CURRICULUM VITAE

Zheng Chen
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Professional Preparation:

- University of Virginia, Mechanical & Aerospace Engineering, Postdoc, 2009-2012
- Michigan State University, Electrical Engineering, Ph.D., 2009
- Zhejiang University, China, Control Science and Engineering, M.E., 2002
- Zhejiang University, China, Electrical Engineering, B.E., 1999

Appointments:

- 2023 – Present, **Associate Professor**, Department of Mechanical Engineering, University of Houston, Houston, Texas
- 2017 – 2023, **Bill D. Cook Assistant Professor**, Department of Mechanical Engineering, University of Houston, Houston, Texas
- 2013 – 2017, **Assistant Professor,** Department of Electrical Engineering and Computer Science, Wichita State University, Wichita, Kansas
- 2012 – 2013, **Research & Development Engineer**, Pressure Pumping Equipment R&D Department, Baker Hughes, Houston, Texas
- 2009 – 2012, **Research Associate,** Department of Mechanical &Aerospace Engineering, University of Virginia, Charlottesville, Virginia

Teaching Experience:

- EE 792 Linear Systems, Wichita State University
- EE 893 Optimal Control, Wichita State University
- EE 877T Intro to Smart Material Sensors and Actuators, Wichita State University
- EE 684 Introductory Control System Concepts, Wichita State University
- MECE 3336, Dynamics, University of Houston
- Optimal Control Theory, University of Houston
- MECE 4372, Mechanics-Control-Vibrations Laboratory, University of Houston
- MECE 6388, Optimal Control Theory, University of Houston
- MECE 3336, Dynamics, University of Houston
- MECE 4331, Design of Machine Element, University of Houston

Awards and Honors:

1. **Faculty Early Career Development Award (CAREER),** National Science Foundation, 2017
2. **First Award in Climate and Energy,** Kansas NSF EPSCoR, 2016
3. **IEEE Senior Member,** 2020
4. **Early Innovator Award,** Cullen College of Engineering, University of Houston, 2022
5. **W.T. Kittinger Teaching Excellence Award,** Cullen College of Engineering, University of Houston, 2023
6. **Assistant Professor Excellent Series (APEX) Speaker,** University of Houston,

2019

7. **Best Student Paper Award,** (with Alicia Keow), IEEE International Conference on Advanced Intelligent Mechatronics, 2020
8. **Finalist, Best Paper Award,** (with Alicia Keow), Renewable Energy Technical Committee, ASME Dynamic System and Control Division, 2019
9. **Best Student Paper Award,** (with Zhihang Ye), ASME 2019 DSCC TC Mechatronics, 2019
10. **Best Paper Award**, IEEE International Conference on Unmanned Systems, 2017
11. **Multidisciplineary Research Project Award,** Wichita State University, 2017
12. **University Research/Creative Projects Award (URCA),** Wichita State University**,** 2015
13. **Award for Research/Creative Projects,** Wichita State University**,** 2014

Research Grants: (Total amount allocated to Chen: $1,905,993, As PI: $1,483,884)

- *External Grants:*

1. PI, "Robotic Assistive Smart Touch Inspection of Offshore Oil and Gas Pipeline", BSEE $960,493, Aug. 15 2023- Aug. 14 2026 (Co-PI Gangbing Song, Dr. Chen's credit 50%).
2. PI, "CAREER: Artificial Muscle Based on Dielectric Elastomers for Dexterous and Compliant Prostheses", NSF CAREER, $500,000, May 1, 2017- Sep 30, 2023.
3. Co-PI, "Autonomous Flight Control for Adverse and Hazardous Conditions", AFRL, $250,000, 9/1/2022-8/31/2024, (PI: Marzia Cescon, Other Co-PI: Karolos Grigoriadis; Dr. Chen's credit: 30%).
4. PI, "Swarming of Robotic Fish for CO2 Leakage Detection", Center for Carbon Management for Energy, Center of Carbon Management for Energy, $72,000, Feb 1, 2022-July. 31, 2023, (Co-PI Miao Pan, Chen's credit: 60%).
5. Co-PI, "CPS: Synergy: Collaborative Research: Towards Effective and Efficient Sensing-Motion Co-Design of Swarming Cyber-Physical Systems", NSF CPS, 01/01/2015-12/31/2019, $542,809, (PI: Pu Wang; Other Co-PI: Animesh Chakravarthy; Dr. Chen's credit: 34.4%).
6. PI, "Towards Autonomous Service Robotics for Valve Inspection and Operation"**,** Texas Commission on Environmental Quality, $139,500, Jan. 1, 2021-Dec. 31, 2021, (Co-PI Gangbing Song, Dr. Chen's credit: 60%).
7. PI, "Developing Bio-inspired Buoyancy Control for Subsea Service AUVs", Texas Commission on Environmental Quality, $128,095, Jan. 1, 2021-Dec. 31, 2021, (Co-PI, Fathi Ghorbel, Dr. Chen's credit: 55.9%).
8. PI, "Interfacing Robotics and Oil Rig Platform Doors", Texas Commission on Environmental Quality, $63,000, Oct. 30, 2019 – March 31, 2020, (Co-PI Gangbing Song, Dr. Chen's credit: 55%).
9. Co-PI, "Integration of SmartTouch Inspection System with NASA R5 Valkyrie", Texas Commission on Environmental Quality, $291,836, May 2019-March 2020 (PI: Gangbing Song, Dr. Chen's credit: 40%).

10. PI, “SmartTouch: Towards Autonomous Subsea Robotics for Underwater Pipeline Inspection”, Texas Commission on Environmental Quality, $40,000, Nov. 1, 2018-June 31 2019 (Co-PI: Gangbing Song, Dr. Chen’s credit: 50%).
11. PI, “Solar Energy Storage Using Ionic Polymer-Metal Composite Enhanced Water Electrolysis for Hydrogen Production”, Kansas NSF EPSCoR First Award, $80,802, Jan 2016-Sep 2017.
12. PI, “Auto-Tuning PID Control for Blender Automation System”, Baker Hughes, $90,398, July 1, 2014-September 1, 2017.

