

Curriculum Vitae  
**James Yang, Ph.D.**

Associate Professor  
SAE Fellow | ASME Fellow  
IEEE Senior Member  
Fulbright US Scholar (2017-2018)  
Ed and Linda Whitacre Faculty Fellow  
Director, Human-Centric Design Research Laboratory  
Department of Mechanical Engineering  
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**EDUCATION**

- Ph.D. Mechanical Engineering, The University of Iowa, USA 08/2003
- M.S. Automobile Engineering, Jilin University, China 04/1992
- B.S. Vehicle Engineering, Jilin University, China 07/1989

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**AWARDS AND HONORS**

- Fellow of Institute for Inclusive Excellence at TTU 2018
- Elected IEEE Senior Member 2018
- Elected Fellow of The American Society of Mechanical Engineers (ASME) 2018
- ASME/CIE 2017 Panel on Smart and Connected Vehicles 2017
- Fulbright US Scholarship 2017
- MTNA e-Journal Article of The Year, Music Teachers National Association 2017
- Ed and Linda Whitacre Faculty Fellowship, College of Engineering, TTU 2016
- Elected Fellow of The Society of Automotive Engineers (SAE) International 2016
- ASME IDETC/CIE Advanced Vehicle Technology Best Student Paper Award 2016
- ASME IDETC/CIE Advanced Modeling and Simulation Best Paper Award 2015
- Chancellors' Council Distinguished Research Award, TTU System 2012
- Outstanding Faculty Mentor Award, Center for Undergraduate Research, TTU 2012
- Most Influential Faculty Member, College of Engineering, TTU 2012
- SAE Ralph R. Teetor Educational Award 2012
- Air Force Summer Faculty Fellowship 2012
- Member, Transdisciplinary Research Academy, TTU 2012
- Faculty Research Award, Department of Mechanical Engineering, TTU 2011
- TTU Alumni Association New Faculty Award 2011
- Whitacre Excellence in Research Award, College of Engineering, TTU 2011
- Nominated for Outstanding Faculty Mentor, Center for Undergraduate Research, TTU 2011
- IIE/Joint Publishers Book-of-the-Year Award, Handbook of Military Industrial Engineering, (Chapter) 2010
- NSF Travel Award, Design Series Workshop, Stanford University 2009
- Publish Forever Award, Center for Computer-Aided Design, The University of Iowa 2007
- The Prometheus Award (Top U.S. Government Technology Award) 2007
- ASME Outstanding Paper Award 2004
- SAE 2003 Arch T. Colwell Merit Award for best paper 2003
- Graduate Scholarship, Jilin University 1989-1992

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**RESEARCH INTERESTS**

- **Human-Centric Engineering:** Physics-based human modeling, physiologically-based ride-comfort modelling, posture and motion prediction, human mobility and reach assessment, slips/falls, computer-aided ergonomics/human factors, human dynamics, military safety training, occupational health and safety, driver comfort model, advanced assistant driver system, and human-centered design and manufacturing.
- **Bioengineering, Biomechanics, Bio-inspired Systems:** Computational biomechanics, bioengineering modeling, shoulder complex modeling, human injury prediction, spine biomechanics, and sports biomechanics.
- **Healthcare Engineering:** Modeling and simulation of human protective equipment (HPE) such as helmets, goggles, respirators, clothing, shoes, HPE interaction with human body, validation and verification, and discomfort assessment; patient falls in hospitals, hospital load handling safety for nurses.
- **Robotic and Multibody Dynamic Systems:** Kinematics and dynamics, special robots (flexible robot hand, hyper redundant continuum robot, hand prosthesis), robot motion planning, robotics control and automation, vehicle dynamics, kinematics and dynamics of machinery, geometric modeling, synthesis of mechanism, tire modelling, and ride comfort.

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**PROFESSIONAL EXPERIENCE**

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| □ <b>Associate Professor</b>   | 09/2014-present |
| <i>Department of Mechanical Engineering, Texas Tech University</i>               |                 |
| □ <b>Ed and Linda Whitacre Faculty Fellow</b>                                    | 11/2016-present |
| <i>Department of Mechanical Engineering, Texas Tech University</i>               |                 |
| □ <b>Fulbright Scholar</b>   | 08/2017-12/2017 |
| <i>University Center for Defence, Navy Academy/University of Vigo, Spain</i>     |                 |
| □ <b>Associate Chair, Director of Undergraduate Studies</b>                      | 05/2015-08/2017 |
| □ <b>Visiting Professor</b>  | 01/2017         |
| <i>University of Technology Sydney</i>   |                 |
| □ <b>Assistant Professor</b>   | 08/2008-08/2014 |
| <i>Department of Mechanical Engineering, Texas Tech University</i>               |                 |
| □ <b>Visiting Professor</b>  | 11/2012         |
| <i>Chinese University of Hong Kong</i>   |                 |
| □ <b>Faculty Research Fellow</b>   | Summer 2012     |
| <i>Air Force Research Lab, Wright-Patterson Air Force Base, Dayton, Ohio</i>     |                 |
| □ <b>Visiting Professor</b>  | 11/2009         |
| <i>Universitat Politecnica De Catalunya (UPC), Spain</i>                         |                 |
| □ <b>Research Engineer and Adjunct Assistant Professor</b>                       | 03/2004-08/2008 |
| <i>Center for Computer-Aided Design, University of Iowa</i>                      |                 |
| □ <b>Postdoctoral Research Scholar</b>   | 08/2003-02/2004 |
| <i>Center for Computer-Aided Design, University of Iowa</i>                      |                 |
| □ <b>Research Assistant</b>  | 01/1999-08/2003 |
| <i>Center for Computer-Aided Design, University of Iowa</i>                      |                 |
| □ <b>Assistant Professor</b>   | 04/1992-10/1998 |
| <i>Department of Automobile Engineering, Tsinghua University, Beijing, China</i> |                 |
| □ <b>Research Assistant</b>  | 08/1989-04/1992 |
| <i>Department of Automobile Engineering, Jilin University, Jilin, China</i>      |                 |

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**ADMINISTRATION EXPERIENCE**

- **Associate Chair, Director of Undergraduate Studies (05/2015-08/2017)**

As the department associate chair for undergraduate studies I oversee the department undergraduate programs and have the following responsibilities:

- Undergraduate admission and orientation
- Undergraduate advising
- Undergraduate curriculum assessment
- Weekly department executive committee briefing
- Class scheduling
- TA assignment
- ABET review preparation
- Undergraduate textbook adaption coordination
- Coordinating instructor course evaluation

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## TEACHING EXPERIENCE

- Advanced Elasticity and Strength of Material, Fall 2017, Navy Academy, Marin, Spain (Fulbright Scholar)
- Automobile, Fall 2017, Navy Academy, Marin, Spain (Fulbright Scholar)
- **ME2301** Statics, Summer I 2017, TTU
- **ME3302** Dynamics, Fall 2009, 2011, Spring 2010, 2013, Summer I (Germany), Summer II (Spain) 2014, Summer 2015, Fall 2015, Summer I 2016, TTU
- **ME3333** Dynamic Systems and Vibrations, Spring 2014, 2015, 2018, Fall 2014, 2018, TTU
- **ME4334** Control of Dynamic Systems, Fall 2016, TTU
- **ME4370** Engineering Design I, Fall 2008, 2010, Spring 2009, 2012, TTU
- **ME5311** Advanced Dynamics (Newly developed course), Spring 2017, TTU
- **ME5356** Digital Human Modeling for Human-Centric Design (Newly developed course), Fall 2010, 2013, Spring 2016, TTU
- **ME6330-005** Vehicle Dynamics (Newly developed course), Spring 2018
- **58:153** Fundamentals of Vibrations (Graduate course, 15 students), Spring 2006, UI
- **58:110** Computer Aided Engineering (Graduate course, Lab), Spring 2003, UI
- **56:131** Manufacturing Systems (Pro/E) (Lab), Spring 2002, UI
- **57:005** Engineering I (Pro/E) (Lab), Spring 2001, UI
- **58:150** Intermediate Mechanics of Deformable Bodies (TA), Fall 2000, UI
- **58:115** Finite Element Method I (Lab), Fall 1999, UI
- Automobile Body Structure and Analysis (30 students per semester), Fall 1993, Spring 1994, Fall 1995, Spring 1996, Fall 1997, Tsinghua University.

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## PUBLICATIONS:

### REFEREED JOURNALS (150)

1. Chumacero, E., **Yang, J.**, and Chagdes, R. J., Numerical Nonlinear Analysis for Dynamic Stability of an Ankle-Hip Model of Balance on a Balance Board, (in press) *ASME Journal of Computational and Nonlinear Dynamics*.
2. Xu, M., **Yang, J.**, Haddas, R., and Lieberman, I.H., Comparison of Responses of Pre- and Post-Surgical Scoliotic Spines to Axial Cyclic Vibration: A Finite Element Study, *ASME Journal of Computers and Information Science in Engineering*, Vol. 19, June, 2019, 021006-1-6.
3. Xiang, Y., Zaman, R., Rakshit, R., **Yang, J.**, Subject-Specific Strength Percentile Determination for Two-Dimensional Human Symmetric Lifting Prediction Considering Dynamic Joint Strength, (in press) *Multibody System Dynamics*.

4. Chumacero, E., and **Yang, J.**, James, R.C., and Wu, M., Body-Weight Supported Treadmill Walking Training Improves Functional Walking and Balance of Stroke Survivors in Any Post-Stroke Stage: A Systematic Review, *Critical Review in Physical and Rehabilitation Medicine*, 30(4): 1-20, 2018.
5. Haddas, R., Xu, M., Lieberman, I.H., and **Yang, J.**, Finite Element-Based Analysis of Pre and Post Lumbar Fusion for Adult Degenerative Scoliotic Spines, (in press) *Spine Deformity*.
6. Pati, D., Valipoor, S., Cloutier, A., **Yang, J.**, Freier, P., Harvey, T.E., and Lee, J., Physical Design Factors Contributing to Patient Falls, (In press) *Journal of Patient Safety*.
7. Yang, Q., Li, H., Shen, S., Zhang, G., Huang, R., Feng, Y., and **Yang, J.**, and Ma, S., Effect of Water Vapor Condensation on Micro-Climate in the N95 FFR, *Scientific Report*, 8(2018), 17382, 1-13.
8. Xu, M., **Yang, J.**, Lieberman, I.H., and Haddas, R., Comparisons of Stress Distributions in Vertebral Bone and Pedicle Screw and Screw-Bone Load Transfers among Different Fixation Methods of Lumbar Spine Fusion Surgery: A Finite Element Study, *Medical Engineering and Physics*, 63, 2019, 26-32.
9. Zhu, H., **Yang, J.**, and Zhang, Y., Modeling and Optimization for Pneumatically Pitch-Interconnected Suspensions of a Vehicle, *Journal of Sound and Vibration*, Vol. 432, 2018, 290-309.
10. Chumacero, E., **Yang, J.**, and Chagdes, J. R., Effect of Sensory-Motor Latencies and Active Muscular Stiffness on Stability for an Ankle-Hip Model of Balance on a Balance Board, *Journal of Biomechanics*, Vol. 75, 77-88, 2018.
11. Cloutier, A., and **Yang, J.**, Examining the Robustness of Grasping Force Optimization Methods Using Uncertainty Analysis, *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems Part B: Mechanical Engineering*, Vol. 4, 041007-1-8, December 2018.
12. Li, B., Yang, X., **Yang, J.**, Zhang, Y., and Ma, Z., In-plane flexible ring tire model parameter identification: Optimization algorithms, *SAE International Journal of Vehicle Dynamics, Stability and NVH*, 2(1): 2018, 1-17.
13. Li, B., Yang, X., **Yang, J.**, Zhang, Y., and Ma, Z., In-Plane Flexible Ring Tire Model-Part 2: Parameterization, *Tire Science and Technology*, TSTCA, Vol. 46, No. 3, July–September 2018, 220-240.
14. Li, B., Yang, X., **Yang, J.**, Zhang, Y., and Ma, Z., In-Plane Flexible Ring Tire Model-Part 1: Model Development and Validation, *Tire Science and Technology*, TSTCA, Vol. 46, No. 3, July–September 2018, 174-219.
15. Cloutier, A., and **Yang, J.**, Grasping Force Optimization Approaches for Anthropomorphic Hands, *ASME Journal of Robotics and Mechanisms*, 10 (1), 011004 (Dec. 20, 2017) (10 Pages).
16. Zhou, S., Li, H., Shen, S., Li, S., Wang, W., Zhang, X., and **Yang, J.**, An Intelligent FFR with a Self-Adjustable Ventilation Fan, *Journal of Occupational & Environmental Hygiene*, 14(11), Nov. 2017, D173-D178.
17. Zhu, H., **Yang, J.**, Zhang, Y., Feng, X., A Novel Air Spring Dynamic Model with Pneumatic Thermodynamics, Effective Friction and Viscoelastic Damping, *Journal of Sound and Vibration*, Vol. 408, 2017, 87-104.
18. Zhu, H., **Yang, J.**, Zhang, Y., Feng, X., and Ma, Z., Nonlinear Dynamic Model of Air Spring with a Damper for Vehicle Ride Comfort, *Nonlinear Dynamics*, Vol. 89, Issue 2, 2017, 1545-1568.
19. Gragg, J., Klose, E., and **Yang, J.**, Modeling the Stochastic Nature of the Available Coefficient of Friction at Footwear-Floor Interfaces, *Ergonomics*, Vol. 60, No. 7, 977-984, 2017.
20. Hou, J., Rajmohan, R., Fang, D., Al-Khalil, K., **Yang, J.**, Westney, W., Grund, C., and O'Boyle, M., Mirror Neuron Activation of Musicians and Non-musicians in Response to Motion Captured Piano Performances, *Brain and Cognition*, Vol. 115, 2017, 47-55.

