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EDUCATION

August 2013 Ph.D.	Texas A&M University, College Station, Tx., USA Aerospace Engineering (4.0/4.0)
August 2009 MSc.	University of Dayton, Dayton, Oh., USA Aerospace Engineering (4.0/4.0)
February 2003 B.Sc.	Jordan University of Science and Technology, Jordan Mechanical Engineering (honored 84.9%)

TEACHING POSITIONS

Fall 2021 – present San Diego State University	Associate Professor Aerospace Engineering
Spring 2018 – Spring 2021 San Diego State University	Assistant Professor Aerospace Engineering
Fall 2013 – Fall 2017 Khalifa University	Assistant Professor Aerospace Engineering
Spring 2018 – Fall 2018 Khalifa University	Adjunct Assistant Professor Aerospace Engineering
Spring 2014 – Present Texas A&M University	Adjunct Assistant Professor Aerospace Engineering

Books

1. Bani Younes A., Flowfield Surrounding Small Photodriven Flapping Wings, VDM Verlag, Feb. 2010. ISBN-13: 9783639234640
2. Mortari D. and Bani Younes A., Stars Navigation, (*in preparation*).
3. Junkins J., Bani Younes A., and Bai X. Orthogonal Polynomials, Approximation Methods, and Solving the Differential Equations of Nonlinear Dynamical Systems, (*in preparation*).

Refereed Journal Articles

1. [under-review] Atallah A. and Bani Younes A., "Parallel Evaluation of Chebyshev Polynomials: Applications in Astrodynamics," Journal of the Astronautical Sciences, 2020.
2. [under-review] Atallah A., Bani Younes A., Woollands R. and Junkins J., "Analytical Radial Adaptive Method for Spherical Harmonics Gravity Models," Journal of the Astronautical Sciences, 2020.
3. [under-review] Garibeh M., Alshorman A., Jaradat M., Bani Younes A., and Khalil M., "Motion Planning of Unmanned Aerial Vehicles in Dynamic 3D-Space: A Potential Force Approach," IEEE systems Journal, 2020.
4. Garcia J. and Bani Younes A., "Real-time Navigation for Drogue-Type Autonomous Aerial Refueling Using Vision-Based Deep Learning Detection," IEEE Transactions on Aerospace and Electronic Systems, vol. 57, no. 4, pp. 2225-2246, Aug. 2021, doi: 10.1109/TAES.2021.3061807. **[IMPACT FACTOR: 3.672, Q-RANK: Q1]**
5. Stanfield K. and Bani Younes A., "Dual-Quaternion Analytic LQR Control Design for Spacecraft Proximity Operations," Sensors 2021, 21(11), 3597; <https://doi.org/10.3390/s21113597>. **[IMPACT FACTOR: 3.275, Q-RANK: Q1]**
6. Hatamleh K., Jaradat M., Bani Younes A., Al-Shabi M., and Hafez O., "Quasi-Continuous Second Order Sliding Mode Control of RR Manipulator with Noisy Measurement & Modelling Uncertainties," Journal of Intelligent & Robotic Systems, 2021. **[IMPACT FACTOR: 2.259, Q-RANK: Q1]**.
7. Fares A. and Bani Younes A., "Online Reinforcement Learning-based Control of Active Suspension System Using Actor Critic Approach," Applied Sciences 10(22), 2021. **[IMPACT FACTOR: 2.474, Q-RANK: Q1]**.
8. Bani Younes A. and Hassan Z., "COVID-19: Modeling, Prediction and Control," Applied Sciences 10(11), 2020. (<https://doi.org/10.3390/app10113666>). **[IMPACT FACTOR: 2.474, Q-RANK: Q1]**
9. Bani Younes A. and Mortari D., "Derivation of all Attitude Error Governing Equations for Attitude Filtering and Control," Sensors 19(21), 2019, (doi: 10.3390/s19214682). **[IMPACT FACTOR: 3.275, Q-RANK: Q1]**
10. Younes H., Shoaib N., Rahman M., Al-Rub R., Hong H., Christensen G., Chen H., Bani Younes A., Al Ghaferi A., "Thin carbon nanostructure mat with high electromagnetic interference shielding performance" Journal Synthetic Metals, Volume 253, 2019, pp 48–56. **[IMPACT FACTOR: 3.285, Q-RANK: Q1]**
11. Bani Younes A., "Exact Computation of High-Order State Transition Tensors for Perturbed Orbital Motion," Journal of Guidance, Control, and Dynamics (AIAA), Vol. 42, No. 6, 2019. **[IMPACT FACTOR: 2.061, Q-RANK: Q1]**
12. Alhulayil M., Bani Younes A. and Turner J., "Higher Order Algorithm For Solving Lambert's Problem," Journal of the Astronautical Sciences, Volume 65, Issue 4, pp 400–422, 2018. **[IMPACT FACTOR: 2.775, Q-RANK: Q1]**
13. Saeed A., Bani Younes A., Cai C., Cai C., "A survey of hybrid Unmanned Aerial Vehicles," Progress in Aerospace Sciences, Volume 98, 2018, pp. 91-105. (doi: <https://doi.org/10.1016/j.paerosci.2018.03.007>). **[IMPACT FACTOR: 8.940, Q-RANK: Q1]**
14. Alshawaqfeh M., Serpedin E., Younes A., "Inferring microbial interaction networks from metagenomic data using SgLV-EKF algorithm," BMC Genomics. 2017, 18 (Suppl 3), 228. (doi:10.1186/s12864-017-3605-x). **[IMPACT FACTOR: 3.730, Q-RANK: Q1]**
15. Bani Younes A. and Turner J., "Derivative Enhanced Optimal Feedback Control Using Computational Differentiation," International Journal of Applied & Experimental Mathematics, Volume 1. 2016. 112 (doi: <http://dx.doi.org/10.15344/ijaem/2016/112>).
16. Junkins, J. L., Bani Younes, A., Woollands, R., and Bai, X., "Efficient and Adaptive Orthogonal Finite Element Representation of the Geopotential," Journal of the Astronautical Sciences, 2017. Pp.1-38. (doi: 10.1007/s40295-016-0111-3). **[IMPACT FACTOR: 2.775, Q-RANK: Q1]**