- *Internal Grants:*

13. PI, "Investigating the Dielectric Elastomer Artificial Muscle for Exoskeleton Application", Multidisciplineary Research Project Award, Wichita State University, Jan 1, 2017-May 30, 2017, $7,500 (Co-PI: Yimesker Yihun, Dr. Chen's credit: 60%)
14. PI, “Towards 3D Maneuverable Robotic Fish Powered by Artificial Muscles”, University Research/Creative Projects Award, Wichita State University, $4500, Dec. 1 2014-Dec. 31, 2015
15. PI, “A Novel Solar Energy Storage System Using Ionic Polymer-Metal Composite Enhanced Water Electrolysis for Hydrogen Production”, Award for Research/Creative Projects (ARC) at Wichita State University, $4,000, May 1 2014- August 31, 2014.

Publication:

- **Book Chapters**

1. **Z. Chen**, T. Um, H. Bart-Smith, “Ionic Polymer-Metal Composite Artificial Muscles in Bio-inspired Engineering Research: Underwater Propulsion”, In Book: *Smart Actuation and Sensing Systems-Recent Advances and Future Challenges*, Ch. 10, pp. 223-248, InTech Open, 2012.
2. **Z. Chen,** H. Bart-Smith, and X. Tan, "IPMC-Actuated Robotic Fish", In Book Robot Fish: Bio-inspired Fishlike Underwater Robots, Chapter 8, pp. 219-254, Springer, 2015
3. K. Kim, V. Palmre, D. Pugal, T. Stalbaum, **Z. Chen**, X. Tan, and M. Yamakita, “IPMCs as EAPs: Models”, In Book EAP Reference Book: Introduction to transducers and artificial muscles based on Electromechanically Active Polymers, Chapter 10, Edited by Federico Carpi, Springer International Publishing AG, pp. 1-20, 2016.

- **Journal Papers**

1. X. Yi and **Z. Chen**, "Image-based Visual Servoing Control of Underwater Vehicle for Pipeline Tracking", International Journal of Intelligent Robotics and Applications, to appear, 2023.
2. W. Zuo, F. Zhang, and **Z. Chen** "Bio-inspired Robotic Fish Enabled Motion Tomography", International Journal of Intelligent Robotics and Applications, Volume 7, pp. 474–484, Sep. 2023.
3. W. Zuo, J. Chen, G. Song, and **Z. Chen**, "A Novel Mobile Robotic System for Unmanned Operation and Inspection of Handwheel Offshore Equipment", International Journal of Intelligent Robotics and Applications, Volume 7, pp.

462–473, Sep. 2023.

4. J. Chen, **Z. Chen**, W. Zhu, and G. Song, "Underwater Bolted Flange Looseness Detection using Percussion-induced Sound and Feature-reduced Multi-ROCKET Model", Structure Health Monitoring, published online, May 2023.
5. S. Wang and **Z. Chen**, "Modeling of two-dimensionally maneuverable jellyfish-inspired robot enabled by multiple soft actuators", IEEE/ASME Trans. on Mechatronics, vol. 27, no. 4, pp. 1998-2006, Aug. 2022.
6. Keow, W. Zuo, F. Ghorbel, and **Z. Chen**, “Reversible fuel cell enabled underwater buoyancy control”, Mechatronics, vol. 86, p. 102865 (10 pp), Oct. 2022.
7. W. Zuo, A. Chakravarthy, M. Malisoff, and **Z. Chen**, "Event-triggered control of robotic fish with reduced communication rate", IEEE Robotics and Automation Letters, vol. 7 no. 4, pp. 9405 - 9412, Oct. 2022.
8. T. Kaaya, S. Wang, M. Cescon, and **Z. Chen**, "Physics-lumped parameter based control-oriented model of dielectric tubular actuator", International Journal of Intelligent Robotics and Applications, vol. 6, no. 3, pp. 397–413, Sep. 2022.
9. W. Zuo, G. Song, and **Z. Chen**, "Grasping force control of robotic gripper with high stiffness", IEEE/ASME Transactions on Mechatronics, vol. 27, no. 2, pp. 1105-1116, April 2022.
10. C. Zavislak, A. Keow, **Z. Chen**, and F. Ghorbel, "AUV Tool Manipulation with Hard and Soft Actuators", IEEE Robotics and Automation Letters, vol. 6, issue 4, pp. 8553-8560, Oct. 2021.
11. J. Guo, Z. Chen, Q. Wang, L Wen, J. Zhang, J. Zhao, “Introduction to the Focused Section on Flexible Mechatronics for Robotics”, International Journal of Intelligent Robotics and Applications, Vol. 5, Issue 3, pp. 283–286, Sep. 2021.
12. S. Wang and **Z. Chen**, "Modeling of Jellyfish-inspired Robot Enabled by Dielectric Elastomer", International Journal of Intelligent Robotics and Applications, vol. 5, issue 3, pp. 287-299, 2021
13. X. Yi, F. Wang, W. Zuo, G. Song, and **Z. Chen**, "Robotics Assisted Smart-Touch Pipeline Inspection", International Journal of Intelligent Robotics and Applications, vol. 5, issue 3, pp. 326-336, 2021.
14. W. Zuo, F. Fish, and **Z. Chen**, "Bio-inspired Design, Modeling, and Control of Robotic Fish Propelled by a Double-Slider-Crank Mechanism Driven Tail", Journal of Dynamic System, Measurement, and Control, 143(12): 121005 (10 pages), Dec. 2021.
15. S. Chitti and **Z. Chen**, "Modeling Of Robotic Manta Ray Propelled By Servo Actuated Pectoral Fins", International Journal of Robotics and Automation, Vol. 36, Issue 6, p. 0467, 2021.
16. X. Yi, A. Chakravarthy, and **Z. Chen**, "Cooperative Collision Avoidance Control of Servo/IPMC Driven Robotic Fish with Back-Relaxation Effect", IEEE Robotics and Automation Letters, Vol. 6, Issue 2, pp. 1816 - 1823, April 2021.
17. C. Zavislak, A. Keow, **Z. Chen**, and F. Ghorbel, "AUV Buoyancy Control with Hard and Soft Actuators", IEEE Control Systems Letters, vol. 5, issue 6, pp. 1874-1979, Dec. 2021.
18. A. Keow and **Z. Chen**, "Auto-Tuning Control of Proton Exchange Membrane Water Electrolyzer With Self-Assessment and Gain Scheduling", Journal of Dynamic Systems, Measurement, and Control, Vol. 143, Issue 5, p. 051009, May 2021.
19. A. Keow, A. Mayhall, M. Cescon, and **Z. Chen**, "Active Disturbance Rejection

Control of Metal Hydride Hydrogen Storage", International Journal of Hydrogen Energy, Volume 46, Issue 1, pp. 837-851, January 2021.