21. Li, B., Yang, X., **Yang, J.**, Zhang, Y., and Ma, Z., Parameter Identification of In-Plane Flexible Ring Tire Model Based on Static Load-Deflection Data: Some Insights, *International Journal of Vehicle Performance*, Vol. 3, No. 2, 2017, 180-197.
22. Xu, M., **Yang, J.**, Lieberman, I.H., and Haddas, R., Finite Element Method-Based Study for Effect of Adult Degenerative Scoliosis on the Spinal Vibration Characteristics, *Computers in Biology and Medicine*, Vol. 84, 2017, 53-58.
23. Xu, M., **Yang, J.**, Haddas, R., and Lieberman, I.H., Lumbar Spine Finite Element Model for Healthy Subjects: Development and Validation, *Computer Methods in Biomechanics and Biomedical Engineering*, Vol. 20, Issue 1, 1-20, 2017.
24. Ma, Z., Ji, X., Zhang, Y., and **Yang, J.**, State Estimation in Roll Dynamics for Commercial Vehicles, *Vehicle System Dynamics*, Vol. 55, Issue 3, 2017, 313-337.
25. Haddas, R., **Yang, J.**, and Lieberman, I.H., Effects of Volitional Spine Stabilization on Lifting Task in Recurrent Low Back Pain Population, *European Spine Journal*, Volume 25, Issue 9, 2016, 2833-2841.
26. Xiang, Y., MacKugler, G., Kim, J., and **Yang, J.**, Human Stair Ascent and Descent Simulation Using a Hybrid Optimization Formulation, *International Journal of Robotics and Automation*, Vol. 31, Issue 4, 2016, 4548-4559.
27. Ma, Z., Zhang, Y., and **Yang, J.**, Velocity and Normal Tire Force Estimation for Heavy Trucks Based on Multibody Dynamics Simulation Considering the Road Slope Angle, *Vehicle System Dynamics*, Vol. 54, Issue 2, 2016, 137-167.
28. Cloutier, A., **Yang, J.**, Pati, D., and Valipoor, S., Experimental Identification of Potential Falls in Older Adult Hospital Patients, *Journal of Biomechanics*, Vol. 49, Issue 7, 2016, 1016-1020.
29. Westney, W., Grund, C.M., **Yang, J.**, Cloutier, A., Latimer, J., O'Boyle, M., Fang, D., and Hou, J., The Pedagogical Value of "Enjoyment" in the Classical Piano Studio, *Music Teachers National Association (MTNA) e-Journal*, Volume 7, Issue 4, 2016, 2-21.
30. Gragg, J., and **Yang, J.**, Predicting the Probability of Slip in Gait: Methodology and Distribution Study, *Computer Methods in Biomechanics and Biomedical Engineering*, Vol. 19, Issue 1, 2016, 93-100.
31. Westney, W., Grund, C., Latimer, J., Cloutier, A., **Yang, J.**, and O'Boyle, Hou, J., and Fang, D., Musical Embodiment and Perception: Performances, Avatars and Audiences, Special Issue: Music and Meaning, *Signata-Annals of Semiotics*, No. 6, 2015, 353-381.
32. Haddas, R., **Yang, J.**, and Sizer, P., Effects of Gender and Recurrent Low Back Pain on Lifting Style, *Central Europe Journal of Sport Sciences and Medicine*, Vol. 11, No. 3, 15-28, 2015.
33. Ozsoy, B., Ji, X., **Yang, J.**, Gragg, J., and Howard, B., Simulated Effect of Driver and Vehicle Interaction on Vehicle Interior Layout, *International Journal of Industrial Ergonomics*, Vol. 48, 2015, 11-20.
34. Zhang, W., Ma, Z., Jin, A., **Yang, J.**, and Zhang, Y., An Improved Human Biodynamic Model Considering the Interaction between Feet and Ground, *SAE Int. J. Commer. Veh.*, 8(1):2015, doi:10.4271/2015-01-0612.
35. Xu, M., Lei, Z., and **Yang, J.**, Estimating the Dead Space Volume between a Headform and N95 Filtering Facepiece Respirator using Microsoft Kinect, *Journal of Occupational and Environmental Hygiene*, Volume 12, No. 8, 2015, 538-546.
36. Cloutier, A., Gragg, J., and **Yang, J.**, Probabilistic Sensitivity Analysis of Achieving Seated Reach Tasks with Human Joint Angle and Link Length Uncertainty, *Robotica*, Vol. 33, Issue 3, 2015, 498-512.
37. Long, J., **Yang, J.**, Lei, Z., and Liang, D., Simulation-Based Assessment for Construction Helmets, *Computer Methods in Biomechanics and Biomedical Engineering*, Vol. 18, Issue 1, 2015, 24-37.

38. Lei, Z., Ji, X., Li, N., **Yang, J.**, Zhuang, Z., and Rottach, D., Effect of Head Movement on Contact Pressure between Respirators and Headforms: Part 2 - Simulation, *The Annals of Occupational Hygiene*, Vol. 58, Number 9, 2014, 1186-1199.
39. Lei, Z., Ji, X., Li, N., **Yang, J.**, Zhuang, Z., and Rottach, D., Effect of Head Movement on Contact Pressure between Respirators and Headforms: Part 1 - Headform Model and Validation, *The Annals of Occupational Hygiene*, Vol. 58, Number 9, 2014, 1175-1185.
40. Li, B., Yang, X., **Yang, J.**, Tire Model Application and Parameter Identification-A Literature Review, *SAE International Journal of Passenger Cars-Mechanical System* 7(1), 2014, doi:10.4271/2014-01-0872.
41. Pena-Pitarch, E., Falguera, N.T., and **Yang, J.**, Virtual Human Hand: Model and Kinematics, *Computer Methods in Biomechanics and Biomedical Engineering*, 17(5), 568-579, 2014.
42. Lei, Z., **Yang, J.**, and Zhuang, Z., A Novel Algorithm for Determining Contact Area between a Respirator and Headform, *Journal of Occupational and Environmental Hygiene*, Vol. 11, No. 4, 227-237, 2014.
43. Howard, B., **Yang, J.**, and Ozsoy, B., Optimal Posture and Supporting Hand Force Prediction for Common Automobile Assembly One-Handed Tasks, *ASME Journal of Robotics and Mechanisms*, Vol. 6, Issue 2, 021009 (Mar 12, 2014).
44. Cloutier, A., and **Yang, J.**, Design, Control, and Sensory Feedback of Externally-Powered Hand Prosthesis: A Literature Review, *Critical Review in Biomedical Engineering*, Vol. 41, Issue 2, 2013, 161-181.
45. Gragg, J., Cloutier, A., and **Yang, J.**, Optimization-Based Posture Reconstruction for Digital Human Models, *Computers and Industrial Engineering*, Vol. 66, Issue 1, 2013, 125-132.
46. Gragg, J., and **Yang, J.**, Digital Human Forward Kinematic and Dynamic Reliabilities, *ASME Journal of Mechanical Design*, Vol. 135, Issue 7, 2013, 071008 (10 pages).
47. **Yang, J.**, Howard, B., Cloutier, A., and Domire, J.Z., Vertical Ground Reaction Forces for Given Human Standing Posture with Uneven Terrains: Prediction and Validation, *IEEE Transaction on Human-Machine Systems*, Vol. 43, No. 2, 2013, 225-234.
48. Lei, Z., **Yang, J.**, Zhuang, Z., and Roberge, R., Simulation and Validation of Respirator Face Seal Leaks Using Computational Fluid Dynamics and Infrared Imaging, *The Annals of Occupational Hygiene*, Vol. 57, No. 4, 2013, 493-506.
49. Zou, Q., and **Yang, J.**, Motion Synthesis for a Digital Pregnant Woman Multibody System, *International Journal of Robotics and Automation*, Vol. 28, Issue 2, 2013, 192-202.
50. Lei, Z., and **Yang, J.**, Computational Fluid Dynamics-Based Respirator Fit Evaluation-A Pilot Study, *Journal of the International Society for Respiratory Protection*, Vol. 30, No. 2, 105-115, 2013.
51. Lei, Z., and **Yang, J.**, Layered Pentahedral Mesh Generation for Biomechanical Geometries with Unclosed Surfaces, *Computer-Aided Design and Applications*, Vol. 10, No. 2, 2013, 231-245.
52. Yang, G., **Yang, J.**, Qiang, C., Ge, J., and Chen, Q., Natural Frequencies of a Cantilever Beam and Block System with Clearance While Block Staying on Given Positions, *Journal of Vibration and Control*, Vol. 19, No. 2, 262-275, 2013.
53. Griffin, B., and **Yang, J.**, Design and Analysis of a Novel Hip Joint for Earpiece-less Eyeglass Frame, *Journal of Engineering, Design, and Technology*, Vol. 11, Issue 2, 2013, 158-177.
54. Powelson, T., and **Yang, J.**, Literature Review of Prosthetics for Transtibial Amputees, *International Journal of Biomechanics and Biomedical Robotics*, Vol. 2, No. 1, 2012, pp.50 – 64.
55. Gragg, J., Howard, B., Cloutier, A., and **Yang, J.**, Joint Discomfort Human Performance Measure for Driver Posture Prediction: Some Insights, *International Journal of Human Factors Modelling and Simulation*, Vol. 3, Nos.3/4, 235-275, 2012.
56. Gragg, J., **Yang, J.**, Cloutier, A., and Pena-Pitarch E., Effect of Link Length Determination on Posture Reconstruction, *Applied Ergonomics*, Vol. 44, Issue 1, 2013, 93-100.

