ✓ Curriculum Committee: September 2011 – August 2013
- ✓ Computer Committee: September 2010 – August 2011
- ✓ Faculty search committee – Design and Dynamical systems: Spring 2010

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 Michigan Tech 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

Representing Michigan Tech University in the University Space Research Association – Spring 2009 – current

**Faculty Advisor for the Muslim Student Association - Michigan Tech University
Fall 2008 – current**

PUBLICATIONS

Book Chapter

1. **Ossama Abdelkhalik**; “*Implementation Of Kalman Filter For Localization*”, chapter 19 in “*Position Location - Theory, Practice and Advances: A Handbook for Engineers and Academics*,” John Wiley-IEEE Press, 2011.

Book

1. Raed Kafafy and **Ossama Abdelkhalik**; “*Space Mechanics for Engineers*”, 2nd edition, Perpustakaan Negara Malaysia Cataloguing-in-Publication Data, ISBN 978-983-2599-98-2, 2013.

Journal Publications

1. E. Taheri, and **O. Abdelkhalik**, *Fast Initial Trajectory Design for Low-Thrust Restricted-Three Body Problems*. Journal of Guidance, Control, and Dynamics, AIAA, accepted August 2015.
2. 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.I010272.
3. 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.
4. 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.
5. **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.
6. **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.
7. Nicholas Masticola and **Ossama Abdelkhalik**, *Comparison of Relativistic Perturbations on Spacecraft Earth Orbits*, IIUM Engineering Journal, Volume 14, Number 1, 2013.
8. **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.
9. **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.
10. 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.
11. 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.

12. 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.
13. A. 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.
14. 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.
15. **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.
16. **O. Abdelkhalik**. *Initial Orbit Design from Ground Track Points*, Journal of Spacecraft and Rockets, AIAA, Vol. 47, No 1, Jan.-Feb. 2010.
17. A. 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>
18. **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.
19. **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.
20. **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.
21. **O. Abdelkhalik**, B. Nairouz, T. Weaver, B. Newman. *MicroMaps Space Mission Analysis and Design*. Journal of Space Mission Architecture - NASA Jet Propulsion Lab, Fall 2003, pp 61-100.

Journal Publications in review

1. **Ossama Abdelkhalik**, Rush Robinett, and David Wilson, *Control of Wave Energy Converters With Wave Prediction*. Elsevier, Journal of renewable Energy, submitted September 2014.
2. Ehsan Taheri, Ahmed Gad, and **Ossama Abdelkhalik**, *Global Trajectory Planning Using Multi-Phase Optimization Algorithm*. Acta Astronautica, submitted March 2012.
3. **O. Abdelkhalik**, Ahmed Daoud, and Shu Ting Goh. *Dynamic Error Function Evolution Algorithms for History Matching of Oil and Gas Reservoir Models*. Journal of Petroleum Science and Engineering, Elsevier, submitted August 2013.
4. Ehsan Taheri, and **Ossama Abdelkhalik**, *Initial Three-Dimensional Low-Thrust Trajectory Design: A Fourier Series Shape-Based Approach*. Journal of Spacecraft and Rockets, AIAA, submitted September 2014.
5. **Ossama Abdelkhalik** , Rush Robinett , Giorgio Bacelli , Ryan Coe, Diana Bull , David Wilson , and Umesh Korde, *A Dynamic Programming Approach For Control Optimization of Wave Energy Converters*, Springer Journal of Ocean Engineering and Marine Energy, submitted Aug 2015.

6. **Ossama Abdelkhalik** , Rush Robinett , Shu Ting Goh, Giorgio Bacelli , Ryan Coe, Diana Bull , David Wilson , and Umesh Korde, *On The Control Design of Wave Energy Converters With Wave Prediction*, Springer Journal of Ocean Engineering and Marine Energy, submitted Aug 2015.

Conference Proceedings (presenter underlined)

1. 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.
2. Taheri, E., and **Abdelkhalik O.** *Constraint Low-Thrust Trajectory Planning in Three-Body Dynamic Models: Fourier Series Approach*. AIAA Space and Astronautics Forum and Exposition, AIAA-2014-4464, San Diego, CA, August 4-7, 2014.
3. Taheri, E., and **Abdelkhalik O.** *Solar Electric-Powered Low-Thrust Trajectory Optimization Using Genetic Algorithm*. AIAA Space and Astronautics Forum and Exposition, AIAA-2014-4464, San Diego, CA, August 4-7, 2014.
4. Taheri, E., and **Abdelkhalik O.** *Approximation of Constraint Low-Thrust Space Trajectories in three-body dynamic models using Fourier series*. AAS/AIAA Space Flight Mechanics Meeting, AAS 13-251, Kauai, Hawaii, February 10-14, 2013.
5. **O. Abdelkhalik**, Ahmed Daoud, and Shu Ting Goh. *Dynamic Penalty Function Evolution Algorithms for History Matching of Oil and Gas Reservoir Models*. 2012 SPE Kuwait International Petroleum Conference and Exhibition, Society of Petroleum Engineers, SPE-163372-MS, Kuwait City, Kuwait, Dec 10 - 12, 2012.
6. H.M. Nyew, **O. Abdelkhalik**, and N. Onder. *Structured Chromosome Evolutionary Algorithms for Multi-Gravity-Assist Trajectories Optimization*. AAS/AIAA Astrodynamics Specialist Conference, AIAA 2012-4522, Minneapolis, MN, Aug 12 - August 16, 2012.
7. **O. Abdelkhalik**. *Multi-Gravity-Assist Trajectories Optimization: Comparison between the Hidden Genes and the Dynamic-Size Multiple Populations Genetic Algorithms*. AAS/AIAA Astrodynamics Specialist Conference, AAS 11-620, Girdwood, Alaska, July 31 - August 4, 2011.
8. Taheri, E., and **Abdelkhalik O.** *Approximation of Constraint Low-Thrust Space Trajectories using Fourier Series*. AAS/AIAA Astrodynamics Specialist Conference, AAS 11-555, Girdwood, Alaska, July 31 - August 4, 2011.
9. S.A. Zekavat and **O. Abdelkhalik**. *Space-based power grids introduction: Feasibility study*. 2011 IEEE Aerospace Conference, Big Sky, MT, 5-12 March 2011.
10. Lawrence P. Nicastro III, Mohammed A. Azeez, J. Dhainaut, S.N. Gangadharan, C. Subramanian, and **O. Abdelkhalik**, *Hybrid Control System For a Launch Vehicle and Spacecraft Antenna Boom Structure*, 51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, AIAA 2010-2956, 12 - 15 April 2010, Orlando, Florida, USA.
11. **Abdelkhalik O.**, and Gad, A. *Optimal Orbit Design for Regional Coverage Using Genetic Algorithm*. AAS/AIAA Astrodynamics Specialist Conference, AAS 10-205, San Diego, CA, February 14-17, 2010.