17. Bani Younes A., and Turner J., "Semi-Analytic Probability Density Function for System Uncertainty," ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering, Vol. 2, Issue 4, RISK-16-1041, 2016, (doi: 10.1115/1.4033886). **[IMPACT FACTOR: 1.22, Q-RANK: Q2]**
18. Read J., Bani Younes A., and Junkins J., "Efficient Orbit Propagation of Orbital Elements Using Modified Chebyshev Picard Iteration Method," Journal of Computer Modeling in Engineering and Sciences (CMES): Special Issue on Computational Methods in Astrodynamics, Vol. 111, No. 1: pp. 65-81, 2016. **[IMPACT FACTOR: 0.805, Q-RANK: Q3]**
19. Turner J., Alnaqeb A., and Bani Younes A., "Continued Fraction Cartesian to Geodetic Coordinate Transformation," Journal of Computer Modeling in Engineering and Sciences (CMES): Special Issue on Computational Methods in Astrodynamics, Vol. 111, No. 3: pp. 257-267, 2016. **[IMPACT FACTOR: 0.805, Q-RANK: Q3]**
20. Woollands, R., Bani Younes A. and Junkins, J. L., "New Solutions for Lambert's Problem Utilizing Regularization and Picard Iteration," Journal of Guidance, Control, and Dynamics (AIAA), Vol. 38, No. 9 : pp. 1548-1562, September 2015, (doi: 10.2514/1.G001028). **[IMPACT FACTOR: 2.061, Q-RANK: Q1]**
21. Read J., Bani Younes A., Macomber B., Junkins, J. L. and Turner J., "State Transition Matrix for Perturbed Orbital Motion using Modified Chebyshev Picard Iteration," Journal of the Astronautical Sciences, Vol. 62, No. 2: pp. 148-167, June 2015, (doi: 10.1007/s40295-015-0051-3). **[IMPACT FACTOR: 2.775, Q-RANK: Q1]**
22. Bani Younes A., Mortari, D., Turner J. D., and Junkins, J. L., "Attitude Error Kinematics," Journal of Guidance, Control, and Dynamics (AIAA), Vol. 37, No. 1, pp. 330-336, June 2014, (doi: 10.2514/1.60928). **[IMPACT FACTOR: 2.061, Q-RANK: Q1]**
23. Junkins, J. L., Bani Younes, A., Woollands, R., and Bai, X., "Picard Iteration, Chebyshev Polynomials and Chebyshev Picard Methods: Application in Astrodynamics," Journal of the Astronautical Sciences, Vol. 60, No. 3: pp. 623-653, December 2013. **[IMPACT FACTOR: 2.775, Q-RANK: Q1]**
24. Bani Younes A., and Turner J. D., "Generalized Algorithms for Least Squares Optimization for Nonlinear Observation Models and Newton's Method," Journal of the Astronautical Sciences, Vol. 60, No. 3: pp. 517-540, December 2013. **[IMPACT FACTOR: 2.775, Q-RANK: Q1]**
25. Hasan Z. and Bani Younes A., "Analyzing Nonlinear Flexible Structures using Perturbation Approach," ASME Early Career Technical Journal, Vol. 9. No. 13, pp. 96-104, 2010.

Note: journal articles #1, 2, 3, 5, 6, 12, 13, 18, 20, and 21 are with my graduate students.

Invited Talks

1. "Computational Methods and Ground-Based Experiments for Space Operations," University of California San Diego, San Diego, California, USA, April 19th, 2019.
2. "Ground-Based Experiments for Space Operations," University of Nevada Las Vegas, Las Vegas, Nevada, USA, February 28th, 2019.
3. "High Performance Computational Differentiation Algorithms for Generalized Optimization Applications," Computational Science Research Center (CSRC), San Diego, California, March 2nd 2018.
4. "Computational Methods and Ground-Based Experiments for Space Operations," German--Jordanian University (GJU), Amman, Jordan, August 13th 2017.
5. "Unmanned Aerial System for Low Atmosphere Planetary Exploration," Mohammed Bin Rashid Space Centre, Dubai, UAE, March 21st, 2017.
6. "Modelling, Estimation & Control of Dynamics Systems," Tawazen Dynamics, Abu Dhabi, UAE, March 16th, 2017.
7. "Computational Methods and Ground-Based Experiments for Space Operations," San Diego State University, San Diego, California, USA, February 6th, 2017.
8. "Computational Methods and Ground-Based Experiments for Space Operations," Auburn University, Auburn, Alabama, USA, February 10th, 2017.
9. "Risk-Reduction & Ground-Based Experimentations for Spacecraft Emulation," Global Space Congress, Abu Dhabi, UAE, January 31st, 2017.

10. "Robotics-Based Experimentation to Demonstrate and Emulate Spacecraft Maneuvers," 2nd Joint UAE Symposium on Social Robotics, Abu Dhabi, UAE, November 23th, 2016.
11. "Risk Reduction Ground-Based Experiments for Space Operations," American University of Sharjah, Sharjah, UAE, November 17th, 2016.
12. "Risk Reduction Ground-Based Technology to Emulate Exploring Missions," 4th Arab-American Frontiers of Science, Engineering, and Medicine symposium, Abu Dhabi, UAE, November 7th, 2016.
13. "Risk Reduction Ground-Based Experiments for Space Operations," University of Sharjah, Sharjah, UAE, October 30th, 2016.