57. Howard, B., Cloutier, A., and **Yang, J.**, Physics-Based Seated Posture Prediction for Pregnant Women and Validation Considering Ground and Seat Pan Contacts, *ASME Journal of Biomechanical Engineering*, Vol. 134, Issue 7, 2012, 071004-1-10.
58. Zou, Q., Zhang, Q., **Yang, J.**, Cloutier, A., and Pena-Pitarch, E., Nonlinear Inverse Optimization Approach for Determining the Weights of Objective Function in Standing Reach Tasks, *Computers and Industrial Engineering*, Vol. 63, Issue 4, 2012, 791-801.
59. Howard, B., and **Yang, J.**, A New Stability Criterion for Human Seated Tasks with Given Postures, *International Journal of Humanoid Robotics*, Vol. 9, No. 3, 2012, 1250015 (24 pages).
60. Howard, B., and **Yang, J.**, Calculating Support Reaction Forces in Physics-Based Seated Posture Prediction for Pregnant Women, *International Journal of Robotics and Automation*, Vol. 27, No. 3, 2012, 308-321.
61. Zou, Q., Zhang, Q., **Yang, J.**, and Gragg, J., An Inverse Optimization Approach for Determining Weights of Joint Displacement Objective Function for Upper Body Posture Prediction, *Robotica*, Vol. 30, Issue 2, 2012, 389-404.
62. Lei, Z., **Yang, J.**, Zhuang, Z., Human Face and N95 Filtering Facepiece Respirator Interaction: Contact Pressure Simulation and Validation, *Journal of Occupational and Environmental Hygiene*, Vol. 9, Issue 1, 2012, 46-58.
63. Gragg, J., **Yang, J.**, and Howard, B., Hybrid Method for Driver Accommodation Using Optimization-Based Digital Human Models, *Computer Aided Design*, Vol. 44, Issue 1, 2012, 29-39.
64. Lei, Z., and Yang, J., Methodology for Simulating Air Leakages of an N95 Filtering Facepiece Respirator-A Pilot Study, *Computer Aided Design and Applications*, Vol. 9, No. 1, 2012, 43-53.
65. Gragg, J., **Yang, J.**, and Long, J., Optimization-Based Approach for Determining the Driver Seat Adjustment Range for Vehicles, *International Journal of Vehicle Design*, Vol. 57, Nos. 2/3, 2011, 148-161.
66. Kim, J., Abdel-Malek, K., Xiang, Y., **Yang, J.**, Arora, J.S., Concurrent Motion Planning and Reaction Load Distribution for Redundant Dynamic Systems under External Holonomic Constraints, *International Journal for Numerical Methods in Engineering*, Vol. 88, Issue 1, 47-65, 2011.
67. Gragg, J., and **Yang, J.**, Effect of Obesity on Seated Posture Inside a Vehicle Based on Digital Human Models, *SAE International Journal of Materials and Manufacturing*, Vol. 4, No. 1, 516-526, 2011.
68. Ozsoy, B., **Yang, J.**, Howard, B., Domire, J.Z., and Boros, R., Direct Optimization-Based Planar Human Vertical Jumping Simulation, *International Journal of Human Factors Modelling and Simulation*, Vol. 2, No 1/2, 2011, 47-66.
69. Dai, J., **Yang, J.**, and Zhuang, Z., Sensitivity Analysis of Important Parameters Affecting Contact Pressure between a Facepiece Respirator and a Headform, *International Journal of Industrial Ergonomics*, Vol. 41, Issue 3, 2011, 268-279.
70. **Yang, J.**, Marler, T., and Rahmatalla, S., Multi-Objective Optimization-Based Method for Kinematic Posture Prediction: Development and Validation, *Robotica*, Vol. 29, Issue 2, 2011, 245-253.
71. Mi, Z., **Yang, J.**, Kim, J., and Abdel-Malek, K., Determining the Initial Configuration of Uninterrupted Redundant Manipulator Trajectories in a Manufacturing Environment, *Robotics and Computer-Integrated Manufacturing*, Vol. 27, Issue 1, 2011, 22-32.
72. Johnson, R., **Yang, J.**, and Long, J., Finger Reach Envelope Using the Marching Cube Method, *International Journal of Human Factors Modelling and Simulation*, Vol. 1, No. 3, 2010, 321-338.
73. **Yang, J.**, Feng, X., Kim, J., and Rajulu, S., Review of Biomechanical Models of Human Shoulder Complex, *International Journal of Human Factors Modelling and Simulation*, Vol. 1, No. 3, 2010. 271-293.

74. **Yang, J.**, and Kim, J., Static Joint Torque Determination of a Human Model for Standing and Seating Tasks Considering Balance, *ASME Journal of Mechanisms and Robotics*, Vol. 2, Issue 3, 2010, 031005-1-9.
75. Lei, Z., **Yang, J.**, Zhuang, Z., Contact Pressure Study of N95 Filtering Facepiece Respirators Using Finite Element Method, *Computer Aided Design and Applications*, Vol. 7, No. 6, 2010, 847-861.
76. **Yang, J.**, and Dai, J., Simulation-Based Assessment of Rear Effect to Ballistic Helmet Impact, *Computer Aided Design and Applications*, Vol. 7, No. 1, 59-73, 2010.
77. Kim, J., Xiang, Y., **Yang, J.**, Arora, J., and Abdel-Malek, K., Dynamic Motion Planning of Overarm Throw for a Biped Human Multibody System, *Multibody System Dynamics*, Vol. 24, No. 1, 1-24, 2010.
78. Zhao, Y., Liu, Z., Cai, L., Yang, W., **Yang, J.**, and Luo, Z., Study of Control for Automated Clutch of AMT Vehicle Based on Rapid Control Prototyping, *Proc. Instn. Mech. Engrs., Part D: Journal of Automobile Engineering*, Vol. 224, No. 4, 475-488, 2010.
79. Xiang, Y., Chung, H.J., Kim, H.J., Bhatt, R., Marler, R.T., Rahmatalla, S., **Yang, J.**, Arora, J.S., and Abdel-Malek, K., Predictive Dynamics: An Optimization-Based Novel Approach for Human Motion Simulation, *Structural and Multidisciplinary Optimization*, Vol. 41, Number 3, 465-479, 2010.
80. Tian, Q., Chen, L., Zhang, Y., and **Yang, J.**, Simulation of Planar Flexible Multibody System with Clearance and Lubricated Joints, *Nonlinear Dynamics*, Vol. 60, 489-511, 2009.
81. Marler, T., Arora, J.S., **Yang, J.**, Kim, H., and Abdel-Malek, K., Use of Multi-objective Optimization for Digital Human Posture Prediction, *Engineering Optimization*, Vol. 41, Issue 10, 2009, 925-943.
82. Tian, Q., Zhang, Y., Chen, L., and **Yang, J.**, Two-Link Flexible Manipulator Modeling and Tip Trajectory Tracking Based on the Absolute Nodal Coordinate Method, *International Journal of Robotics and Automation*, Vol. 24, Issue 2, 2009, 103-114.
83. Kim, J., **Yang, J.**, and Abdel-Malek, K., Planning Load-Effective Dynamic Motions of Redundant Manipulators, *Robotica*, Vol. 27, Issue 05, 2009, 739-747.
84. Kim, J., **Yang, J.**, and Abdel-Malek, K., Generating Effective Whole-Body Motions of a Human-Like Mechanism with Efficient ZMP Formulation, *International Journal of Robotics and Automation*, Vol. 24, Issue 2, 2009, 125-136.
85. Zhang, Y., Tian, Q., Chen, L., and **Yang, J.**, Simulation of Viscoelastic Flexible Multibody System Based on the Absolute Nodal Coordinate and Fractional Derivative Methods, *Multibody System Dynamics*, Vol. 21, No. 3, 2009, 281-303.
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161. **Yang, J.**, Abdel-Malek, K., and Nebel, K., Restrained and Unrestrained Driver Reach Barriers, *Proceedings of 2004 SAE Digital Human Modeling for Design and Engineering*, June 15-17, 2004, Oakland University, Rochester, Michigan, USA.
162. **Yang, J.**, Abdel-Malek, K., DeGraff, D., and Pena Pitarch, E., Design and Analysis of an Inherently-Compliant Light-Weight Active Hand Prosthesis, *Proceedings of ASME Design Engineering Technical Conferences*, September 29-October 2, 2002, Montreal, Canada.
163. Mi, Z., **Yang, J.**, Abdel-Malek, K., Mun, J., and Nebel, K., Real-Time Inverse Kinematics for Humans, *Proceedings of ASME Design Engineering Technical Conferences*, September 29-October 2, 2002, Montreal, Canada.
164. Mi, Z., **Yang, J.**, Abdel-Malek, K., and Laurent, J., Planning for Kinematically Smooth Manipulator Trajectories, *Proceedings of ASME Design Engineering Technical Conferences*, September 29-October 2, 2002, Montreal, Canada.
165. **Yang, J.**, Abdel-Malek, K., The Exact Reach Envelope of 9 Degree-of-freedom model of Human Upper Extremities, *Second International Symposium on Mechanics of Human Movement and Biomaterials*, August 5-7, 2001, Ottawa, Ontario, Canada.

166. **Yang, J.**, Abdel-Malek, K., and Cremer, J., An Approach of NURBS Sweeping, *Proceedings of ASME Design Engineering Technical Conferences*, Sept. 9-12, Pittsburgh, Pennsylvania, USA
167. Yu, W., **Yang, J.** and Abdel-Malek, K., Minimum Torque Placement of a Kinematic Structure, *Proceedings of ASME Design Engineering Technical Conferences*, Sept. 9-12, 2001, Pittsburgh, Pennsylvania, USA.
168. Abdel-Malek, K., **Yang, J.**, Brand, R., and Tanbour, E., Towards Understanding the Workspace of the Upper Extremities, *Proceedings of SAE Digital Human Modeling for Design and Engineering*, Technical Paper No. 2001-01-2095, June 26-28, 2001, Arlington, Virginia, USA.
169. Abdel-Malek, K., and **Yang, J.**, Method and Code for the Visualization of Multivariate Solids, *Proceedings of ASME Design Engineering Technical Conferences*, Sept. 10-13, 2000, Baltimore, Maryland, USA.
170. Abdel-Malek, K., **Yang, J.**, and Blackmore, D., Closed-form Swept Volume of Implicit Surfaces, *Proceedings of ASME Design Engineering Technical Conferences*, Sept. 10-13, Baltimore, Maryland, USA.
171. Chen, Q., Lun, J., Wang, Y., Zhang, M., and **Yang, J.**, Development of Electric Van for City Use in China, *Proceedings of the 12<sup>th</sup> International Electric Vehicle Symposium*, December 5, 1994.

#### BOOK CHAPTERS (23)

- B1. **Yang, J.**, and Lei, Z., (2018) *Human Head Modeling and Applications*. In Paul G, Scataglini S. (eds) DHM and Posturography, Elsevier.
- B2. **Yang, J.**, and Ozsoy, B., (2018) *Physics-Based Sit-to-Stand Three Dimensional Motion Prediction Considering Seat Pan Contact*. In Paul G, Scataglini S. (eds) DHM and Posturography, Elsevier.
- B3. Haddas R., Xu M., Lieberman I., **Yang J.** (2018) *Finite Element Analysis of Pre and Post Lumbar Fusion for Adult Degenerative Scoliosis Patients*. In: Gefen A., Weihs D. (eds) Computer Methods in Biomechanics and Biomedical Engineering. Lecture Notes in Bioengineering. Springer, Cham, 209-217.
- B4. Lei, Z., and **Yang, J.**, *Effects of Head Movement on Contact Pressure between a N95 Respirator and Headform*, Advances in Affective and Pleasurable Design, Edited by YG Ji, CRC Press, 2013, 29-259.
- B5. Cloutier, A., Gragg, J., and **Yang, J.**, *Sensitivity Analysis of Achieving a Reach Task Considering Joint Angle and Link Length Variability*, Advances in Applied Human Modeling and Simulation, Edited by V.G. Duffy, CRC Press 2012, 13-22.
- B6. Gragg, J., **Yang, J.**, and Liang, D., *Probabilistic and Simulation-Based Methods for Study of Slips, Trips, and Falls-State of the Art*, Advances in Applied Human Modeling and Simulation, Edited by V.G. Duffy, CRC Press 2012, 23-32.
- B7. Long, J., Lei, Z., **Yang, J.**, and Liang, D., *Helmet Risk Assessment for Top and Side Impact in Construction Sectors*, Advances in Applied Human Modeling and Simulation, Edited by V.G. Duffy, CRC Press 2012, 33-42.
- B8. Zou, Q., **Yang, J.**, and Liang, D., *Stochastic Optimization Applications for Robotics and Human Modeling: A Literature Survey*, Advances in Applied Human Modeling and Simulation, Edited by V.G. Duffy, CRC Press 2012, 43-54.
- B9. Lei, Z., and **Yang, J.**, *Contact Area Determination between an N95 Filtering Facepiece Respirator and a Headform*, Lecture Notes in Computer Science, 2011, Vol. 6777, Digital Human Modeling, 119-128, Springer-Verlag Berlin Heidelberg.
- B10. Howard, B., and **Yang, J.**, *Predicting Support Reaction Forces for Standing and Seated Tasks with Given Postures-A Preliminary Study*, Lecture Notes in Computer Science, 2011, Vol. 6777, Digital Human Modeling, 89-98, Springer-Verlag Berlin Heidelberg.