12. **Abdelkhalik O.**, and Gad, A. *N-Impulse Interplanetary Orbit Transfer Using Genetic Algorithms with Application to Mars Mission*. AAS/AIAA Astrodynamics Specialist Conference, AAS 10-167, San Diego, CA, February 14-17, 2010.
13. **Abdelkhalik, O.**, and Gad, A. *Initial Orbit Design for Regional Coverage*. AAS/AIAA Astrodynamics Specialist Conference, AAS 09-303, Pittsburgh, PA, August 9-13, 2009
14. Gad, A., and **Abdelkhalik, O.** *Repeated Shadow Track Orbits*. AAS/AIAA Astrodynamics Specialist Conference, AAS 09-434, Pittsburgh, PA, August 9-13, 2009.
15. Zekavat, S.R., **Abdelkhalik, O.**, and Fuhrmann, D. *Wireless Solar Power Transfer via Distributed LEO Satellites*. The National workshop on New Research Directions for Future Cyber-Physical Energy Systems, Baltimore, MD, June 3, 4, 2009
16. Goh, S.T., **Abdelkhalik, O.**, and Zekavat, S.R. *Spacecraft Constellation Orbit Estimation Via a Novel Wireless Positioning System*. 19th AAS/AIAA Space flight Mechanics Meeting, Savannah, GA, AAS 09-116, February 8-12, 2009.
17. Farahat, A. and Abdelkhalik, O., *On The Optimal Estimation Of Dynamic Systems*. F. Landis Markley Astronautics Symposium, AAS 08-304, AAS, MD, USA, July 2008.
18. Zekavat, S.R., **Abdelkhalik, O.**, Tong, H. *Wireless Local Positioning Systems with Applications in Aircraft Relative Positioning and Spacecraft Constellations Navigation*. ICNS Conference, MD, 5-7 May 2008.
19. O. Abdelkhalik, D. Mortari. *Space Surveillance Using Star Trackers, Orbit Estimation*. 16th AAS/AIAA Space flight Mechanics Meeting, AAS 06-232, Tampa, FL, January 22-26, 2006.
20. **O. Abdelkhalik**, T. Alberts. *Interval Control of Formations in Eccentric Orbits*. 14th AAS/AIAA Space flight Mechanics Meeting, Maui, Hawaii, February 8-12, 2004.
21. **O. Abdelkhalik**, D. Mortari. *Satellite Constellation Design for Earth Observation*. 15th AAS/AIAA Space flight Mechanics Meeting, Copper Mountain, Colorado, January 23-27, 2005.
22. **O. Abdelkhalik**, D. Mortari. *The Two-Way Orbits Set*. IEEE Aerospace Conference, Big sky, MT, March 5-12, 2005.
23. **O. Abdelkhalik**, D. Mortari, *Reconnaissance Problem Using Genetic Algorithms*. 15th AAS/AIAA Space flight Mechanics Meeting, Copper Mountain, Colorado, January 23-27, 2005.
24. D. Mortari, **O. Abdelkhalik**, C. Bruccoleri. *Relative Flower Constellation with applications for Planetary Exploration*. 15th AAS/AIAA Space flight Mechanics Meeting, Copper Mountain, Colorado, January 23-27, 2005.
25. S. Hassan, M. Argoun, M. Bayoumi, and **O. Abdelkhalik**. *Remote Sensing Satellites Orbits Control*. The Technical Military Academy Conference, Egypt in May 2001.
26. P. Bianco, L. De Rocco, **O. Abdelkhalik**. *Orbit Control of MITA-class satellites with FEEP electric propulsion system*. S5a.4, Proceedings of the 5th International Symposium "Small Satellites Systems and Services", France, 2000.

27. S. T. Goh, **O. Abdelkhalik** and S.R. Zekavat, *Differential Geometric Estimation For Spacecraft Formations Orbits via a Novel Wireless Positioning System*, IEEE Aerospace Conference, March 6-13, 2010, Big Sky, Montana
28. S. T. Goh, C. Passarello, and **O. Abdelkhalik**, *Spacecraft Relative Attitude Determination*, IEEE Aerospace Conference, March 6-13, 2010, Big Sky, Montana
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