Conference Articles

1. Baily A., Bani Younes A., and Ramadan M, "Spacecraft Attitude Testbed," 2020 AAS/AIAA Astrodynamics Specialist Conference, AAS 20-701, Lake Tahoe, CA, September 2020.
2. Juarez A., Bani Younes A., Atallah A., and Woollands R., "Model Predictive Control Solver Using Chebyshev Picard Method," 2020 AAS/AIAA Astrodynamics Specialist Conference, AAS 20-732, Lake Tahoe, CA, September 2020.
3. Atallah A. and Bani Younes A., "Parallel Finite Element Gravity Model," 2020 AIAA SciTech Forum, Orlando, FL, January 2020.
4. Stanfield K. and Bani Younes A., "Dual Quaternions for Perturbed Spacecraft Motion: Applications in Proximity Operations," 2020 AIAA SciTech Forum, Orlando, FL, January 2020.
5. Atallah A. and Bani Younes A., "Parallel Finite Element Gravity Model," 2020 AIAA SciTech Forum, Orlando, FL, January 2020.
6. Atallah A. and Bani Younes A., "Parallel Chebyshev Picard Method," 2020 AIAA SciTech Forum, Orlando, FL, January 2020.
7. Fares A. and Bani Younes., "Modelling and Simulation of the ADCS Subsystem for JY1-SAT," 2019 AAS/AIAA Astrodynamics Specialist Conference, AAS 19-607, Portland, ME, August 2019.
8. Ramadan M. and Bani Younes A., "Adaptive Control by Reinforcement Learning for Spacecraft Attitude Control" 29th AAS/AIAA Space Flight Mechanics Meeting, AAS 19-537, Kaanapali, Hi, January 2019.
9. Atallah A., Bani Younes A., Woollands R., and Junkins J., "Analytical Radial Adaptive Method for Spherical Harmonics Gravity Models" 29th AAS/AIAA Space Flight Mechanics Meeting, AAS 19-544, Kaanapali, Hi, January 2019 (received J. Breakwell award).
10. Ramadan M. and Bani Younes A., "Robust-Straightforward Acoustic Event Detection & Localization Algorithm for Robotics Applications," AIAA SciTech 2019 Forum, AIAA 2019-2046, San Diego, Ca, January 2019
11. Atallah A., and Bani Younes A., "Parallel Integration of Perturbed Orbital Motion," AIAA SciTech 2019 Forum, AIAA 2019-0059, San Diego, Ca, January 2019.
12. Alhulayil M., Bani Younes A., and Turner J., "Fast P-Iteration for Lambert's Problem" John L. Junkins Dynamical Systems Symposium, College Station. TX., May 2018.
13. Alhulayil M., Bani Younes A., and Turner J., "Orbit Determination of Perturbed Satellite Motion" John L. Junkins Dynamical Systems Symposium, College Station. TX., May 2018.
14. Atallah A., Woollands R., Bani Younes A., and Junkins J., "Tuning Orthogonal Polynomial Degree and Segment Interval Length to Achieve Prescribed Precision Approximation of Irregular Functions" 2018 Space Flight Mechanics Meeting, AIAA SciTech Forum, (AIAA 2018-2225).
15. Alkhoori F., Zweiri Y., Bani Younes A., Taha T. and Seneviratne L., "Fault tolerance control for quad-rotor UAV using gain-scheduling in Matlab/Gazebo," 2017 4th International Conference on Systems and Informatics (ICSAI), Hangzhou, 2017, pp. 104-109. doi: 10.1109/ICSAI.2017.8248272
16. Bani Younes A., Alhulayil M. and Turner J., "Efficient Uncertainty Propagation of Perturbed Satellite Motion" 27th AAS/AIAA Space Flight Mechanics Meeting, AAS 17-266, San Antonio, Tx., February 2017.
17. Alhulayil M., Bani Younes A. and Turner J., "Higher-Order Differential Correction Solver for Perturbed Lambert Problem" 27th AAS/AIAA Space Flight Mechanics Meeting, AAS 17-421, San Antonio, Tx., February 2017.
18. Alhulayil M., Bani Younes A. and Turner J. D., "Satellite attitude estimation in a novel operational environment," 2016 IEEE 59th International Midwest Symposium on Circuits and Systems (MWSCAS), Abu Dhabi, 2016, pp. 1-4. doi: 10.1109/MWSCAS.2016.7870115