- B11. Ozsoy, B., and **Yang, J.**, *Planar Vertical Jumping Simulation-A Pilot Study*, Lecture Notes in Computer Science, 2011, Vol. 6777, Digital Human Modeling, 161-170, Springer-Verlag Berlin Heidelberg.
- B12. Cloutier, A., Boothby, R., and **Yang, J.**, *Motion Capture Experiments for Validating Optimization-Based Human Models*, Lecture Notes in Computer Science, 2011, Vol. 6777, Digital Human Modeling, 59-68, Springer-Verlag Berlin Heidelberg.
- B13. Long, J., Burns, K., and **Yang, J.**, Cloth Modeling and Simulation: A Literature Survey, Howard, B., and **Yang, J.**, *Predicting Support Reaction Forces for Standing and Seated Tasks with Given Postures-A Preliminary Study*, Lecture Notes in Computer Science, 2011, Vol. 6777, Digital Human Modeling, 312-320, Springer-Verlag Berlin Heidelberg.
- B14. Zou, Q., Zhang, Q., **Yang, J.**, Boothby, R., Gragg, J., and Cloutier, A., *An Alternative Formulation for Determining Weights of Joint Displacement Objective Function in Seated Posture Prediction*, Lecture Notes in Computer Science, 2011, Vol. 6777, Digital Human Modeling, 231-242, Springer-Verlag Berlin Heidelberg.
- B15. Gragg, J., **Yang, J.**, and Boothby, R., *Posture Reconstruction Method for Mapping Joint Angles from Motion Capture Experiment to Simulation Models*, Lecture Notes in Computer Science, 2011, Vol. 6777, Digital Human Modeling, 69-78, Springer-Verlag Berlin Heidelberg.
- B16. **Yang, J.**, Feng, X., Kim, J., Xiang, Y., and Rajulu, S., *Joint Coupling for Human Shoulder Complex*, Lecture Notes in Computer Science, Digital Human Modeling, Vol. 5620, 72-81, 2009, Springer-Verlag, Berlin.
- B17. **Yang, J.**, Dai, J., and Zhuang, Z., *Human Head Modeling and Personal Head Protective Equipment: A Literature Review*, Lecture Notes in Computer Science, Digital Human Modeling, Vol. 5620, 2009, Springer-Verlag, Berlin.
- B18. Pena-Pitarch, E., **Yang, J.**, and Abdel-Malek, K., Virtual Human Hand: Grasping and Simulation, Lecture Notes in Computer Science, Digital Human Modeling, Vol. 5620, 140-149, 2009, Springer-Verlag, Berlin.
- B19. **Yang, J.**, Chapter 31, Human Modeling and Simulation, in *Handbook of Digital Human Modeling*, Taylor and Francis/CRC Press, Duffy, V. G. (Ed.), 2008.
- B20. Abdel-Malek, K., **Yang, J.**, Marler, T., and Arora, J., Chapter 26, Digital Warfighter Modeling for Military Applications, in *Handbook of Military Industrial Engineering*, Taylor and Francis/CRC Press, Badiru, A. (Ed.), 2008.
- B21. **Yang, J.**, Rahmatalla, S., Marler, T., Abdel-Malek, K., and Harrison, C., *Validation of Predicted Posture for the Virtual Human Santos*, Lecture Notes in Computer Science, *Digital Human Modeling*, Vol. 4561, 2007, 500-510, Springer, Heidelberg, Berlin.
- B22. Abdel-Malek, K., **Yang, J.**, Kim, J. K., Marler, T., Beck, S., Swan, C., Frey-Law, Mathai, A., Murphy, C., Rahmatalla, S., and Arora, J., Development of the Virtual-Human Santos, Lecture Notes in Computer Science, *Digital Human Modeling*, Vol. 4561, 2007, 490-499, Springer-Verlag, Berlin.
- B23. Abdel-Malek, K., and **Yang, J.**, Chapter 12, Optimization-Based Inverse Kinematics of Articulated Linkages, in *Optimization of Structure and Mechanical Systems*, Arora, J. (Ed.), World scientific Publishing Co. Pte. Ltd, 331-360, 2007.

## EDITORIAL ISSUES

- E1. Xiang, Y., Zhou, X., and **Yang, J.**, Guest Editors, Human Dynamics Motion Prediction and Simulation, Special Issue in *International Journal of Human Factors Modelling and Simulation*, Vol. 2, Issue 1/2, 2011.
- E2. **Yang, J.**, Lan, F., and Chen, J., Guest Editors, Research and Advances of Vehicle Body Engineering, Special Issue in *International Journal of Vehicle Design*, Vol. 57, Issue 2/3, 2011.



- E3. **Yang, J.**, Kim, J., Guest Editors, Digital Human Modeling and Simulation, and Applications for Vehicle Design, Special Issue in *International Journal of Vehicle Design*, Vol. 51, Issue 3/4., 2009.
- E4. Zhang, Y., Chen, L., and **Yang, J.**, Guest Editors, Modelling and Simulation of Complex Mechatronic Systems, Special Issue in *International Journal of Vehicle Autonomous Systems*, Vol. 6, No. 3/4, 2008.
- 

### TECHNICAL REPORTS

- T1. Liang, D., **Yang, J.**, Tanner, L., Kiesling, E., and Ahmadisoleymani, A., Finite Element Simulation of Storm Shelter, Texas Tech University, October 2016.
- T2. Liang, D., **Yang, J.**, Tanner, L., Kiesling, E., and Ahmadisoleymani, A., Literature Review, Storm Shelter-Interim Report, Texas Tech University, December 2015.
- T3. Li, N., and **Yang, J.**, Finite Element Simulation Platform for Tornado Door System, Technical Report, National Wind Institute Discovery Program, Texas Tech University, September 2015.
- T4. **Yang, J.**, and Lewis, K., Biomechanical Model for Assessing Injury Risks in Mining, Technical Report, Texas Tech University, 06-2014.
- T5. **Yang, J.** and Lei, Z., Predictive Models for Respirator Fit and Comfort with Head Movements, Technical Report, Texas Tech University, 2014.
- T6. **Yang, J.** and Lei, Z., Predictive Models for Respirator Fit and Comfort with Head Movements, Technical Report, Texas Tech University, 2011.
- T7. **Yang, J.** and Lei, Z., Predictive Models for Respirator Fit and Comfort, Technical Report, Texas Tech University, 2010.
- T8. **Yang, J.** and Lei, Z., Skin Sensitivity under Mechanical Loads: A Literature Review, Technical Report, Texas Tech University, 2010.
- T9. **Yang, J.** and Lei, Z., Survey of Respirator Comfort and Fit, Technical Report, Texas Tech University, 2010.
- T10. **Yang, J.** and Long, J., Joystick Evaluation Using Hand Simulation Suite, Texas Tech University, Technical Report, 2009.
- T11. **Yang, J.** and Gragg, J., Comfort Metrics for Digital Hand Model, Texas Tech University, Technical Report, 2008.
- T12. **Yang, J.**, Gragg, J., and Li, J., Carpal Tunnel Risk Models Based on Empirical Data, Texas Tech University, Technical Report, 2008.
- T13. Marler, T., and **Yang, J.**, Determination of the Pareto Optimal Set for a Bi-objective Posture Prediction Problem, University of Iowa, Virtual Soldier Research Program, Technical Report Number VSR-04.07.
- T14. **Yang, J.**, Hand Biomechanics, University of Iowa, Virtual Soldier Research Program, Technical Report Number VSR-06.01.
- T15. **Yang, J.**, and Pena Pitarch, E., Kinematic Human Modeling, University of Iowa, Virtual Soldier Research Program, Technical Report Number VSR-04-11-01.
- T16. Sinokrot, T., **Yang, J.**, and Fetter, B., Workspace Analysis for Santos, University of Iowa, Virtual Soldier Research Program, Technical Report Number VSR-04-11-13.

### ABSTRACTS

- A1. Xu, M., **Yang, J.**, Lieberman, I., and Haddas, R., Mesh Sensitivity Analysis for a Healthy Lumbar Spine Finite Element Model, *International Society for Advancement of Spine Surgery*, May 16-20, 2016, Singapore.
- A2. Xu, M., **Yang, J.**, Lieberman, I., and Haddas, R., Finite Element Model Development and Validation of a Healthy Human Lumbar Spine, *International Society for Advancement of Spine Surgery*, May 16-20, 2016, Singapore.

- A3. Haddas, R., Xu, M., Lieberman, I., and **Yang, J.**, Adjacent Level Analysis of Pre and Post Lumbar Fusion for Scoliosis Patients in Comparison to Healthy Controls-Finite Element Analysis, *The 40<sup>th</sup> Annual Meeting of the American Society of Biomechanics*, Raleigh, NC, August 2-5, 2016.
- A4. Haddas, R., Xu, M., Lieberman, I., and **Yang, J.**, Lifting Risk after Lumber Fusion in Scoliosis, *The 39<sup>th</sup> Annual Meeting of the American Society of Biomechanics*, Columbus, OH, August 5-8, 2015.
- A5. Haddas, R., Xu, M., Lieberman, I., Snailer, B., and **Yang, J.**, Adjacent Level Deterioration after Lumber Fusion in Scoliosis-A Finite Element Study, *The 39<sup>th</sup> Annual Meeting of the American Society of Biomechanics*, Columbus, OH, August 5-8, 2015.
- A6. Haddas, R., and **Yang, J.**, Effects of Core Muscle Activation on Injury Risks in Mining Lifting for Healthy Population, *2014 World Congress on Biomechanics*, Boston, July 9, 2014.

### **POSTERS (6)**

- P1. Schuelke, B., Gragg, J., Liang, D., and **Yang, J.**, Factors Affecting Human Mobility in Missouri and Alabama Tornado Survey, *2015 Aging in America Conference*, March 23-27, 2015, Chicago, IL, USA.
- P2. Haddas, R., and **Yang, J.**, Effects of Core Muscle Activation on Injury Risks in Mining Lifting for Healthy Population, *2014 World Congress on Biomechanics*, Boston, July 9, 2014.
- P3. O'Boyle, M., Westney, W., **Yang, J.**, Grund, C., Hou, J., and Gang, D., Brain Activation in Response to Motion Captured Piano Performance: A Functional Magnetic Resonance Imaging (fMRI) Study, *The 20<sup>th</sup> Annual Meeting of the Organization for Human Brain Mapping*, June 8-12, 2014, Hamburg, Germany.
- P4. O'Boyle, M., Westney, W., **Yang, J.**, Grund, C., Hou, J., Gang, D., and Rajmohan, R., Mirror Neuron Activation in Musicians and Non-Musicians in Response to Motion Captured Piano Performance, *Psychonomic Society's 55<sup>th</sup> Annual Meeting*, Hyatt Regency Long Beach, Long Beach, CA, Nov. 20-23, 2014.
- P5. Lewis, K., Haddas, R., and **Yang, J.**, Effects of Core Muscle Activation on Injury Risks in Mining Lifting for Healthy Population, *2014 Great Plains Honors Council Conference*, Fort Smith, Arkansas, March 28-30, 2014.
- P6. Latimer, J., Cloutier, A., **Yang, J.**, Westney, W., O'Boyle, M., and Grund, C., Technological and Aesthetic Investigation of the Physical Movements of Pianists, *2014 Great Plains Honors Council Conference*, Fort Smith, Arkansas, March 28-30, 2014.