20. J. Yazji, A. Keow, H. Zaidi, L. T. Torres, C. Leroy, and **Z. Chen**, "Buoyancy Control Device Enabled by Reversible PEM Fuel Cells for Fine Depth Control", Journal of Dynamic System, Measurement, and Control, Vol. 143, Issue 3, p. 31005, March 2021.
21. F. Wang, **Z. Chen**, and G. Song, "Smart Crawfish: A Concept of Underwater Multi-bolt Looseness Identification Using Entropy-enhanced Active Sensing and Ensemble Learning", Mechanical Systems and Signal Processing, Vol 149, No 15, p. 107186, Feb 2021.
22. J. Jiang, S. C. Ho, T. Tippitt, **Z. Chen**, and G. Song, "Feasibility Study of a Touch-enabled Active Sensing Approach to Inspecting Subsea Bolted Connections Using Piezoceramic Transducers", Smart Materials and Structures, Vol. 29, No. 8, p.085038, 2020.
23. W. Zuo, K. Dhal, A. Keow, A. Chakravarthy, **Z Chen**, "Model-based Control of a Robotic Fish to Enable 3D Maneuvering Through a Moving Orifice", IEEE Robotics and Automation Letters, Vol. 5, No. 3, pp. 4719-4726, July 2020.
24. S. Wang, T. Kaaya, and **Z. Chen**, "Self-Sensing of Dielectric Elastomer Tubular Actuator with Feedback Control Validation", Smart Materials and Structures, Vol 28, No 7, p. 075037, 2020.
25. A. Keow, Z. Chen, and H. Bart-Smith, "PIDA Control of Buoyancy Device Enabled by Water Electrolysis", IEEE/ASME Transactions on Mechatronics, Vol. 25, No. 3, pp. 1202 - 1210, 2020.
26. F. Wang, Z. Chen, and G. Song, “Monitoring of Multi-bolt Connection Looseness Using Entropy-based Active Sensing and Genetic Algorithm-based Least Square Support Vector Machine”, Mechanical Systems and Signal Processing, vol. 136, p. 106507, 2020.
27. V. Sunkara1, A. Chakravarthy, X. Yi, W. Zuo, and **Z. Chen**, "Cooperative and Optimal Collision Avoidance Laws for a Hybrid-Tailed Robotic Fish", IEEE Transactions on Control System and Technology, Vol. 28, No. 4, pp. 1569-1578, 2020.
28. **Z. Chen**, P. Hou, and Z. Ye, "Robotic Fish Propelled by Servo Motor and Ionic Polymer-Metal Composite Hybrid Tail ", Journal of Dynamic Systems, Measurement, and Control, Special Issue on Unmanned Mobile Systems, Vol. 141, Issue 7, pp 071001:1-11, July, 2019.
29. X. Yi and **Z. Chen**, "A Robust Visual Tracking Method for Unmanned Mobile Systems", Journal of Dynamic Systems, Measurement, and Control, Special Issue on Unmanned Mobile Systems, Vol. 141, Issue 7, pp 071005:1-8, July, 2019.
30. Z. Ye and **Z. Chen**, "Modeling and Control of 2-DOF Dielectric Elastomer Diaphragm Actuator ", IEEE/ASME Trans. on Mechatronics, Vol. 23, Issue 1, pp 218 - 227, 2019.
31. **Z. Chen**, "A Review on Robotic Fish Enabled by Ionic Polymer-Metal Composite Artificial Muscles", Robotics and Biomimetics, Vol. 4, No 24, pp.1-13, Dec. 16, 2017.
32. Z. Ye and **Z. Chen**, "Self-Sensing of Dielectric Elastomer Actuator Enhanced By Artificial Neural Network", Smart Materials and Structures, Vol. 26, No. 9, pp 095056(1-10). 2017.
33. Z. Ye, **Z. Chen**, R. Asmatulu, and H. Chan, "Robust Control of Dielectric Elastomer Diaphragm Actuator For Human Pulse Signal Tracking", Smart Materials and Structures, Vol. 26, No. 8, pp. 085043(1-12), 2017.

34. Z. Ye, P. Hou, and **Z. Chen**, "2D Maneuverable Robotic Fish Propelled by Multiple Ionic Polymer-Metal Composite Artificial Fins", International Journal of Intelligent Robotics and Applications, Special Issue on Soft Robotics, Volume 1, No. 2, pp. 195–208, April 13, 2017.
35. A. Abbaspour, A. Khalilnejad, and Z. Chen, "Robust Adaptive Neural Network Control for PEM Fuel Cell", International Journa of Hydrogen Energy, Vol. 41, No. 44, pp 20385-20395, Oct, 2016.
36. **Z. Chen**, B. Naizer, and Y. Kang, "Proppant Conveyer Automation System with Cascade Control in Hydraulic Fracturing" SPE Prodution & Operation, Vol. 31, No. 4, pp. 310-317, 2016.
37. T. Nagpure and **Z. Chen**, "Control-Oriented Modeling of Ionic Polymer-Metal Composite Enabled Hydrogen Gas Production", International Journal of Hydrogen Energy, Vol. 41, No. 16, pp 6619-6629, 2016.
38. A. Hunt, **Z. Chen**, X. Tan, M. Kruusmaa, "An Integrated Electroactive Polymer Sensor-actuator: Design, Model-based control, and Performance Characterization", Smart Materials and Structures, vol. 25, pp 035016(16pp), 2016.
39. **Z. Chen**, T. Um, and H. Bart-Smith, "Bio-inspired Robotic Manta Ray Powered by Ionic Polymer-Metal Composite Artificial Muscles", International Journal of Smart and Nano Materials, Vol. 3, No. 4, pp 296-308, 2012.
40. **Z. Chen**, Um, T., and Bart-Smith, H., "A Novel Fabrication of Ionic Polymer-Metal Composite Actuator Capable of 3-Dimensional Kinematic Motion," Sensors and Actuators A: Physical, Vol. 168, No. 1, pp 131-139, 2011.
41. **Z. Chen**, X. Tan, "Monolithic Fabrication of Ionic Polymer-Metal Composite Actuators Capable of Complex Deformation," Sensors and Actuators A: Physical, Vol. 157, No. 2, pp 246-257, 2010.
42. **Z. Chen**, S. Sharata, X. Tan, "Modeling of Biomimetic Robotic Fish Propelled by an Ionic Polymer Metal Composite Caudal Fin", IEEE/ASME Transactions on Mechatronics, Vol. 15, No. 3, pp 448-459, 2010.
43. **Z. Chen**, D. Hedgepeth, X. Tan， "A Nonlinear Control-oriented Model for Ionic Polymer-Metal Composite Actuators", Smart Materials and Structures, Vol. 18, No. 5, pp 1-9, 2009.
44. **Z. Chen**, X. Tan, "A Control-oriented and Physics-based Model for Ionic Polymer-Metal Composite Actuators," IEEE/ASME Transactions on Mechatronics, Vol. 13, No. 5, pp 519-529, 2008.
45. **Z. Chen**, K. Kwon, X. Tan, "Integrated IPMC/PVDF Sensory Actuator and Its Validation in Feedback Control," Sensors and Actuators A: Physical, Vol. 144, No. 2, pp 231-241, 2008.
46. **Z. Chen**, X. Tan, A. Will, C. Ziel, "A Dynamic Model for Ionic Polymer-Metal Composite Sensors," Smart Materials and Structures, Vol. 16, pp. 1477-1488, 2007.
47. **Z. Chen**, Y. Shen, N. Xi, X. Tan, "Integrated Sensing for Ionic Polymer-Metal Composite Actuators Using PVDF Thin Films," Smart Materials and Structures [Special issue on Electroactive Polymer Materials, Invited Paper], Vol. 16, No. 2, pp. S262-S271, 2007.
48. **Z. Chen**, S. Jagannathan, "Generalized Hamilton–Jacobi–Bellman Formulation Based Neural Network Control of Affine Nonlinear Discrete-Time Systems", IEEE Trans on Neural Network, Vol .19 No. 1, pp 90-106, 2008.