19. Alshawaqfeh M., Bani Younes A. and Serpedin E., "Inferring Microbial Interaction Networks from Metagenomic Data Using SgLV-EKF Algorithm," The Third International Workshop on Computational Network Biology: Modeling, Analysis, and Control (CNB-MAC 2016), Seattle, WA, October 2016.
20. Bani Younes A. and Mortari D., "Attitude Error Kinematics: Applications in Control," 26thAAS/AIAA Space Flight Mechanics Meeting, AAS 16-429, Napa, Ca, February 2016.
21. Bani Younes A. and Mortari D., "Attitude Error Kinematics: Applications in Estimation," 26thAAS/AIAA Space Flight Mechanics Meeting, AAS 16-458, Napa, Ca, February 2016.
22. Bani Younes A. and Junkins J., "An Adaptive Approach for Modified Chebyshev Picard Iteration," 26thAAS/AIAA Space Flight Mechanics Meeting, AAS 16-427, Napa, Ca, February 2016.
23. Bani Younes A. and Turner J., "High-Order State Transition Tensors of Perturbed Orbital Motion using Computational Differentiation," 26thAAS/AIAA Space Flight Mechanics Meeting, AAS 16-342, Napa, Ca, February 2016.
24. Turner J. and Bani Younes A., "High-Order State Transition Tensors of Perturbed Orbital Motion using Computational Differentiation," 26thAAS/AIAA Space Flight Mechanics Meeting, AAS 16-431, Napa, Ca, February 2016.
25. Bani Younes A. and Turner J. "Feedback Control Sensitivity Calculations Using Computational Differentiation," Proceedings of the ASME 2015 International Mechanical Engineering Technical Congress and Exposition, IMECE2015-51439, Houston, Texas, USA, November 13-19, 2015.
26. Bani Younes A. and Turner J. "System Uncertainty Propagation Using Automatic Differentiation," Proceedings of the ASME 2015 International Mechanical Engineering Technical Congress and Exposition, IMECE2015-51412, Houston, Texas, USA, November 13-19, 2015.
27. Woollands R., Read J., Macomber B., Probe P., Bani Younes A., and Junkins J., "Parallel Generation of External Field Maps for Optimal Multi-Revolution Continuous Thrust Orbit Transfers," AAS/AIAA Astrodynamics Specialist Conference, AAS 15-791, Vail, CO, Aug. 9-13, 2015, (received J. Breakwell award).
28. Alhulayil, M., Bani Younes, A. and Turner, J.D., "Exploiting Sparsity in Tensor-Based Computational Differentiation Algorithms," AAS/AIAA Astrodynamics Specialist Conference, AAS 15-701, Vail, CO, Aug. 9-13, 2015.
29. Alhulayil, M., Bani Younes, A. and Turner, J.D., "Exploiting Symmetry in High-Order Tensor-Based Series Expansion Algorithms," AAS/AIAA Astrodynamics Specialist Conference, AAS 15-702, Vail, CO, Aug. 9-13, 2015.
30. Turner, J.D., Alnaqeb, A., and Bani Younes, A., "Meridian ellipse continued Fraction Cartesian to Geodetic Transformation," AAS/AIAA Astrodynamics Specialist Conference, AAS 15-515, Vail, CO, Aug. 9-13, 2015
31. Turner, J.D., Alnaqeb, A., and Bani Younes, A., "Trajectory and State Transition Matrix Analytic Continuation Algorithms," AAS/AIAA Astrodynamics Specialist Conference, AAS 15-516, Vail, CO, Aug. 9-13, 2015.
32. Turner, J.D., Alnaqeb, A., and Bani Younes, A., "Model-Based Analytic continuation Propagation Variables for Two-Body Applications," Special Symposium on Computational Methods in Celestial Mechanics, International conference on Computational & Experimental Engineering and Sciences (ICCES), Reno, NV, July 20-24, 2015.
33. Read J., Bani Younes A., and Junkins J. "Efficient Orbit Propagation of Orbital Elements Using Modified Chebyshev Picard Iteration Method," Special Symposium on Computational Methods in Celestial Mechanics, International conference on Computational & Experimental Engineering and Sciences (ICCES), Reno, NV, July 20-24, 2015.
34. Turner, J.D., Alnaqeb, A., and Bani Younes, A., "Continued Fraction Cartesian to Geodetic Coordinate Transformation," Special Symposium on Computational Methods in Celestial Mechanics, International conference on Computational & Experimental Engineering and Sciences (ICCES), Reno, NV, July 20-24, 2015.
35. Saeed, A.S., Bani Younes, A., Islam, S., Dias, J., Seneviratne, L., and Cai, G., "A review on the platform design, dynamic modeling and control of hybrid UAVs," 2015 International Conference on Unmanned Aircraft Systems (ICUAS), Denver, CO, pp.806-815, 9-12 June 2015. (doi: 10.1109/ICUAS.2015.7152365)
36. Woollands R., Bani Younes A., Macomber B., Bai X. and Junkins J., "Optimal Continuous Thrust Maneuvers for Solving 3D Orbit Transfer Problems," 38th Annual AAS Guidance & Control Conference, AAS 15-082, Breckenridge, CO, January 30 - February 4, 2015.