---

## **STUDENT SUPERVISION**

### **Graduate Students**

#### **As Thesis Advisor**

#### **Ph.D. Students (14):**

##### **Ongoing:**

1. Shadman Tahmid, Upper Extremity Model and Assistive Robotic Rehabilitation of Upper Extremity, 08/2018-present.
2. Mahmuda Ishrat Malek, Stability of Three Dimensional Ankle-Knee-Hip Model of Balance on a Balance Board Using Bifurcation Analysis and Deep Reinforcement Learning, 08/2018-present.
3. Amanda Oliveira, Soft Robotics, 01/2018-present.
4. Ritwik Rakshit, Muscle Fatigue Model, 08/2017-present.
5. Jazmin Aguilar, Lumber Spine Injury Assessment through Whole Body Musculoskeletal Model, 08/2017-present.
  - 2017 Presidential Graduate Fellowship (\$34,000 per year for three years), TTU

6. Erik Chumacero, Nonlinear Dynamics of Human Upright Postural Stability on a Balance Board Using an Ankle-Hip Model, 08/2014-expected May 2019.

**Graduated:**

1. Ming Xu, Simulation-Based Assessment for Biomechanical Behavior of Scoliotic Human Thoracolumbar Spine, 01/2014-December 2018.
  - a. 2017 Dissertation Complete Fellowship, TTU
  - b. 2017 Travel Award from the National Occupational Research Agenda (NORA) to attend the 15<sup>th</sup> NORA Symposium at Salt Lake City.
2. Bin Li, In-Plane and Out-of-Plane Flexible Ring Tire Model Development and Validation, Texas Tech, 08/2013-08/2018.
  - 2016 ASME IDETC/CIE Advanced Vehicle Technologies Best Student Paper Award (\$500)
3. Bradley Howard, Digital Human Posture and Motion Prediction Considering Cognitive Decision Making, Texas Tech, 08/09-08/2018.
  - The 2012 Helen DeVitt Jones Excellence in Graduate Teaching Award.
  - Certificate in recognition of publishing scholarly journal paper, August 5, 2012.
4. Aimee Cloutier, Optimal Grasping Forces for Robotic Hands, Texas Tech, 08/2012-08/2017. Tenure Track Assistant Professor, Department of Mechanical Engineering, Rose-Hulman Institute of Technology, Indiana.
  - 2016 Teaching Effectiveness and Career Enhancement (TEACH) Fellow.
  - 2015 Interior Design Educators Council 2015 Scholarship Excellence Award
  - 2015 ASME IDETC/CIE Best Paper Award.
  - 2015 Travel Award from the National Occupational Research Agenda (NORA) to attend the 13<sup>th</sup> NORA Symposium at Salt Lake City.
  - 2013 NSF Graduate Research Fellowship Program Fellow.
  - 2013 Travel Award from the National Occupational Research Agenda (NORA) to attend the 10<sup>th</sup> NORA Symposium at Salt Lake City.
  - 2012 NSF Student Poster Symposium Travel Award (\$950) for ASME IMECE (Houston).
  - Awarded the 2012 CH Foundation Doctoral Fellowship, TTU (Total \$16,000 for 4 years).
  - Awarded the 2012 Graduate School Doctoral Fellowship, TTU (Annual \$26,000 for two years, waive tuition and other fees).
5. Jared Gragg, Ph.D., Investigating the onset of slip in gait by employing probabilistic theory and optimization-based motion prediction, Texas Tech, 08/2010-05/2014. Current Position: Lecturer, Department of Biomedical Engineering and Mechanics, Virginia Tech University. 2014-2015: Assistant Professor, Department of Mechanical Engineering, University of Louisville, Kentucky.
  - The 2014 Outstanding Dissertation Award.
  - The 2013 Summer Dissertation Research Award.
  - The 2013 Helen DeVitt Jones Excellence in Graduate Teaching Award.
  - The 2012 Air Force Summer Research Fellowship.
  - Certificate in recognition of publishing scholarly journal paper, February 13, 2012.
  - Spring 2012 ME Graduate Tuition Scholarship.
  - Awarded the 2010 Dean's Fellowship in Fall 2010.
  - Awarded the 3rd Place in the Ninth Annual Graduate Student Research Poster Competition in Spring 2010.
  - Awarded the prestigious 2010-2011 AT&T Chancellor's Fellowship Awards in Spring 2010.
  - 2010-2011 Harrington Graduate Engineering Scholarship.
  - 2008-2009 Honors Scholarship Quasi Endowment.

6. Burak Ozsoy, Ph.D., Sit-to-Stand Human Movement Simulation, Texas Tech, 08/09-05/2014. Current Position: CEO, Global Dynamics Systems, Istanbul, Turkey.
  - The 2013 Summer Dissertation Research Award.
  - Awarded the Harrington Graduate Engineering Scholarship in 2009.
7. Zhipeng Lei, Ph.D., Simulation-Based Assessment for Respirator Fit and Comfort, Texas Tech, 08/09-08/2014. Postdoc, Center for Disease Control (CDC), Pittsburgh.
  - The 2014 Summer Dissertation Research Award.
  - 2013 Travel Award from the National Occupational Research Agenda (NORA) to attend the 10<sup>th</sup> NORA Symposium at Salt Lake City.
  - Awarded the 2012 Chinese Government Award for Outstanding Self-Financed Student Abroad (\$6,000)
  - Awarded the 2012 ISRP Full Paper Student Winner (\$2,000 cash and \$5,000 travel money)
  - Certificate in recognition of publishing scholarly journal paper, February 13, 2012.
8. Qiuling Zou, Ph.D., Stochastic Optimization-Based Human Posture and Motion Prediction, Texas Tech, 08/09-05/2012. Defended on Oct. 18, 2012. Current Position: Engineer, New York Air Brake, Irving, Texas.

**MS Students (11):**

**Ongoing:**

None

**Graduated:**

1. Stephen Mangum, MS, Finite Element Method-Based Simulation of High Explosive Material Machining, 04/2016-05/2018.
2. Ritwik Rakshit, MS, Exoskeleton of Humans, 08/2015-08/2017.
3. Jazmin Aguilar, MS, ACL Injury Modeling and Simulation, transferred to PhD student (August 2017), 01/2016-08/2017.
4. Rajath Rao, MS, Automobile Suspension, 08/2015-05/2017.
5. Seyed AhmadiSoleymani, MS, Studying the Performance of American Football Helmet in Absorbing the Energy of Impact Based on Finite Element Method, 01/2014-08/2016. Thesis defence on June 28, 2016.
6. Richard George, MS report, Design and Analysis of a Compact Regenerative Motion Rectifying Shock Absorber, 08/2011-05/2015. Report defence on March 25, 2015.
7. Prasad Kumbhar, MS, Simulation-Based Virtual Driver Fatigue Prediction and Determination of Optimal Vehicle Seat Dynamic Parameters, 08/2011-08/2013. Thesis defence on June 26, 2013.
8. James Long, MS, Simulation-Based Assessment for Construction Helmets and Clothing, 01/2010-05/2012. Thesis defence on March 27, 2012.
9. Thomas Powelson, MS, A Study into the Application of Piezoelectrics to Modify Ankle Torques in Active Prosthetic Feet by Finite Element Analysis, 09/2010-05/2012. Thesis defence on March 21, 2012.
  - Awarded the TTU Chancellor's MS Fellowship from TTU in Fall 2010.
10. Jared Gragg, M.S. Thesis, Toward a New Digital Human Model and Applications, Texas Tech, 08/2008-05/2010. Thesis defence on March 23, 2010.
11. Jichang Dai, M.S. Thesis, Simulating the Interaction between Head Protective Equipment and a Headform, Texas Tech, December 2009. 09/2008-12/2009. Thesis defence on October 28, 2009.
  - Awarded the James Douglas and Mary Hazlewood Memorial Fellowship in 2009.

**Graduate Students in University of Iowa:**

12. Esteban Pena Pitarch, Ph.D. Dissertation, Co-adviser, Virtual Human Hand: Grasping Strategy and Simulation, University of Iowa, 10/2007.

13. Faisal A. Goussous, M.S. Thesis, Grasp Planning for Digital Humans, University of Iowa, 08/2005-08/2007.
14. Tariq Sinokrot, M.S. Thesis, Human Reach Envelope Analysis and Zone Differentiation, University of Iowa, 01/2004-08/2005.
15. Jason Olmstead-Muhs, M.S. Thesis, Geodesics Model for Human Motion Collision Avoidance, University of Iowa, 01/2004-08/2005.
16. Jason Potratz, M.S. Thesis, Development and Prototyping of Hand Mechanism with High Degrees of Freedom, University of Iowa, 01/2004-08/2005.
17. Kimberly Farrell, M.S. Thesis, Human Kinematic Motion Prediction, University of Iowa, 01/2004-08/2005.

#### **As Thesis/Dissertation Committee Member**

1. Zachary Estlack, Ph.D. Dissertation, Advisor: Jungkyu (Jay) Kim.
2. Syed Ehsanur Rahman, Ph.D. Dissertation, Advisor: Gordon Christopher.
3. Abraham Nispel Pizarro, Ph.D. Dissertation, Advisor: Stephen Ekwaro-Osire.
4. Shweta Dabetwar, Ph.D. Dissertation, Advisor: Stephen Ekwaro-Osire.
5. Zachary Estlack, Ph.D. Dissertation, Advisor: Jay Kim.
6. Ozhan Gegcel, Ph.D. Dissertation, Advisor: Stephen Ekwaro-Osire, Improved Sensors for Remaining Useful Life Estimation through Uncertainty Propagation.
7. Godlove Wanki, Ph.D. Dissertation, Advisor: Stephen Ekwaro-Osire, Probabilistic Analysis of Hierarchical Design in Bone.
8. Cagri Mert Bakirci, Ph.D. Dissertation, Advisor: Burak Aksak, March 21, 2018.
9. Peter McDonough, Ph.D. Dissertation, Advisor: Alan Barhorst, March 2017.
10. Ricardo Cruz-Lozano, Ph.D. Dissertation, Advisor: Stephen Ekwaro-Osire, Quantification of Uncertainty in Engineering Sketches, March 2017.
11. Noah Wheeler, Ph.D. Dissertation, Keith S. Jones, Department of Psychological Sciences. July 18, 2016.
12. Haile Endeshaw, Ph.D. Dissertation, Advisor: Stephen Ekwaro-Osire, June 20, 2016.
13. Jingan Song, Ph.D. Dissertation, Advisor: Chang-Dong Yeo, September 21, 2016.
14. Christopher Umstead, Ph.D., Thesis Advisor: Alan Barhorst, October 16, 2015.
15. Xianlin Zeng, Ph.D., Thesis Advisor: Qing Hui, June 24, 2015.
16. Nkama Nkama, MS Thesis, Probabilistic Analysis of Innovative Drivetrains to Increase Reliability, Thesis Advisor: Stephen Ekwaro-Osire, March 24, 2015.
17. Haopeng Zhang, Ph.D. Dissertation, Advisor: Qing Hui, April 23, 2014.
18. Duc Pham, Ph.D. Dissertation, Advisor: Alexander Idesman, Oct. 7, 2013.
19. Kailiang Zhang, M.S. Thesis, Advisor: Zhaoming He, Oct. 5, 2013.
20. Ariful I. Bhuiyan, Ph.D. Dissertation, Advisor: Javad Hashemi, Finite Element Model of Human Leg for ACL Injury Investigation, March 18, 2013.
21. Bo Gao, Ph.D. Dissertation, Advisor: Zhaoming He, Effect of Papillary Muscles Shifting on Leaflet Coaptation Mechanism, September 26, 2012.
22. Ryan E. Breighner, Ph.D. Dissertation, Advisor: Javad Hashemi, An In-Vitro Study of Joint Geometry and Loading Effects on Anterior Cruciate Ligament Strain and Knee Kinematics. Dec. 2, 2011 defense.
23. Haileyesus B. Endeshaw, MS Thesis, Advisor: Stephen Ekwaro-Osire, Probabilistic Modeling of the Rupture of Algae Cells, July 8, 2011.
24. Jiannan Tan, Ph.D. Dissertation, Advisor, Siva Parameswaran, A Study of Solving Navier-Stokes Equation with Finite Volume Method based on Polygonal Unstructured Grids and the Application in Ground Vehicle Aerodynamics, October 18, 2010.
25. Liang Shi, Ph.D. Dissertation, Advisor, Zhaoming He, Left Ventricle Fluid Mechanics under Mitral Valve Edge-to-Edge Repair, August 30, 2010.
26. Krishnamoorthy Neeraj, MS Thesis, Advisor: Derrick Tate, Comparative Study of Functional Modeling Methods using Protocol Analysis, June 28, 2010.