- **Conference Papers and Presentations:**

1. U Masood, T. Kaaya, and **Z. Chen**, "Constrained Model Predictive Control of Variable Buoyancy Device", Proc. of IEEE International Conference on Advanced Intelligent Mechatronics, Seattle, WA, pp. 936-941, 2023.
2. D. Koc, W. Zuo, F. Ghorbel, and **Z. Chen**, "Energy Efficient Depth Control for Underwater Devices Using Soft and Hard Actuators", Proc. of IEEE International Conference on Advanced Intelligent Mechatronics, Seattle, WA, pp. 916-921, 2023
3. C. Hoppe, F. Ghorbel , and **Z. Chen**, "Dynamics and Control of AUVs using Buoyancy-Based Soft Actuation", Proc. of 2023 American Control Conference, San Diego, CA, pp. 4543-4548, 2023.
4. W. Zuo, F. Zhang, and **Z. Chen**, "Motion Tomography Performed by Robotic Fish with Active Heading Control", Proc. of 2023 American Control Conference, San Diego, CA, pp. 551-556, 2023.
5. T. Kaaya, R. Venkatraman, and **Z. Chen**, "Physics-Based Modeling of Dielectric Elastomer Enabled Cuff Device", Proc. of 2023 American Control Conference, San Diego, CA, pp. 131-136, 2023.
6. R. Venkatraman, T. Kaaya, H. Tchipoque, K. Cluff, R. Asmatulu, R. Amick, **Z. Chen**, "Design, Fabrication, and Characterization of Dielectric Elastomer Actuator Enabled Cuff Compression Device", Proc. SPIE 12042, Electroactive Polymer Actuators and Devices (EAPAD) XXIV, 1204205 (20 April 2022); doi: 10.1117/12.2613250.
7. W. Zuo, R. Venkatraman, G. Song, **Z. Chen**, "A Novel Design of Mobile Robotic System for Opening and Transitioning Through a Watertight Ship Door", Prof. of 2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2021), pp. 1378-1383, Prague, Czech Republic, Oct. 2021.
8. K. Theophilus, S. Wang, C. Marzia, **Z. Chen**, "A Physics-Based and Control-Oriented Model for Dielectric Elastomer Tubular Actuator," Proc. of American Control Conference, pp. 4472-4477, New Orleans, LA, 2021.
9. S. Wang, K. Theophilus, **Z. Chen**, "Self-sensing of Dielectric Tubular Actuator and Its Validation in Feedback Control", Proc. of 2020 IEEE International Conference on Advanced Intelligent Mechatronics, pp. 1712-1717, Boston, MA, July 6-10, 2020.
10. A. Keow, W. Zuo, F. Ghorbel, **Z. Chen**, "Underwater Buoyancy and Depth Control using Reversible PEM Fuel Cells", Proc. of 2020 IEEE International Conference on Advanced Intelligent Mechatronics, pp. 54-59, Boston, MA, July 6-10, 2020.
11. W. Zuo, G. Song, and **Z. Chen**, "Active Disturbance Rejection Control for Grasping Force Tracking ", Proc. of 2020 American Control Conference, pp. 2611-2616, Denver, CO, July 2-3, 2020.
12. W. Zuo, X. Yi, F. Ghorbel, and **Z. Chen**, "Optimal Trajectory Planning and Control of Buoyancy Control Device Enabled by Water Electrolyzer", Proc. of 2019 IEEE Conference on Decision and Control, pp. 2120-2125, Nice, France, Dec. 2019.
13. J. Yazji, H. Zaidi, L. T. Torres, C. Leroy, A. Keow, and **Z. Chen**, "A Novel Buoyancy Control Device using Reversible PEM Fuel Cells", Proc. of the ASME Dynamic Systems and Control Conference, Park City, UT, DSCC2019-9155, 2019.
14. A. Keow and **Z. Chen**, "Auto-tuning Control of PEM Water Electrolyzer", Proc. of the ASME Dynamic Systems and Control Conference, Park City, UT, DSCC2019-9156, 2019.