37. Read J., Junkins J. and Bani Younes A., "State Transition Matrix Propagation for Perturbed Orbital Motion Using Modified Chebyshev Picard Iteration," 38th Annual AAS Guidance & Control Conference, AAS 15-008, Breckenridge, CO, January 30 - February 4, 2015.
38. Woollands R., Read J., Macomber B., Probe A., Bani Younes A. and Junkins, J. L., "Method of Particular Solutions and Kustaanheemi-Stiefel Regularized Picard Iteration for Solving Two-Point Boundary Value Problems," 25th AAS/AIAA Space Flight Mechanics Meeting, AAS 15-373, Williamsburg, VA, January 2015.
39. Bani Younes A. and Turner J. "An Analytic Continuation Method to Integrate Constrained Multi-Body Systems," Proceedings of the ASME 2014 International Mechanical Engineering Technical Congress and Exposition, IMECE2014-37809, Montreal, Quebec, Canada, November 14-20, 2014.
40. Macomber B., Woollands R., Probe A., Bani Younes A., Junkins, J. L. and Bai X., "Modified Chebyshev Picard Iteration for Efficient Numerical Integration of Ordinary Differential Equations," Advance Maui Optical and Space Surveillance Technologies Conference, Maui, Hawaii, September 2014.
41. Woollands R., Bani Younes A., Macomber B., Probe A., Kim D., Junkins, J. L. and Bai X., "Validation of Accuracy and Efficiency of Long-Arc Orbit Propagation Using the Method of Manufactured Solutions and the Round-Trip-Closure Method," Advance Maui Optical and Space Surveillance Technologies Conference, Maui, Hawaii, September 2014.
42. Alazzam A., Stiharu I., Khashan S., Nerguizian V., and Bani Younes A., "Deregulated genes by separation of living cells using dielectrophoresis," 20th International Symposium on Separation Science, ISSS 2014, Prague, Czech Republic, Aug 30- Sept 2, 2014.
43. Kim D., Junkins, J. L., Turner J. and Bani Younes A., "Multi-Segment Adaptive Modified Chebyshev Picard Iteration Method," The 2014 AAS/AIAA Astrodynamics Specialist Conference, AAS 14-232, Santa Fe, New Mexico, January 2014.
44. Woollands R., Junkins, J. L. and Bani Younes A., "A New Solution for the Generalized Lambert's Problem," 37th Annual AAS Guidance & Control Conference, AAS 13-017, Breckenridge, Colorado. February 2014, Astronautical Sciences Guidance, Navigation and Control Vol. 151, January 2014.
45. Bani Younes A., Macomber B., Woollands R., Probe A., Bai X., and Junkins, J. L., "Fast Gravitational Field Model using Adaptive Orthogonal Finite Element Approximation," Advance Maui Optical and Space Surveillance Technologies Conference, Maui, Hawaii, September 2013.
46. Macomber B., Woollands R., Probe A., Bani Younes A., Bai X., and Junkins, J. L., "Modified Chebyshev Picard Iteration for Efficient Numerical Integration of Ordinary Differential Equation," Advance Maui Optical and Space Surveillance Technologies Conference, Maui, Hawaii, September 2013.
47. Bani Younes A., Turner J. D., and Junkins, J. L., "Application of High-Order STTS Uncertainty Propagation on Perturbed Two-body Problem," The 2013 AAS/AIAA Astrodynamics Specialist Conference, AAS 13-868, Hilton Head, South Carolina, August 2013.
48. Bani Younes A., and Turner J. D., "Analytic High-Order Reversion of Series Solution for Solving Lambert's Problem," The 2013 AAS/AIAA Astrodynamics Specialist Conference, AAS 13-790, Hilton Head, South Carolina, August 2013.
49. Bani Younes A., and Turner J. D., "Enhanced Optimal Control for Uncertain Spacecraft Tracking Problem," Annual Technology Symposium 2013, Houston, TX, May 17, 2013.
50. Bani Younes A., and Turner J. D., "Attitude Error Kinematics: Applications in Optimal Control of Dynamical Systems," Annual Technology Symposium 2013, Houston, TX, May 17, 2013.
51. Bani Younes A., Turner J. D., and Junkins, J. L., "A Generic Optimal Control Tracking Solution for Various Attitude Error Parameterizations," 23rd AAS/AIAA Space Flight Mechanics Meeting, AAS 13-287, Lihue, Kauai, Hawaii, February 2013.
52. Turner J. D., and Bani Younes A., "On the Expected Value of Sensed Data," 23rd AAS/AIAA Space Flight Mechanics Meeting, AAS 13-377, Lihue, Kauai, Hawaii, February 2013.
53. Bani Younes A., Turner J. D., and Junkins, J. L., "Higher-Order Optimal Tracking Feedback Gain Sensitivity Calculations: Using Computational Differentiation," 36th ANNUAL AAS GUIDANCE & CONTROL CONFERENCE, AAS 13-017, Breckenridge, Colorado. February 2013.
54. Bani Younes A., Turner J. D., Mortari, D., and Junkins, J. L., "A Survey of Attitude Error Representations," AIAA GNC/AFM/MST/ASC 2012 Conference, AIAA 2012-4422, Minneapolis, Minnesota. 13 - 16 August 2012.

55. Bani Younes A., Turner J. D., Majji, M., and Junkins, J. L., "High-Order Uncertainty Propagation enabled by Computational Differentiation," *Recent Advances in Algorithmic Differentiation, Lecture Notes in Computational Science and Engineering Volume 87*, 2012, pp. 251-260.
56. Turner J. D., Bani Younes A., and Junkins, J. L., "Generalized Least Squares Optimization for Nonlinear Observation Models," *6th International Conference on Automatic Differentiation*, Fort Collins, CO, July 23 - 27, 2012.
57. Turner J. D., and Bani Younes A., "Numerical Integration of Constrained Multi-Body Dynamical Systems Using 5th Order Exact Analytic Continuation Algorithm," *6th International Conference on Automatic Differentiation*, Fort Collins, CO, July 23 - 27, 2012.
58. Bani Younes A., and Turner J. D., "Generalized Algorithms for Least Squares Optimization for Nonlinear Observation Models and Newton's Method," *AAS 12-626, Jer-Nan Juang Astrodynamics Symposium*, College Station, TX, June 14-26, 2012.
59. Bani Younes A., Turner J., Majji, M., and Junkins, L., "High-Order Uncertainty Propagation Using State Transition Tensor Series," *AAS 12-636, Jer-Nan Juang Astrodynamics Symposium*, College Station, TX, June 14-26, 2012.
60. Bani Younes A., and Turner J. D., "Numerical Integration of Constrained Multi-body Dynamics using 5th order Exact Analytic Continuation Algorithm," *AAS 12-638, Jer-Nan Juang Astrodynamics Symposium*, College Station, TX, June 14-26, 2012.
61. Bani Younes A., Turner J., Majji, M., and Junkins, L., "High-Order State Feedback Gain Sensitivity Calculations: Using Computational Differentiation," *AAS 12-637, Jer-Nan Juang Astrodynamics Symposium*, College Station, TX, June 14-26, 2012.
62. Turner J. D., and Bani Younes A., "On the Integration of m-dimensional Expectation Operators," *AAS 12-641, Jer-Nan Juang Astrodynamics Symposium*, College Station, TX, June 14-26, 2012.
63. Junkins L. J., Bani Younes A. H., Woollands, R., and Bai, X., "Orthogonal Polynomial Approximation in Higher Dimensions: Applications in Astrodynamics," *AAS 12-634, Jer-Nan Juang Astrodynamics Symposium*, College Station, TX, June 14-26, 2012.
64. Bani Younes A. H., Turner J. D., and Junkins, J. L., "Optimal Linear Attitude and Position Estimator Implementation on a Two-Linear Detector Camera," *Annual Technology Symposium 2012*, Houston, TX, May 18, 2012.
65. Bani Younes A. H., Turner J. D., and Junkins, J. L., "High-Order Liouville Approximation Using State Transition Tensor Series," *Annual Technology Symposium 2012*, Houston, TX, May 18, 2012.
66. Turner J. D., and Bani Younes A. H., "On the Integration of m-Dimensional Expectation Operators," *Annual Technology Symposium 2012*, Houston, TX, May 18, 2012.
67. Bani Younes A., Turner J., Majji, M., and Junkins, L., "Nonlinear Tracking Control of Maneuvering Rigid Spacecraft," *21st AAS/AIAA Space Flight Mechanics Meeting*, New Orleans, AAS 11-168, LA, 13-17 Feb., 2011.
68. Hasan, Z., Atmeh, G., and Bani Younes, A., "Controlling Performance of a Smart Bridge Design," *The International Conference on Sustainable Design and Construction*, Kansas City, Mo., 2011.
69. Bani Younes A. H., Turner J. D., Majji, M., and Junkins, J. L., "An Investigation of State Feedback Gain Sensitivity Calculations," *AIAA/AAS Astrodynamics Specialist Conference*, AIAA-2010-8274, Toronto, Canada, 2-5 Aug., 2010.
70. Bani Younes A., and Altman A., "PIV Investigation of Reynolds Number ~200 Photodriven Flapping Wings in Air," *48th AIAA Aerospace Science Meeting Including the New Horizons Forum and Aerospace Exposition*, AIAA-2010-1032. Orlando, FL, Jan. 4-7, 2010.
71. Bani Younes A., and Altman A., "Experimental Investigation of the Flow Field Surrounding a Photodriven Flapping Wing," *AIAA Regional III students conference at University of Illinois, Urbana-Champaign, IL*, April 4-5, 2009.
72. Bani Younes A., and Altman A., "Experimental Investigation of the Flow Field Surrounding a Photodriven Flapping Wing," *34th AIAA Annual Dayton-Cincinnati Aerospace Science Symposium*, Dayton, OH, March 3rd, 2009.