27. Ammar Hazrat, MS Thesis, Advisor: Derrick Tate, Modeling and Characterization of Friction between Compressed Earth Block and Metal Surfaces and Its Effects on CEB Properties, March 23, 2010.
28. Marco Solano, Ph.D. Dissertation, Advisor: Stephen Ekwaro-Osire, High-Level Fusion for Intelligence Applications using Recombinant Cognition Synthesis, March 19, 2010.
29. Divyareddy Chilupuri, MS, Texas Tech, Advisor: Sergey Smirnov, Fluid Flow in Flexible Tubes, February 5, 2010.
30. Prashanth Krishna, MS, Texas Tech, Advisor: Alexander Idesman, A New Explicit-Implicit Finite Element Technique for Linear Wave Propagation Problems in Solids, November 12, 2009.
31. Hrishikesh Kulkarni, MS, Texas Tech, Advisor: Stephen Ekwaro-Osire, A Weakest-link Approach for Fatigue Limit of Steels, October 26, 2009.
32. Sree Tallapragada, MS., Texas Tech, Advisor: Alexander Idesman, A Finite Element Method with Low Space-Discretization Error for Wave Propagation Problems in Solids, Spring 2009.
33. Vipin Palande, MS., Texas Tech, Advisor: Jahan Rasty, Residual Stress Analysis during Cold Expansion Process, Fall 2008.

### **As Report Committee Member**

1. Denis Jushanin, MS Report, Texas Tech, Advisor: Stephen Ekwaro-Osire, Tool Path Computation for Improved Accuracy, May 5, 2014.
2. Sagar Godse, MS Report, Texas Tech, Advisor: Timothy Maxwell, Sustainable Product Design, November 16, 2010.

### **Undergraduate Students**

#### **At Texas Tech**

##### *Undergraduate Research Assistants (26)*

##### **Ongoing:**

1. Adrian Harvey, Object Delivery Study, 08/2018-present.
2. (McNair Scholar) Alfred O. Ongolo, Patient Reposition Table Design, 08/2018-present.
3. Elizabeth Jackson, Biomechanics Mechanism of Bicycle Saddles, 01/2018-present
4. Mario Garcia, Biomechanics Mechanism of Bicycle Saddles, 08/2017-present

##### **Graduated:**

1. Alexander Webster, Department of Mechanical Engineering, TTU, Bicycle Saddles, 10/2016-12/2017.
2. Cecilia Garza, Texas A&M University-Kingsville, REU student, Effect of Object Surfaces and Shapes on Hand Grip Functions for Heavy Objects, 06/2017-07/2017 (8 weeks).
3. Jessie Opella, Honors College, Texas Tech University, Spine Modeling, 09/01/2015-05/2017.
  - 2016 Travel Award from the National Occupational Research Agenda (NORA) to attend the 14<sup>th</sup> NORA Symposium at Salt Lake City.
  - Awarded Undergraduate Student Scholarship from the Honours College (09/2015-08/2016).
4. Khoi Ly, Honors College, Texas Tech University, Prototype of Finger Dentation Apparatus and Experiment, 01/20/2015-05/16/2017.
  - 2017 Outstanding Undergraduate Researcher Honourable Mention.
  - 2016 Travel Award from the National Occupational Research Agenda (NORA) to attend the 14<sup>th</sup> NORA Symposium at Salt Lake City.

- Awarded Undergraduate Student Scholarship from the Honours College (09/2015-08/2016).
- 5. Abigail S. Holmes, Honors College, Texas Tech University, Human Modeling, 09/01/2015-12/15/2016.
  - 2016 Travel Award from the National Occupational Research Agenda (NORA) to attend the 14<sup>th</sup> NORA Symposium at Salt Lake City.
  - Awarded Undergraduate Student Scholarship from the Honours College (09/2015-08/2016).
- 6. Brandt Colborg, Department of Mechanical Engineering, Texas Tech University, Design of New Punching Cap Machine, 09/03/2014-12/15/2105.
- 7. Brandon Snailer, Department of Health, Exercise Sciences and Sports, Texas Tech, Slip and falls, 08/26/2014-05/21/2015.
- 8. Dave Knipe, Honors College, Texas Tech University, Prototype of Finger Dentation Apparatus and Experiment, 09/01/2014-12/15/2014.
- 9. Sarah Bird, Honors College, Texas Tech University, Long Distance Driving Discomfort, Individual study, 09/01/14-12/2014.
- 10. Jesse Latimer, Honors College, Texas Tech University, Piano Project, 04/16/13-12/2014.
  - a. Honors Thesis Title: Technological and Aesthetic Investigation of the Physical Movement of Pianists, Graduated with Highest Honours.
  - Awarded Undergraduate Student Fellowship from the Honours College (09/2013-09/2014).
- 11. Jerrod Hollers, Department of Mechanical Engineering, Texas Tech University, Patient Slip Data Processing, 05/18/2014-12/15/2014.
- 12. Pedro Peralta, Universidad del Turabo, Puerto Rico, Human Finger Design and Simulation, 06/02/14-07/31/14.
- 13. Kate Lewis, Honors College, Texas Tech University, Biomechanical Model for Assessing Injury Risk in Mining, 08/13-05/2014. She was accepted into the Common European Master's Course in Biomedical Engineering (CEMACUBE). This consortium prepares students from Europe and outside Europe for professions in biomedical engineering through a European dual-master program. In 2014, 33 students from 16 countries were accepted. Lewis was one of three Americans who will participate.
- 14. Victoria Banuelas, Department of Health, Sports and Exercise Sciences, Texas Tech University, TTU HHMI Research Scholar, the effect of Age on ACL Injury, 08/2013-12/2013.
- 15. Rebeca Camurca, Engineering Military Academy, Brazil, 08/2013-12/2013.
- 16. Brandon Schuelke, Department of Health, Exercise Sciences and Sports, Texas Tech University, Simulation Model for Tornado Evacuation of the Elderly, 03/20/13-08/2013.
- 17. Mark Ryan, Honours College, Texas Tech University, Motion Capture Experiment for Piano Players, 09/2012-12/2012.
  - Awarded Undergraduate Student Fellowship from the Honours College (09/2012-12/2012).
- 18. Aimee Cloutier, NSF REU student, Honours College, Texas Tech University, Motion Capture Experiment and Validation, 09/2010-08/15/2012. Graduated with Highest Honours.
  - a. Honor's Thesis: Probability of Achieving a Reach Task Considering Joint Angle and Link length Variability.
  - Awarded the 2012 Honours Collaborative Learning Award.
  - Travel Fund Award to the SAE 2012 World Congress, Detroit, MI, by the Honours College.
  - Travel Fund Award to the Great Plains Honours Council Conference, Kansas City, in 2012 by the Honours College.
  - Awarded Undergraduate Student Fellowship from the Honours College (09/2010-05/2012).

- Travel Fund Award to the HCI 2011 Conference, Orland, FL by the Honours College and Center for Undergraduate Research.
- 19. Katherine Burns, NSF REU student, Texas Tech University, Human Modeling, 09/2010-05/2011.
- 20. Byron Griffin, BS, Thermodynamic Modeling of Gas Wells, 09/2010-05/2011.
- 21. Kyle Beck, BS, Development of an External Heating for Tubing, 09/2010-12/31/2010.
- 22. Pierce McGrath, BS, Development of Insulation for Steel Tubing, 09/2010-05/2011.
- 23. Byron Griffin, undergraduate research assistant, Design and Analysis of a Novel Hip Joint for Earpiece-less Eyeglass Frame, 01/2010-05/2010.
- 24. Robyn Boothby, undergraduate research assistant, Motion Capture, 01/2010-07/2010.
- 25. Colton Gragg, undergraduate research assistant, Human Shoulder Modeling, Motion Capture, 09/2009-05/2010.
- 26. James Long, undergraduate research assistant, Human Modeling, 05/2009-12/2009.
- 27. Kyle King, undergraduate research assistant, Human Modeling, 01/2009-12/2009.

#### Senior Design Group

- 28. David Wagner, Steven Dawson, James Hanson, Brain O'Riley, Autonomous Delivery and Deployment System of Communication and Navigation Beacons, 01/2012-12/2012.
- 29. Tate Davis, Brian Farley, Ryan Ashmore, Sebastian Gomez, Courtney Sellers, Flight Deck of the Future, 01/2012-12/2012.
- 30. Evan McFarden, Raul Mazariegos, Gregory Webb, Zane Anderson, Mark Nockels, Design of a "Coffee the Way You Like It" Coffee System Adapter for Astronaut Use on the International Space Station, 09/2010-05/2011.
- 31. Andrew Higgins, Justin Williford, Will Courtney, Ryan Eisele, Nathan Stipek, Sami Kanaan, Design of a Multipurpose Rescue EVA Litter, 09/2010-05/2011.
- 32. Greg Preston, Sean McClure, Kyle King, and James Long, Hand Prosthesis Mechanism, 01/2009-12/2009.
- 33. Robyn Boothby, Joseph Rivas, Colton Gragg, Megan Kelley, and Brad Ivy, Wall Climbing Robot, 01/2009-12/2009.
- 34. Adam B. Brown, Kevin Flatt, Herbert Odhtambo, and Andrew Leung, Design of Dust-Proof Hand Tools, NASA JSC Crew and Thermal Systems Division, Supported by Texas Space Grant Consortium, 08/2008-05/2009.
- 35. Michael Bauman, and Kelvin Gryder, Thermal Energy Storage Feasibility Study for X-FAB Texas, Supported by X-FAB Texas Product Group, 08/2008-12/2008.

#### At University of Iowa:

- 36. Ross Johnson, Hand Modeling and Simulation, Caterpillar Inc. Project, University of Iowa, 08/2007-07/2008.
  - Awarded the University of Iowa 2009 Student Employee of the Year

#### At Tsinghua University:

- 37. Supervised undergraduate students for final year project, 5 senior students per semester, Spring Semesters, 1993-1997 in Department of Automobile Engineering, Tsinghua University, Beijing.

#### High School Students

- 1. Eric Shang, St Marks School of Texas, TX, 06/2016-07/2016. Currently undergraduate student at University of Chicago.
- 2. (Clark Scholar) Ellison Klose, Bismarck High School, ND, 06/23/2014-08/09/2014. Currently undergraduate student at MIT.