15. X. Yi, **Z. Chen**, and A. Chakavarthy "Cooperative Collision Avoidance Control of Robotic Fish Propelled by a Servo/IPMC Driven Hybrid Tail", Proc. of the ASME Dynamic Systems and Control Conference, Park City, UT, DSCC2019-9228, 2019.
16. W. Zuo, A. Keow, and **Z. Chen**, "Three-Dimensionally Maneuverable Robotic Fish Enabled by Servo Motorand Water Electrolyser", Proc. of IEEE International Conference on Robotics and Automation (ICRA), Montreal, CA, pp. 4667-4673, May 2019.
17. **Z. Chen**, P. Hou, and Z. Ye, "Modeling of Robotic Fish Propelled by A Servo/IPMC Hybrid Tail", *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems* (IROS), Madrid, Spain, pp. 8146-8151, 2018.
18. W. Zuo and **Z. Chen**, "A Traveling Wave Model Guided Robotic Fish Design Using Double Slot-Crank Mechanism ", *Proc. of the ASME Dynamic Systems and Control Conference*, Atlanta, GA, DSCC2018-9064, 2018.
19. A. Keow and **Z. Chen**, "Modeling and Control of Artificial Swimming Bladder Enabled by IPMC Water Electrolysis ", *Proc. of the ASME Dynamic Systems and Control Conference*, Atlanta, GA, DSCC2018-9076, 2018.
20. X. Yi and **Z. Chen**, "A Robust and Optimal Visual Tracking with Blocking Obstacles and Reflection Noises", *Proc. of the ASME Dynamic Systems and Control Conference*, Atlanta, GA, DSCC2018-9162, 2018.
21. Z. Ye and **Z. Chen**, "Modeling and Control of 2-DOF Dielectric Elastomer Actuator", *Proc. of American Control Conference*, Milwaukee, WI, pp. 3690-3695, 2018
22. H. Baayoun and **Z. Chen**, "Controlling Solar Photovoltaic Cells Utilizing Polymer-Dispersed Liquid Crystal Technology" *Proc. of the ASME Dynamic Systems and Control Conference*, Tysons Corner, VA, DSCC2017-5078 pp. 1-8, 2017
23. Z. Ye and **Z. Chen**, "Integrated sensing and actuation of dielectric elastomer actuator", *Proc. of the SPIE Conference on Electroactive Polymer Actuator Device (EPAD)*, pp. 101630C-101630C, 2017
24. A. Keow and **Z. Chen**, "A study of water electrolysis using ionic polymer-metal composite for solar energy storage", *Proc. of the SPIE Conference on Smart Materials and Nondestructive Evaluation for Energy Systems*, pp. 1017104-1017104, 2017
25. Vishwamithra Reddy Sunkara, Zhihang Ye, Animesh Chakravarthy, and **Z. Chen**, "Collision Avoidance by IPMC Actuated Robotic Fish using the Collision Cone Approach", *Proc. Of the IEEE International Conference on Simulation, Modeling, and Programming for Autonomous Robots*, San Francisco, CA, pp. 238-245, 2016
26. P. Hou, Z. Ye, and **Z. Chen**, "Bio-Inspired Robotic Fish Propelled by Multiple Artificial Fins", *Proc. of the ASME Dynamic Systems and Control Conference*, Minneapolis, MN, DSCC2016-9848 pp. 1-6, 2016
27. **Z. Chen**, L. Cargill, and B, Naizer, "Auto Tuning Tub Level Control for Blender Automation System in Hydraulic Fracturing", *Proc. of ASME Dynamics System and Control Conference*, Minneapolis, DSCC2016-9915, 2016
28. Z. Ye, **Z. Chen**, K.W. Kong, and H. Chan "Robust Control of Dielectric Elastomer Diaphragm Actuator for Replicating Human Pulse", *Proc. Of the IEEE Conference on Automation Science and Engineering*, Dallas, pp. 188-193, 2016
29. T. Yang and **Z. Chen**, "Development of 2D Maneuverable Robotic Fish Propelled By Multiple Ionic Polymer-Metal Composite Artificial Fins" *Proc. Of the 2015*

IEEE Conference on Robotics and Biomimetics, Zhuhai, China, pp. 256-260, 2015

30. T. Nagpure and **Z. Chen**, "Modeling of Ionic Polymer-Metal Composite Enabled Hydrogen Gas Production", *Proc. of the ASME 2015 Dynamic Systems and Control Conference*, Columbus, Ohio, Paper Number: DSCC2015-9922, pp. 1-8, 2015
31. **Z. Chen** and B. Naizer, "A Cascade Control for Sander Automation System", *Proc. of the IEEE International Conference on Automation Science and Engineering*, Gothenburg, Sweden, pp. 894-899, 2015
32. **Z. Chen**, "Bio-inspired Underwater Robot Enabled by Ionic Polymer-Metal Composite Artificial Muscle", *Proc. of the 2015 International Conference on Real-time Computing and Robotics*, pp. A2-1:1-10, 2015
33. **Z. Chen** and B. Naizer, "Active Disturbance Rejection Control for Sander Automation System", The ASME Hydraulic Fracturing Conference, paper number: HydraFrac2015-3873, Houston, TX, 2015
34. S. S. Faisal, Z. Ye, **Z. Chen**, and R. Asmatulu, "Electrical Properties of Nanoscale Metallic Thin Film Coatings on Dielectric Elastomer", *Proc. of the SPIE Conference on Electroactive Polymer Actuator and Device*, Vol. 9430, pp. 943031:1-7, 2015
35. Z. Ye, S. S. Faisal, R. Asmatulu, and **Z. Chen**, "Bio-inspired Artificial Muscle Structure for Integrated Sensing and Actuation", *Proc. Of the SPIE Conference on Electroactive Polymer Actuator and Device*, Vol. 9430, pp. 943024:1-10, 2015
36. Z. Ye, S. S. Faisal, R. Asmatulu, and **Z. Chen**, "Artificial Muscles of Dielectric Elastomers Attached to Artificial Tendons of Functionalized Carbon Fibers", *Proc. of the SPIE Conference on Electroactive Polymer Actuator and Device*, Vol. 9056, pp. 905616-1:9, 2014
37. Md S. Seraz, R. Asmatulu, **Z. Chen**, M. Ceylan, A. Mahapatro, and S.Y. Yang, "Antibacterial Polyelectrolyte-Coated Mg Alloys for Biomedical Applications", *Proc. of the SPIE Conference on Nanosensors, Biosensors, and Info-Tech Sensors and Systems*, Vol. 9060, pp 90600J:1-10, 2014
38. **Z. Chen**, "Bio-inspired Underwater Robots Powered by Electroactive Polymer Artificial Muscles," Kansas Unmanned Systems Conference, Manhattan, KS, October 14-16, 2013
39. **Z. Chen**, T. Um, and H. Bart-Smith, "Modeling and Control of Artificial Bladder Enabled by Ionic Polymer-Metal Composite", *Proc. of the 2012 American Control Conference*, pp 3340-3345, 2012
40. **Z. Chen**, T. Um, J. Zhu, and H. Bart-Smith, "Bio-inspired Robotic Cownose Ray Propelled by Electroactive Polymer Pectoral Fin", *Proc. of ASME 2011 International Mechanical Engineering Congress & Exposition*, pp 64174:1-8, 2011
41. **Z. Chen**, T. Um, and H. Bart-Smith, "Ionic Polymer-Metal Composite Enable Robotic Manta Ray", *Proc. of the SPIE Conference on Electroactive Polymer Actuators and Devices (EPAD)*, Vol. 7976, pp. 797637X, 2011
42. T. Um, **Z. Chen**, and H. Bart-Smith, "A Novel Electroactive Polymer Depth Control Device for Bio-inspired Underwater Vehicles", *Proc. of the IEEE International Conference on Robotics and Automation*, pp 172-177, 2011
43. A. Hunt, **Z. Chen**, X. Tan, and M. Kruusmmaa, "Control of an Inverted Pendulum Using an Ionic Polymer-Metal Composite Actuator", *Proc. of the IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, pp. 163-168, Montreal, Canada, 2010
44. **Z. Chen** and X. Tan, "MEMS-based Fabrication of Multiple-Degree-of-Freedom