Book Reviews

1. "Elements of Space Launch-Vehicle Design," Springer, 2019.

Scholarly Awards

1. John V. Breakwell award (co-authored with my JDP student), Spring 2019.
2. Chief Expert Certificate for Drone: Build and Fly, WorldSkills Competition, Spring 2017.
3. Khalifa University Employee Award for Outstanding Service, Fall 2016.
4. Chief Expert Certificate for Drone: Build and Fly, EmiratesSkills National Competition, Spring 2015.
5. Recognition Certificate for representing KU in EmiratesSkills National Competition, Spring 2015.
6. John V. Breakwell award (co-authored with my co-advisee PhD student @TAMU), Spring 2015.
7. Recognition Certificate for best advising Matlab Club, Khalifa University, Spring 2014.
8. Best Paper Award, 37th AAS GNC conference, Spring 2014.
9. SIAM Travel Award, Automatic Differentiation AD2012, Summer 2012.
10. Best Paper Award, ICSDEC 2012, Spring 2012.
11. Graduate Teaching Academy (GTA) Travel Award, Texas A&M University, Spring 2012.
12. Graduate Teaching Academy (GTA) Senior Fellowship, Texas A&M University, Spring 2012.
13. Graduate Teaching Academy (GTA) Fellowship, Texas A&M University, Spring 2011.

Funded Research Grants

1. \$100,000 – Space Micro Inc, PI, 02/15/2021 – 12/30/2021.
2. \$10,884 – Khalifa University Competitive Internal Research Award (CIRA), PI, 01/01/2019 – 06/30/2021.
3. \$22,000 – NASA JPL R&TD Innovative Spontaneous Concept Proposal, PI, 06/03/2019 – 09/15/2019.
4. \$1,000 – John V. Breakwell award, PI, 01/01/2019 – 02/01/2019
5. \$65,000 – Texas A&M Engineering Experiment Station (TEES), PI, 07/01/2018 – 09/30/2019.
6. \$110,000 – Abu Dhabi Award for Research Excellence (AARE), Co-PI, 01/01/2016 – 12/31/2017.
7. \$55,000 – Khalifa University Internal Research Fund Program (KURF I), PI, 01/01/2016 – 12/31/2017.
8. \$350,000 – Khalifa University Internal Fund for SPACE lab development, PI, 01/01/2014 – 12/31/2017.

Grants Submitted

1. \$300,517 – (AFSOL): Higher-Order Methods for Space Domain Awareness in the XGEO Regime , Co-PI, 10/01/2022 – 03/31/2026.
2. \$50,000 – Department of The Air Force (AF), Co-PI, 10/01/2021 – 03/31/2022.
3. \$264,501 – Center for Resilient Autonomous Future Transportation (CRAFT), Co-PI, 01/01/2021 – 12/31/2022.
4. \$49,790 – US Department of Defense, PI, 06/01/2020 – 12/31/2020.
5. \$14,000 – Abu Dhabi Award for Research Excellence (AARE), PI, 01/01/2020 – 12/31/2022.
6. \$68,027 – Khalifa University has awarded a Competitive Internal Research Award (CIRA), PI, 07/01/2020 – 06/30/2023.
7. \$1,496,000 - Federal Emergency Management Administration, PI, 07/08/2019 – 06/08/2022.
8. \$22,000 – NASA JPL R&TD Innovative Spontaneous Concept Proposal, PI, 07/08/2019 – 09/30/2019.
9. \$61,999 – NASA JPL STTR with Space Micro, PI, 08/01/2019 – 05/01/2020.