#### Visitors/Visiting /Postdoctoral Scholars



1. Dr. Wencan Zhang, Fushan University, 07/14/2018-09/09/2018.
2. Dr. Jixiong Li, Fushan University, 01/10/2018-01/09/2019.
3. Dr. Min Li, South China University of Technology, 08/30/2017-08/29/2018.
4. Dr. Jun Liu, Wuhan University, 12/17/2017-12/16/2018.
5. Dr. Liang Liang, Wuhan University, 11/11/2017-11/10/2018.
6. Dr. Xingxing Deng, Wuhan University of Science and Technology, 09/07/2017-09/06/2018.
7. Dr. Jing Yang, Wuhan University, 06/15/2017-06/14/2018.
8. Prof. Hui Li, Wuhan University, 08/2016-11/2016.
9. Dr. Fei Xie, Jilin University, 08/31/2016-09/01/2017.
10. Hengjia Zhu, visiting Ph.D. student, Huazhong University of Science and Technology, 04/25/2016-04/24/2017.
11. Prof. Rongyu Ge, University of Jinan, 12/06/2015-12/05/2016.
12. Prof. Hongli Xu, Changzhou Institute of Technology, 08/26/2015-08/25/2016.
13. Prof. Jie Tian, Nanjing Forestry University, 08/26/2015-02/25/2016.
14. Prof. Xianhai Yang, Shandong University of Technology, 07/12/2015-12/01/2015.
15. Mr. Zeyu Ma, visiting Ph.D. student, Huazhong University of Science and Technology, 02/02/2015-2/01/2016.
16. Prof. Yongsheng Zhao, Beijing University of Technology, 04/2014-03/2015.
17. Prof. Yunqing Zhang, Huazhong University of Science and Technology, 03-04/2014, 05/2015.
18. Dr. Zhiqing Cheng, Infoscitex Corporation, 04/2014.
19. Prof. Alexander Leonessa, Virginia Tech, 09/2013.
20. Dr. Joo H. Kim, Polytechnic Institute of New York University, April 29, 2013.
21. Alan Mayton, NIOSH, March 25, 2013
22. Donald Bloswick, University of Utah, Feb. 18, 2013.
23. Prof. David Rosen, Georgia Tech, Nov. 2011
24. Dr. Ziqing Zhuang, NIOSH, August 2011
25. Dr. Kathy Butler, NIST, Nov. 2010
26. Dr. Ziqing Zhuang, NIOSH, Nov. 2010
27. Prof. Denis Blackmore, NJIT, Oct. 2010
28. Prof. Esteban Pena Pitarch, UPC, Spain, 07-08/2010, 2016
29. Prof. Guolai Yang, Nanjing University of Science and Technology, 07-08/2010
30. Prof. Qinghong Zhang, Northern Michigan University, 05/2010
31. Dr. Ziqing Zhuang, NIOSH, Dec. 2009
32. Dr. Xuguang Wang, INRETS, France, 07/2009  
Research: Shoulder Modelling and Simulation
33. Dr. Qinghua Liu, Huazhong University of Science and Technology, China, 03/2008-08/2008  
Research: Posture Prediction with External Loads (Honda R&D Project)
34. Dr. Xuemei Feng, Wuhan University of Technology, China, 03/2007-02/2008  
Research: Modeling of Shoulder Complex (USCAR Project)

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#### **MEMBERSHIP IN PROFESSIONAL SOCIETIES**

- Society of Automotive Engineers (SAE): Member (2004-), Fellow (2016)
  - American Society of Mechanical Engineers (ASME): Member (2008-), Fellow (2018)
  - The Institute of Electrical and Electronics Engineers (IEEE) (2016-), Senior Member (2018)
  - American Association for the Advancement of Science (AAAS): Member (2018-)
  - American Institute of Aeronautics and Astronautics (AIAA): Member (2004-)
  - American Society of Engineering Education (ASEE): Member (2009-)
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## PROFESSIONAL SERVICE

### Proposal Reviewer

- Israeli Ministry of Science, Technology and Space (2015)
- Israeli Science Foundation (2018)
- Switzerland National Science Foundation (2015)
- National Research Foundation (NRF), South Africa (2018)
- National Aeronautics and Space Administration (NASA) Habitation, Train and Robotics (2014)
- National Science Foundation (NSF) CMMI (2009, 2011, 2015, 2016), CBET (2010)
- University of Alabama at Birmingham (2010)
- King Fahd University of Petroleum & Minerals (2018)

### Fulbright Program Reviewer

- Fulbright U.S. Scholar Regional Peer Review (2018)

### Journals and Conferences

- Associate Editor for *IEEE Transactions on Human-Machine Systems* (2016-)
- Associate Editor for *International Journal of Human Factors Modelling and Simulation* (2016-)
- Associate Editor for *International Journal of Robotics and Automation* (2004-)
- Associate Editor for *Human Factors and Ergonomics in Manufacturing and Service Industries* (2016-)
- Associate Editor for *Journal of Mechanisms in Medicine and Biology* (2018-)
- Executive Editor for *International Journal of Human Factors Modelling and Simulation* (2004-2016)
- Guest Editor: *International Journal of Vehicle Design (IJVD), Special Issue: Research and Advances of Vehicle Body Engineering*, Vol. 57, Issue 2/3, 2011.
- Guest Editor for *International Journal of Human Factors Modelling and Simulation, Special Issue: Dynamics in Digital Human Modeling and Simulation*, Vol. 2, Issue 1/2, 2011.
- Guest Editor: *International Journal of Vehicle Design (IJVD), Special Issue: Digital Human Modelling and Simulation, and Applications for Vehicle Design*, Vol. 51, Issue 3/4., 2009.
- Guest Editor: *International Journal of Vehicle Autonomous Systems (IJVAS), Special Issue: Modeling and Simulation of Complex Mechatronic Systems*, Vol. 6, No. 3/4 (2008)
- Editorial Board Member: *International Journal of Industrial Ergonomics* (2016-)
- Editorial Board Member: *The Open Ergonomics Journal* (2007-)
- Editorial Board Member: *International Journal of the Digital Human* (2010-2014)
- Editorial Board Member: *Ferrari Millechili Journal: Weight Reduction in Vehicle Design* (2010-2015)
- Editorial Advisory Board Member: *Scientific Journals International (SJI)* (2006-2014)
- International Advisory Board for Automotive Technology (i-ABAT), North America Chinese Society of Automotive Engineers (NACSAE) (2013-)
- SAE Materials Modelling and Testing (MMT) Committee (2009-)
- Reviewer for the following international journals and conferences:
  - *ASME Journal of Biomechanical Engineering*
  - *ASME Journal of Mechanical Design*
  - *ASME Journal of Medical Devices*
  - *ASME Journal of Mechanisms and Robotics*
  - *IEEE Transactions of Robotics*
  - *IEEE Transactions on Biomedical Engineering*
  - *IEEE Transactions on Systems, Man, Cybernetics-Part B*

- *International Journal of Robotics and Automation*
- *Robotics and Computer-Integrated Manufacturing*
- *International Journal of Human Factors Modelling and Simulation*
- *Automatica*
- *Computer Aided Design*
- *Computers and Graphics: An International Journal*
- *Journal of Sound and Vibration*
- *Journal of Vibration and Control*
- *International Journal of Advanced Manufacturing Technology*
- *Mechanism and Machine Theory*
- *SAE Digital Human Modeling for Design and Engineering Conference*
- *SAE World Congress*
- *ASME Design Engineering Technical Conferences*
- *International Symposium of Robotics and Automation*
- *Proceedings of IMech Part D, Journal of Automobile Engineering*
- *Proceedings of IMech Part B, Journal of Engineering Manufacture*
- *The IASTED International Conference on Applied Simulation and Modelling (ASM)*
- *Computer Aided Design and Applications*
- *Applied Acoustics*
- *Ergonomics*
- *International CAD Conference*
- *International Journal of Precision Engineering and Manufacturing*
- *Journal of Mathematical Biology*
- *Journal of Zhejiang University Science A*
- *The Open Ergonomics Journal*
- *Journal of Biomechanics*
- *Journal of NeuroEngineering and Rehabilitation*
- *IEEE of Transactions on Automation of Science and Engineering*
- *International Journal of Industrial Ergonomics*
- *Applied Ergonomics*
- *Computer Methods in Biomechanics and Biomedical Engineering*
- *IEEE Transactions on Human-Machine Systems*
- *Robotica*
- *Computer Science Review*
- *Journal of Neurological Sciences*
- *PLOS ONE*
  
- Book Reviewer
  - Elsevier
  - John Wiley & Son
  - Taylor and Francis Books, Inc./CRC Press
- Conference Committee
  - **ASME**
    - ✓ Symposium Organizer, 1) Human Modeling: Methods and Applications in Engineering, 2) Advances in Ground Vehicle Safety and Ergonomics, 2018 ASME IDETC-CIE, August 26-29, 2018, Quebec City, Canada.
    - ✓ Symposium Organizer, 1) Human Modeling: Methods and Applications in Engineering, 2) Biomechanics Applications, and 3) Advances in Ground Vehicle Safety and Ergonomics, 2017 ASME IDETC-CIE, August 6-9, 2017, Cleveland, Ohio, USA.

- ✓ Symposium Organizer, Human Modeling: Methods and Applications in Engineering, 2016 ASME IDETC-CIE, August 21-24, 2016, Charlotte, NC, USA.
  - ✓ Symposium Organizer, Biomechanics, 2016 ASME IDETC-CIE, August 21-24, 2016, Charlotte, NC, USA.
  - ✓ Symposium Organizer, Advances in Ground Vehicle Safety and Ergonomics, 2016 ASME IDETC-CIE, August 21-24, 2016, Charlotte, NC, USA.
  - ✓ Symposium Organizer, Human Modeling: Methods and Applications in Engineering, 2015 ASME IDETC-CIE, August 2-5, 2015, Boston, MA, USA.
  - ✓ Symposium Organizer, Biomechanics, 2015 ASME IDETC-CIE, August 2-5, 2015, Boston, MA, USA.
  - ✓ Symposium Organizer, Advances in Ground Vehicle Safety and Ergonomics, 2015 ASME IDETC-CIE, August 2-5, 2015, Boston, MA, USA.
  - ✓ Symposium Organizer, Biomechanics, 2014 ASME IDETC-CIE, August 17-20, 2014, Buffalo, NY, USA.
  - ✓ Session Chair, Digital Human Modeling in Engineering Applications, 2014 ASME IDETC-CIE, August 17-20, 2014, Buffalo, NY, USA.
  - ✓ Symposium Organizer, Modeling and Simulation of Humans in Engineering, 2014 ASME IDETC-CIE, August 17-20, 2014, Buffalo, NY, USA.
  - ✓ Symposium Organizer, Modeling and Simulation of Humans and Human Usage Contexts in Engineering Design, the 38<sup>th</sup> Design Automation Conference, 2013 ASME IDETC, August 4-7 2013, Portland, OR, USA.
  - ✓ Session Chair, Metamodel-Based Design Optimization (MBDO), the 38<sup>th</sup> Design Automation Conference, 2013 ASME IDETC, August 4-7 2013, Portland, OR, USA.
  - ✓ Symposium Organizer, Symposium of Human Modeling and Simulation for Engineering, the 38<sup>th</sup> Design Automation Conference, 2012 ASME IDETC, August 12-15, 2012, Chicago, IL, USA.
  - ✓ Symposium Organizer, Symposium of Advances in Vehicle Safety and Ergonomics, 14<sup>th</sup> International Conference on Advanced Vehicle Technologies, 2012 ASME IDETC, August 12-15, 2012, Chicago, IL, USA.
  - ✓ Session Chair, Mechanisms and Robots in Medicine, Assistive and Rehabilitation Applications, 35<sup>th</sup> Mechanisms and Robotics Conference, August 28-31, 2011, Washington, DC, USA.
  - ✓ Session Chair, Modeling and Simulation in Biomechanics, 31<sup>st</sup> Computers and Information in Engineering Conference, August 28-31, Washington, DC, USA.
  - ✓ Technical Committee, ASME Dynamics and Control of Systems and Structures (DCSS), February 2011.
- **AHFE**
    - ✓ Scientific Advisory Boards, 10th International Conference on Applied Human Factors and Ergonomics (AHFE) July 24-28, 2019, Washington Hilton, Washington D.C., USA.
    - ✓ Scientific Advisory Boards, 7<sup>th</sup> International Conference on Applied Digital Human Modeling, on July 21-25, 2018, Orlando, FL, USA.
    - ✓ Scientific Advisory Boards, 6<sup>th</sup> International Conference on Applied Digital Human Modeling, on July 17-21, 2017, Los Angeles, CA, USA.
    - ✓ Scientific Advisory Boards, 5<sup>th</sup> International Conference on Applied Digital Human Modeling, on July 27-31, 2016, Walt Disney World, Florida, USA.
    - ✓ Scientific Advisory Boards, 4<sup>th</sup> International Conference on Applied Digital Human Modeling, on 26-30 July, 2015 at Caesars Palace Hotel, Las Vegas, NV, USA.