Ionic Polymer-Metal Composite Actuators", *Proc. of SPIE conference on Electroactive Polymer Actuators and Devices (EPAD),* Vol. 7642, pp. 76420X, 2010

45. A. Hunt, **Z. Chen**, X. Tan, and M. Kruusmaa, "Feedback Control of a Coupled IPMC (Ionic Polymer Metal Composite) Sensor-actuator", *Proc. of the ASME Dynamic System and Control Conference*, Hollywood CA, Paper DSCC2009-2612, 2009
46. **Z. Chen** and X. Tan "Model-based Nonlinear Control of Ionic Polymer-Metal Composite Actuators", *Proc. of the ASME Dynamic System and Control Conference*, Hollywood CA, Paper DSCC2009-2700, 2009
47. M. Anton, **Z. Chen**, M. Kruusmaa and X. Tan, "Analytical and Computational Modeling of Robotic Fish Propelled by Soft Actuation Material-based Active Joints", Proceedings of the 2009 IEEE/RSJ International Conference on Intelligent Robots and Systems, St. Louis, MO, pp. 2126-2131, 2009
48. **Z. Chen**, D. Hedgepeth, and X. Tan, "Nonlinear Capacitance of Ionic Polymer-Metal Composite", Yoseph Bar-Cohen; Thomas Wallmersperger, Editors, Electroactive Polymer Actuators and Devices, *Proc. of the SPIE,* Vol. 7287, pp. 728715, 2009
49. **Z. Chen**, S. Shatara, and X. Tan, "Modeling of Robotic Fish Propelled by an Ionic Polymer-Metal Composite Caudal Fin", Yoseph Bar-Cohen; Thomas Wallmersperger, Editors, Electroactive Polymer Actuators and Devices, *Proc. of the SPIE,* Vol. 7287, pp 72871M, 2009
50. **Z. Chen**, D. R. Hedgepeth, X. Tan, "A Nonlinear Control-Oriented Model for Ionic Polymer-Metal Composite Actuators", *Proc. of the 47th IEEE Conference on Decision and Control,* Vol., pp 1851-1856, 2008
51. E. Mbemmo, **Z. Chen**, S. Shatara, and X. Tan, "Modeling of Biomimetic Robotic Fish Propelled by An Ionic Polymer-Metal Composite Actuator", *Proc. of the IEEE International Conference on Robotics and Automation*, Pasadena, California, pp. 689-694, 2008
52. **Z. Chen**, K. Yong and X. Tan, "Design of Integrated IPMC/PVDF Sensory Actuator and Its Application to Feedback Control",**(Invited)**, M. Tomizuka, editor, *Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems, Proc. of the SPIE*, Vol. 6932, pp. 68321O, 2008
53. **Z. Chen**, X. Tan, "A Scalable Dynamic Model for Ionic Polymer-Metal Composite Actuators", Y. Bar-Cohen, editor, *Electroactive Polymer Actuators and Devices (EAPAD) X, Proc. of the SPIE*, Vol. 6927, pp. 69270I, 2008
54. **Z. Chen**, and X. Tan, "A Control-oriented, Physics-based Model for Ionic Polymer-Metal Composite Actuators", *Proc. of the 46th IEEE Conference on Decision and Control*, New Orland, pp. 590-595, 2007
55. **Z. Chen**, Y. Shen, J. Malinak, N. Xi, X. Tan, "Hybrid IPMC/PVDF Structure for Simultaneous Actuation and Sensing," in Y. Bar-Cohen, editor, *Smart Structures and Materials 2006: Electroactive Polymer Actuators and Devices (EAPAD), Proceedings of SPIE*, San Diego, CA, Vol. 6168, 2006
56. **Z. Chen**, X. Tan, M. Shahinpoor, "Quasi-static Positioning of Ionic Polymer-Metal Composite (IPMC) Actuators", *Proc. of the IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, Monterey, CA, pp. 60-65, 2005
57. **Z. Chen**, S. Jagannathan, "Neural Network Based Nearly Optimal Hamilton-Jacobi-Bellman Solution for Affine Nonlinear Discrete-Time Systems", *Proc. of the 44th IEEE Conference on Decision and Control and European*

Control Conference, Seville, Spain, pp. 4123 – 4128, Dec. 2005

58. P. He, **Z. Chen**, S. Jagannathan, "Neural Network based Control of Nonlinear Discrete-Time Systems in Non-Strict Form", *Proc. of the 44th IEEE Conference on Decision and Control and European Control Conference*, Seville, Spain, pp.2580 – 2585, 2005
59. J. Chen, **Z. Chen**, "Two-step Method for Gross Error Detection in Process Data", Proc. of the American Control Conference, Arlington, VA, pp. 2121-2126, 2001.