Participation in Professional Associations

1. American Astronautical Society (AAS)
2. American Institute of Aeronautics and Astronautics (AIAA)
3. American Society of Mechanical Engineers (ASME)
4. Association of Former students at Texas A&M University

TEACHING EFFECTIVENESS

Teaching @ San Diego State University (average overall student evaluation: 4.3/5.0)

Spring 21 AE596 Advanced Astrodynamics, San Diego State University
 Fall 20 AE600 Optimal Estimation of Dynamic Systems, San Diego State University
 Spring 19 AE798 Special Topics, San Diego State University.
 Fall 18, 19, 20,21 AE460A Spacecraft Design, San Diego State University.
 Spring 19, 20,21 AE460B Spacecraft Design, San Diego State University.
 Spring 19 AE499 Special Topics, San Diego State University.
 Spring 18, 20 AE 520 Spacecraft Attitude Dynamics and Control, San Diego State University.
 Spring 18 AE798 Special Topics, San Diego State University.
 Teaching @ Khalifa University (average overall student evaluation: 4.4/5.0)
 Fall 16, 17, Spring 17 AERO 350 System Dynamics and Control, Khalifa University.
 Fall 15 AERO/MECH/ROBO 704 Estimation of Dynamic Systems, Khalifa University
 Spring 17 MECH 603 Advanced Dynamics
 Fall 15 AERO/MECH 694 Applications of Stochastics Theories in Dynamic Systems, Khalifa University.
 Fall 13, 14, 16, 17 AERO 465 Space Dynamics and Control, Khalifa University.
 Spring 14, 15, 16 AERO 465 Space Dynamics and Control, Khalifa University.
 Spring 14 AERO/ME 351 Feedback Control Engineering Dynamics, Khalifa University
 Fall 14, Summer 15 AERO/ME/CIVE 201 Engineering Dynamics, Khalifa University.
 All semesters Senior Design Project, Khalifa University.
 Teaching @ Texas A&M University
 Fall 12 Special Topics Lecturer, AERO 626 Estimation of Dynamic Systems, Texas A&M University
 Fall 11, Spring 12 Graduate Teaching Senior Fellow (group leader), Texas A&M University.
 Teaching @ University of Dayton
 Spring 08, Summer 08 Teaching Assistant, MEE 439 Dynamics and Control, University of Dayton.
 Teaching @ In Jordan
 2005-2007 Lead instructor, Training Center, Jordan Airmotive Limited Company.

Advisees @ San Diego State University

Fall 18 – Present Ahmed Atallah, JDP, Fast Orbit Propagation Techniques
 Fall 18 – Present Shruthi Nagabhushana, JDP, Modelling of Irregular Dynamics Applied to Machine Learning
 Fall 19 – Present Adrian Juarez, M.S. student, MCPI-based Model Predictive Control: Applied to Astrodynamics
 Fall 19 – Present Jesus Arellano, M.S. student, NN-based technique for efficient constrained attitude maneuvers
 Fall 19 – Present Gurwinder Brar, M.S. student, Deep learning technique for efficient swarm satellite navigation
 Fall 19 – Present Michael Stromecki, M.S. student, Satellite Attitude Platform
 Fall 20 – Present Shaan Heugly, M.S. student, Efficient and Optimal Techniques for Deep Space Orbital Transfer
 Fall 20 – Present Jennifer Good, M.S. student, Uncertainty Propagation of Perturbed Orbits Using High-Order State Transition Tensors and Chebyshev-Picard Method
 Fall 19 – Spring 21 Edward Smythe, M.S. student, LSTM Satellite Predictions and Visualization Earth Orbits
 Spring 18 – Fall 19 Jorge Bañuelos, M.S. student, Position and Attitude Determination Using Deep Learning Object Detection Algorithms for Autonomous Aerial Refueling
 Fall 18 – Spring 20 Arnold Cruz, M.S. student, Constrained Attitude Control
 Fall 18 – Spring 20 Cameron Bailey, undergraduate student, Satellite Attitude Simulator, US DOD UAS project
 Fall 20 – Spring 20 Zachariah Fischer, undergraduate student, US DOD UAS project
 Fall 20 – Spring 20 Kyle Netter, undergraduate student, US DOD UAS project
 Fall 20 – present April Thongrивong, undergraduate student, ANSWER, US DOD UAS project
 Fall 20 – Spring 20 Brooke Tyler, undergraduate student, ANSWER, US DOD UAS project
 Fall 18 – Fall 20 Cade Wilton, undergraduate student, Satellite Attitude Simulator
 Spring 18 – Spring 20 John Andrew, undergraduate student, Satellite Attitude Simulator, US DOD UAS project
 Fall 19 – Spring 20 John Wiggins, undergraduate student, swarm robots, US DOD UAS project
 Fall 19 – Spring 20 Christopher Johnson, undergraduate student, swarm robots
 Fall 19 – present Sanam Nagvekar, undergraduate student, swarm robots

Advisees @ Khalifa University

Fall 14 – Spring 18	Mohammad Alhulayil, PhD, High Orders Computational Techniques Applied to Space Dynamics
Fall 14 – Fall 15	Adnan Saeed, M.S. student, Modeling and Control of Miniature Hybrid UAVs
Fall 14 – Spring 17	Fatima Alkhoori, M.S. student, Fault Tolerance Control for Quad-Rotor UAVs.