Full Hour Invited Talks

1. "Electroactive Polymers As Artificial Muscles and Sensors: A Control Systems Perspective", Department of Electrical & Computer Engineering, National University of Singapore, July, 2008, (Host: Dr. Yung C. Liang).
2. "Ionic Polymer-Metal Composite Artificial Muscles and Sensors: A Control Systems Perspective", Department of Mechanical & Aerospace Engineering, University of Virginia, May, 2009, (Host: Dr. Hilary Bart-Smith).
3. "Ionic Polymer-Metal Composite Artificial Muscles and Sensors: A Control Systems Perspective", Department of Mechanical Engineering, University of Texas Dallas, April, 2010, (Host: Dr. Mario Rotea)
4. "Electroactive Polymer Artificial Muscles and Sensors: A Systems Perspective", Department of Mechanical & Aerospace Engineering, Ohio State University, Feb, 2011, (Host: Dr. Marcelo Dapino)
5. "Electroactive Polymer Artificial Muscles: A Systems Perspective", Department of Engineering Technology, Old Dominion University, Nov. 2011, (Host: Dr. Cheng Lin)
6. "Electroactive Polymer Artificial Muscles: A Systems Perspective", Department of Electrical Engineering and Computer Science, Wichita State University, Feb. 2013, (Host: Dr. Animesh Chakravarthy)
7. "Electroactive Polymer Artificial Muscles: A Systems Perspective", Department of Mechanical Engineering, University of Hong Kong, March, 2013, (Host: Dr. Yuguo Li)
8. "Bio-inspired Underwater Robots Powered by Electroactive Polymer Artificial Muscles", Department of Electrical Engineering and Computer Science, Wichita State University, Nov. 2013, (Host: Dr. Sawan)
9. "Bio-inspired Underwater Robots Powered by Electroactive Polymer Artificial Muscles", Math Department Seminar, Wichita State University, Nov. 13, 2015, (Host: Dr. Mark Walsh)
10. "Bio-inspired Underwater Robots Powered by Electroactive Polymer Artificial Muscles", Mechanical Engineering Department, University of Houston, Jan. 20, 2017, (Host: Dr. Yashashree Kulkarni)
11. "Bio-inspired Underwater Robots Powered by Electroactive Polymer Artificial Muscles", College of Engineering, University of Connecticut, March. 30, 2017 (Host: Dr. George Bollas)
12. "Bio-inspired Underwater Robots Enabled by Electro-active Polymer Artificial Muscles", College of Electrical Engineering, Zhejiang University, July 10, 2017, (Host: Dr. Xiaorun Li)
13. "Bio-inspired Underwater Robots Enabled by Electro-active Polymer Artificial

Muscles", Department of Mechanical Engineering, Temple University, September 29, 2017, (Host: Dr. Haijun Liu)

14. "Bio-inspired Underwater Robots Enabled by Electro-active Polymer Artificial Muscles", College of Control Science and Engineering, Zhejiang University, Oct. 24, 2017, (Host: Dr. Qinming Yang)
15. "Modeling and Control of Hydrogen Production Enabled by Ionic Polymer Metal Composite", College of Control Science and Engineering, Zhejiang University, June 20, 2018, (Host: Dr. Qinming Yang)
16. "Bio-inspired Underwater Robots Enabled by Electro-active Polymer Artificial Muscles", ECE Seminar, University of Houston, Oct. 29, 2018, (Host: Dr. Weichuan Shih)
17. "Electro-active Polymer Artificial Muscles and Sensors", ECE Seminar, University of Houston, August 23, 2019, (Host: Dr. Jiming Bao)
18. "Electroactive Polymer Artificial Muscles Enabled RoboFish", Assistant Professor Excellence Speaker Series, University of Houston, Oct. 23, 2019, (Host: Dr. Jeronimo Cortina)
19. "Underwater Buoyancy and Depth Control using Reversible PEM Fuel Cells", Society of Underwater Technology (SUT) Robotics and Automation Committee Meeting, Feb, 2021.
20. "Electroactive Polymer Enabled Bio-inspired Autonomous Underwater Vehicles for Oceanic Engineering", Keynote Speaker Series, Offshore Technology Conference, 2023.
21. "Soft Actuator Enabled Underwater Swimmers", Engineering Science and Mechanics Department, Penn State University, July 2022.
22. "SmartTouch Enabled Robotic Systems for Pipeline Inspection and Door Opening", Society of Underwater Technology (SUT) Robotics and Automation Committee Meeting, Oct. 2020.

Patents:

1. X. Tan, N. Xi, **Z. Chen**, and Y. Shen, "Integrated Actuator-Sensor Structure", *US Patent*, (Issued No: US 7,982,375 B2), Issued on July 19, 2011
2. B. Naizer, J. Jordan, P. Thomson, Z. Chen, "Apparatus and Methods for Measuring and/or Adjusting the Height of Material in the Bin of a Hopper Assembly", US 9285260 B2, 2016
3. J. Zhu, H. Bart-Smith, and **Z. Chen**, "Gaseous Flow Sensor and Related Method Thereof", US patent, (Issued No: 9,746,361 B2), Aug. 29, 2017
4. H. Farhoud**, Z. Chen**, K Cluff, R Asmatulu, and J. Patterson, **"**System and Method for implantable Electroactive Polymer Heart Assistive Mesh", US patent application, 2016
5. **Z. Chen,** "Portable Solar Energy Storage System Using Ionic Polymer Metal Composite Enhanced Water Electrolysis", US patent application, Application No. 15,726,748, 2017
6. Gangbing Song, Jinwei Jiang, Siu Chun Michael Ho, and **Z Chen**, "Portable

System for PZT-based Inspection of Bolted Connections", US Patent application, submitted, 2019

7. **Z. Chen**, W. Zuo, G. Song, and J. Allen, "Robotics Assisted Door Opening Tool and Operation", submitted for provisional patent, 2021
8. Z. Chen, M. Pan, J. Chen, "Robotic Fish Enabled Carbon Dioxide Leak Detection for Offshore Carbon Dioxide Sequestration Monitoring", US Provisional Patent application, submitted, 2022.
9. Z. Chen, F. Ghorbel, "Variable Buoyance Control of Subsea Underwater Vehicles Using High Pressure Reversible Fuel Cell", US Provisional patent application, submitted, 2023.

Professional Service and Membership

- **Professional membership:** Senior Member of IEEE, SPIE, and ASME
- **Department/College/University Services at UH (Total: 6 services)**
  1) Representative of Qualify Exam for Intelligent and Autonomous Group
  2) Coordinator of Intelligent and Autonomous Group Seminar
  3) Founding Member of Intelligent and Autonomous Group
  4) Dynamic System and Control Faculty Search Committee
  5) Initiative Contributor to signing the memorandum of understanding (MOU) between Pandit Deedayal Energy Univ. and UH.
  6) Contributor to University Core Facility Proposal for Automation and Autonomy
- **Chair of PhD dissertation committees**
  1) Zhihang Ye, Wichita State University, 2017
  2) Alicia Keow, University of Houston, 2021
  3) Xiongfeng Yi, University of Houston, 2021
  4) Wenyu Zuo, University of Houston, 2022
  5) Shengbin Wang, University of Houston, 2022

- **Member of PhD dissertation committees**
  1. Suliman Alhamidi, Wichita State University (Chair: John Watkins), 2016
  2. Ahmad Rabanimotlagh, Wichita State University (Chair: Janet Twomey), 2017
  3. Vishwamithra R. Sunkara, Wichita State University (Chair: Animesh Chakravarthy), 2018
  4. Zeinab Alameh, University of Houston (Chair: Pradeep Sharma), 2018
  5. Faezeh Darbaniyan, University of Houston (Chair: Pradeep Sharma), 2019
  6. Mahmoud Hadi, University of Houston (Chair: Gangbing Song), 2019
  7. Furui Wang, University of Houston (Chair: Gangbing Song), 2020
  8. Jingwei Jiang, University of Houston (Chair: Gangbing Song), 2021
  9. Sihong He, University of Houston (Chair: Gangbing Song), 2022
  10. Anish Thukral, University of Houston (Chair: Cunjiang Yu), 2020
  11. Saeed Salavati, University of Houston (Chair: Karolos Grigoriadis), 2020
  12. Shahin Tasoujian, University of Houston (Chair: Karolos Grigoriadis), 2020

13. Shuolin Xiao, University of Houston (Chair: Di Yang), 2020
14. Oussama Hattab, University of Houston (Chair: Matthew Franchek), 2018
15. Moadh Mallek, University of Houston (Chair: Matthew Franchek), 2019
16. Yitong Hao, University of Houston (Chair: Matthew Franchek), 2022
17. Mehrad Jaloli, University of Houston (Chair: Marzia Cescon), 2023

- **Chair of MS thesis committees:**
  1) Yejin Wi. University of Houston, 2021
  2) Sandeep Chitti, Wichita State University, 2017
  3) Piqi Hou, Wichita State University, 2016
  4) Tushar Nagapure, Wichita State University, 2015
- **Co-Chair of MS thesis committees:**
  1) Mariam Ismail Ali, University of Houston, (Chair: Marzia Cescon, other Co-chair: Karolos Grigoriadis), 2023

- **Member of MS thesis committees:**
  1. Tania Jareen, Wichita State University, (Chair: Abu Asaduzzaman), 2014
  2. Deepthi Gummadi, Wichita State University (Chair: Abu Asaduzzaman), 2014
  3. Wijaya Lakshmi, Wichita State University (Chair: Pu Wang), 2015
  4. Prabhu Janakaraj, Wichita State University (Chair: Pu Wang), 2015
  5. Thu Van Tran, Wichita State University (Chair: Ramanan Asmatulu), 2015
  6. Md. S. Faisal, Wichita State University (Chair: Ramanan Asmatulu), 2015
  7. Yan Zuo, Wichita State University (Chair: Animesh Chakravarthy), 2016
  8. Peng Wang, Wichita State University (Chair: Animesh Chakravarthy), 2016
  9. Kavya Sree Erukala, Wichita State University (Chair: Ramazan Asmatulu), 2016
  10. Justin Mears, Wichita State University (Chair: Thomas DeLillo), 2016
  11. Azhar Hussain Mohammed, Wichita State University (Chair: Ramazan Asmatulu), 2016
  12. Iheanyi Onwubiko, Wichita State University (Chair: Ramazan Asmatulu), 2017
  13. Colin Zavislak, Rice University, (Chair: Fathi Ghorbel), 2021
  14. Christopher Hoppe, Rice University, (Chair: Fathi Ghorbel), 2022

- **Other Professional Services**
  1) **Professional membership:** Senior Member of IEEE, Member of SPIE, and ASME
  2) **Associate Editor:** International Journal of Intelligent Robotics and Applications
  3) **Reviewer for archival journals:**
     - ❖ IEEE Transactions on Neural Networks
     - ❖ Smart Materials and Structures
     - ❖ IEEE/ASME Transactions on Mechatronics

- ❖ Sensors and Actuators A: Physical
- ❖ Automatica
- ❖ IEEE Transactions on Robotics
- ❖ Robotics and Autonomous Systems
- ❖ Marine Technology Society Journal
- ❖ IEEE Transactions on Education
- ❖ Journal of Intelligent Material Systems and Structures
- ❖ IEEE Transactions on Industrial Electronics

4) **Reviewer for conferences:**

0. IEEE Conference on Decision and Control (CDC)
1. IEEE Conference on Robotics and Automation (ICRA)
2. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
3. American Control Conference (ACC)
4. ASME Dynamic System and Control Conference (DCSD)

5) **Conference chair/co-chairs:**

- ❖ IEEE Conference on Decision and Control (CDC)
- ❖ IEEE Conference on Robotics and Automation (ICRA)
- ❖ IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
- ❖ American Control Conference (ACC)
- ❖ ASME Dynamic System and Control Conference (DCSD)

6) **Conference organizing committees:**

- ❖ Publicity chair, 2019 ASME Dynamic System and Control Conference (DCSD)
- ❖ Publication chair, the 14th International Conference on Underwater Networks & Systems (WUWNet), 2019

7) **Conference editorial boards:**

- ❖ ASME Dynamics and Control Conference (DCSD)
- ❖ American Control Conference (ACC)
- ❖ IFAC Conference on Modeling, Estimation, and Control Conference (MECC)
- ❖ IEEE Conference on Automation Science and Engineering (CASE)

8) **Conference best student paper award committee:**

- ❖ ASME Dynamic System and Control Conference (DCSD), 2019

7. **Professional committee**

- ❖ Robotics and Automation Committee, Society of Underwater Technology-US

8. **Professional review/consultant service**

- ❖ Panelist, NSF, 2017
- ❖ Control System Consultant, IOT-eq, 2018

9. **Community/public service**

- **Served as judge for Science and Engineering Fair of Houston (SEFH) in 2022**