Advisees @ Texas A&M University

Fall 12 – Fall 2016	Robyn Woollands, PhD (Thesis committee), Regularization and Computational Methods for Precise Solution of Perturbed Orbit Transfer Problems
Fall 13 – Fall 2016	Julie Read, PhD (Co-Advisor), Modified Chebyshev Picard Iteration: Integration of Perturbed Motion Using Modified Equinoctial Elements

Advisees @ Jordan University of Science and Technology

Fall 19 – Spring 21	Ahmad Fares, M.S. student (Co-Advisor), Online Deep Reinforcement Learning-based Technique for The Control Of Active Suspension System
Fall 16 – Summer 19	Aya Khamis, M.S. student (Co-Advisor), Cooperative aerial-ground robotic team controlled by an Intelligent Control Algorithm
Fall 16 – Fall 20	Mohammed Dalalah, M.S. student (Co-Advisor), Studying the Aerodynamics Effect of the Induced Holes in the X8-Skywalker Drone Wings

Spring 12	Graduate Teaching Academy (GTA) Travel Award, Texas A&M University
Spring 12	Graduate Teaching Academy (GTA) Senior Fellowship, Texas A&M University
Spring 11	Graduate Teaching Academy (GTA) Fellowship, Texas A&M University

March 30-April 1, 2012 15th Annual Wakonse South Conference on College Teaching, , at Canyon of the Eagles Lodge & Nature Park, in Burnet, Texas.

Spring 18	Curriculum Development: supporting department leadership by developing the space-related programs as well as independent PhD program in space @ SDSU
Spring 17	Curriculum Development: Satellite Design track (graduate) @ Khalifa University
Spring 16	Curriculum Development: UAV minors (undergraduate) @ Khalifa University
Fall 14	Curriculum Development: Astronautics track (undergraduate) @ Khalifa University

SERVICE

Service for the Department

1. Curriculum Committee (@SDSU) 1 year (current)
2. Faculty Search Committee (@SDSU) 1 year
3. Advisor of the Rocket club (@SDSU) 2 years (current)
4. Advisor of the Icarus team club (@SDSU) 2 years (current)
5. Advisor of several projects presented in Engineering design days.
6. Developing and directing Spacecraft Platform for Astronautics and Celestial Emulation (SPACE) laboratory, which is a six degree of freedom facility. SPACE supports comprehensive studies and hardware experiments for sensing, guidance, dynamics and control of space operations in an operationally relevant environment. The lab conducts research in robotic sensing and control, with an aim to enhance the fields of proximity operations, human-robot interaction, stereo vision, swarm robotics, and autonomous aerial vehicles.
7. Developed two new courses:
 - AE460 spacecraft design.
 - AE600 optimal estimation for dynamic systems

- AE 331 Feedback Flight Control Systems which will be added to the current aerospace curriculum
- 8. Assisting the department for recruiting graduate students
- 9. Assisting the department for recruiting faculty
- 10. Serving in MS thesis committees
- 11. Assisting the department in developing an independent Ph.D. program in space.
- 12. Inviting and hosting guest speakers, e.g. Dr. Robyn Woollands (JPLGNC engineer) another key technical people from industry who join lectures and PDR in AE460.
- 13. Assisting our graduate in getting jobs and interns at local key companies (JPL, General Atomics,...).

Service for the College

1. *Associate Dean of Engr. For Graduate Studies and research Search Committee (@SDSU)* 1 year
1. Representing the university at NASA JPL HBCU/MI Outreach Initiative on August 1-2, 2018.
2. Presenting my research profile at the college advisory board meeting in April 2018.
3. Serving in MS thesis committees.
4. Advisor of several projects presented in Engineering design days and student research symposium (Spring 2019).

Service for the University

1. SDSU Senator
2. Faculty member at SDSU Computational Science Research Center.
3. Faculty member at SDSU Big Data Analytics program.
4. Participating in SDSU Language Acquisition Resource Center

Service for the Profession

1. Reviewer in several refereed journals and conference proceedings. 5 years
2. Sessions chair in multiple AIAA/AAS conferences 5 years
3. Subject Matter Expert, Jordan CubeSat Program, Masar Initiative (JY-Sat). 3 years
4. Editorial Board Member, International Journal of Applied & Experimental Mathematics. 5 years
5. Editorial Board Member, International Journal of Mechanical Systems Engineering. 5 years
6. Jury member of DRONE X challenge
7. Collaborating with various research groups in the USA, UAE, and Jordan
8. Member AAS, AIAA, Association of Former students at Texas A&M University.

Service for the Community

1. Delivering lectures about robotics in some middle and high school at San Diego Unified School District
2. Hosting people in the SPACE lab to train them (voluntary) about the space robotics and GNC problems.
3. Invited as a key-note speaker to join a panel discussion a San Diego Air & Space Museum celebrating the 50th anniversary of the Apollo 11 lunar landing, 2019.
4. Invited to give talks in local and international schools (during the past professional career).

@ Khalifa University (receipt of faculty excellent award for outstanding service 2016)

Advisor, American Institute of Aeronautics and Astronautics (AIAA), Khalifa University Student chapter.

Advisor, MATLAB Club at Khalifa University.

Academic Council Executive Member at Khalifa University.

Academic Council Member at Khalifa University.

Member AAS, AIAA, Association of Former students at Texas A&M University.

Reviewer of several international research journals.

Organizer, CubeSat contest; EmiratesSkills, UAE.

Leading the efforts on the CubeSat program: UAE CubeSat contest, education CubeSat projects... etc.

Establishing a strong and active base of collaboration with UAE Space entities; like UAE Space Agency.

Representing the university in several off-campus (national and international) events and activities.

Organizing several educational competitions among the entire country.

Mentorship: SDPs students at Khalifa University.

- Design and Build 1U CubeSat, Boeing funded, 2016-2018.

- Design, Build and Testing of Attitude Test-bed Platform for Emulating CubeSat Missions, Boeing funded, 2015.
- Flight Simulator: Design and Build, KU funded, 2015.
- PV-powered Cooling System for Parked Cars, KU funded, 2015.
- Design and Fabrication of 3D Printer Test Bed, KU funded, 2015.
- Two Axes Stabilized Parallel Platform, KU funded, 2014.
- Investigating the Flight Manner on the Power Consumption of Quadrotors, Boeing funded, 2014.
- Grasshopper Robot, KU funded, 2014.
- Automatic Window Cleaning System, KU funded, 2014.