- ✓ Scientific Advisory Boards, 3<sup>rd</sup> International Conference on Applied Digital Human Modeling and Human Factors, on 19-23 July, 2014 at Jagiellonian University, Krakow, Poland.
- ✓ Scientific Advisory Boards, 2<sup>nd</sup> International Conference on Applied Digital Human Modeling, on 21-25 July, 2012 at the Hilton in San Francisco, California, USA.
- ✓ Scientific Advisory Boards, 1<sup>st</sup> International Conference on Applied Digital Human Modeling, Miami, FL, July 17-20, 2010.
  
- **CAD Conference and Exhibition**
  - ✓ International Organizing Committee-Americas 2004-Present
  
- **SAE Digital Human Modeling**
  - ✓ General Committee, Session Co-Chair, Dynamics and Impact I, the 2009 Digital Human Modeling for Design and Engineering Conference and Exhibition, Gothenburg, Sweden, June 9-11.
  - ✓ Session Co-Chair, Shoulder, Reach and Comfort, the 2008 Digital Human Modeling for Design and Engineering Conference and Exhibition, June 17-19, Pittsburgh, Pennsylvania, USA.
  - ✓ Session Co-Chair, Physics-Based Modeling, the 2007 Digital Human Modeling for Design and Engineering Conference and Exhibition, June 12-14, 2007, Seattle, University of Washington, WA, USA.
  - ✓ Paper Reviewer, 2006 Digital Human Modeling for Design and Engineering Conference and Exhibition, Lyon, France.
  - ✓ Paper Reviewer, 2005 Digital Human Modeling for Design and Engineering Conference and Exhibition, Iowa City, Iowa, USA.
  - ✓ Paper Reviewer, 2004 Digital Human Modeling for Design and Engineering Conference and Exhibition, Detroit, Michigan, USA.
  
- **IEA-Digital Human Modeling**
  - ✓ Scientific Board Member, the 20th World Congress on Ergonomics, Human Simulation and Virtual Environments, August 26-30, 2018, Florence, Italy.
  - ✓ Scientific Board Member, the 5th Digital Human Modeling Symposium, June 26-28, 2017, Bonn, Germany.
  - ✓ Scientific Board Member, the 4th Digital Human Modeling Symposium, June 15-17, 2016, Montreal, Canada.
  - ✓ Scientific Board Member, the 3rd Digital Human Modeling Symposium, May 20-22, 2014, Odaiba, Tokyo, Japan.
  - ✓ Scientific Board Member, the 2nd Digital Human Modeling Conference, Ann Arbor, June 14-16, 2013.
  - ✓ Scientific Board Member, the 18th World Congress on Ergonomics, Human Simulation and Virtual Environments, February 12-16, 2012, Recife, Brazil.
  - ✓ Scientific Board Member, the 1st Digital Human Modeling Conference, Lyon, France, June 14-16, 2011.
  
- **International Conference on Manufacturing Automation**
  - International Program Committee, December 13-15, 2010, The Chinese University of Hong Kong, Hong Kong.
  
- **SAE World Congress**
  - ✓ Session Chair, the 2018 SAE World Congress, Cobo Center, Detroit, Michigan, April 10-12, 2018.

- ✓ Session Chair, the 2017 SAE World Congress, Cobo Center, Detroit, Michigan, April 4-6, 2017.
- ✓ Session Chair, the 2016 SAE World Congress, Cobo Center, Detroit, Michigan, April 12-14, 2016.
- ✓ Session Chair, the 2015 SAE World Congress, Cobo Center, Detroit, Michigan, April 21-23, 2015.
- ✓ Session Chair, Vehicle Ride Comfort Modeling/Simulation/Testing and Analysis, the 2014 SAE World Congress, Cobo Center, Detroit, Michigan, April 8-10, 2014.
- ✓ Session Chair, Vehicle Ride Comfort Modeling/Simulation/Testing and Analysis, the 2013 SAE World Congress, Cobo Center, Detroit, Michigan, April 16-18, 2013.
- ✓ Session Chair, Vehicle Ride Comfort Modeling/Simulation/Testing and Analysis, the 2012 SAE World Congress, Cobo Center, Detroit, Michigan, April 24-26, 2012.
- ✓ Session Chair, Vehicle Ride Comfort Modeling/Simulation/Testing and Analysis, the 2011 SAE World Congress, Cobo Center, Detroit, Michigan, April 11-14.
- ✓ Session Chair, Driver Modeling and Vehicle Ride Comfort Analysis, the 2010 SAE World Congress, Cobo Center, Detroit, Michigan, April 13-15.
- ✓ Session Chair, Driver Modeling and Vehicle Ride Comfort Analysis, the 2009 SAE World Congress, Cobo Center, Detroit, Michigan, April 20-23.
- ✓ Paper Reviewer, the 2008 SAE World Congress, Cobo Center, Detroit, Michigan.
- ✓ Paper Reviewer, the 2007 SAE World Congress, Cobo Center, Detroit, Michigan.
- ✓ Paper Reviewer, the 2006 SAE World Congress, Cobo Center, Detroit, Michigan.
- ✓ Paper Reviewer, the 2005 SAE World Congress, Cobo Center, Detroit, Michigan.
  
- **IASTED**
  - ✓ Technical Committee, IASTED International Conference on Applied Simulation and Modelling (ASM 2012), Napoli, Italy, June 25-27, 2012.
  - ✓ Technical Committee, IASTED International Conference on Applied Simulation and Modelling (ASM 2011), Crete, Greece from June 22, 2011 to June 24, 2011.
  - ✓ Technical Committee, IASTED International Conference on Robotics and Control (AsiaRC 2010), November 24-26, Bangkok, Thailand.
  - ✓ Technical Committee, IASTED International Conference on Robotics and Applications (RA 2010), Cambridge, November 1-3, 2010, Massachusetts, USA.
  - ✓ Technical Committee, 2009 IASTED International Conference on Robotics, Telematics and Applications, October 12-14, Beijing, China.
  - ✓ Technical Committee, 2008 IASTED International Conference on Applied Simulation and Modelling (ASM), Corfu, Greece, June 23-25.
  - ✓ Technical Committee, 2007 IASTED International Conference on Applied Simulation and Modelling (ASM), Palma de Mallorca, Spain, August 29-31.
  - ✓ Technical Committee, 2006 IASTED International Conference on Applied Simulation and Modelling (ASM), Rhodes, Greece, June 26-28.
  
- **HCI**
  - ✓ Scientific Advisory Boards, 2018 International Human Computer-Interaction (HCI) 2018, 9<sup>th</sup> Conference on Digital Human Modeling and Applications in

Health, Safety, Ergonomics and Risk Management, Orlando, FL, USA, 26 - 31 July 2019.

- ✓ Scientific Advisory Boards, 2018 International Human Computer-Interaction (HCI) 2018, 9<sup>th</sup> Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management, July 15-20, 2018, Las Vegas, Nevada, USA.
  - ✓ Scientific Advisory Boards, 2017 International Human Computer-Interaction (HCI) 2017, 8<sup>th</sup> Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management, July 9-14, 2017, Vancouver Convention Center, Canada.
  - ✓ Scientific Advisory Boards, 2016 International Human Computer-Interaction (HCI) 2016, 7<sup>th</sup> Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management, July 17-21, 2016, Toronto, Canada.
  - ✓ Scientific Advisory Boards, 2015 International Human Computer-Interaction (HCI) 2015, 6<sup>th</sup> Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management, 2-7 August 2015, Los Angeles, CA, USA.
  - ✓ Scientific Advisory Boards, 2014 International Human Computer-Interaction (HCI) 2014, 5<sup>th</sup> Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management, 22-27 June 2014, Heraklion, Crete, Greece.
  - ✓ Scientific Advisory Boards, 2013 International Human Computer-Interaction (HCI) 2013, 4<sup>th</sup> Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management, 21-26 July 2013, Mirage Hotel, Las Vegas, Nevada, USA.
  - ✓ Scientific Advisory Boards, 2011 International Human Computer-Interaction (HCI) 2011, 3<sup>rd</sup> Conference on Digital Human Modeling and Simulation, Hilton Orlando Bonnet Creek, Orlando, Florida, USA, July 9-14.
  - ✓ Scientific Advisory Boards, 2009 International Human Computer-Interaction (HCI) 2009, 2<sup>nd</sup> Conference on Digital Human Modeling and Simulation, San Diego, CA, USA, July 19-24.
  - ✓ Scientific Advisory Boards, 2007 International Human Computer-Interaction (HCI) 2007, 1<sup>st</sup> Conference on Digital Human Modeling and Simulation, Beijing, China, July 22-25.
- **SPIE**
    - ✓ 2006 SPIE Defense and Security Symposium, Modeling and Simulation for Military Applications, Orlando, FL, USA, 17-21 April.

### **Department Committees**

1. Faculty Mentor, 09/2018-present.
2. ME Department Research and Graduate Affairs Committee (Chair), 08/2018-present.
3. ME Department ABET Committee (Chair), 05/2015-08/2017.
4. ME Department Executive Committee, 09/2015-08/2017.
5. ME Advisory Committee, 09/2015-08/2017.
6. ME Undergraduate Studies Committee (Chair), 05/2015-08/2017.
7. ME Undergraduate Scholarship Committee, 05/2015-present.
8. Graduate Program Committee, Department of Mechanical Engineering, Fall 2014-present.
9. Team member, Department of Mechanical Engineering, Texas Tech University, Transforming Engineering Culture to Advance Inclusion and Diversity (TECAID)

Program for U.S. Mechanical Engineering Department sponsored by National Science Foundation (03/2015-08/2016).

10. Nanotechnology, Biomedical and Bioengineering Faculty Search Committee, Department of Mechanical Engineering, Texas Tech University, 2013-2014.
11. Department Seminar Coordinator, Department of Mechanical Engineering, Texas Tech University, Spring 2013.
12. Nanotechnology, Biomedical and Bioengineering Faculty Search Committee, Department of Mechanical Engineering, Texas Tech University, Spring 2012.
13. Department Seminar Committee, Department of Mechanical Engineering, Texas Tech University, Fall 2011.
14. Emerging Faculty Search Committee, Department of Mechanical Engineering, Texas Tech University, Spring 2011.
15. Member of the Tenure and Promotion Committee, Department of Mechanical Engineering, Texas Tech University, Fall 2008.

### **College of Engineering Committees**

1. Academic Program Council Committee, Edward E. Whitacre Jr. College of Engineering, TTU, Summer 2015-08/2017.
2. Faculty Research Awards Committee (FRAC), Edward E. Whitacre Jr. College of Engineering, TTU, Fall 2015.
3. Koh Graduate Scholarship Committee, 01/2015-08/2017.
4. Faculty Teaching Award Committee, Edward E. Whitacre Jr. College of Engineering, TTU, Fall 2014.
5. Bioengineering Undergraduate Program Committee, Fall 2013-Spring 2015.
6. Faculty Research Awards Committee (FRAC), Edward E. Whitacre Jr. College of Engineering, TTU, Spring 2013.
7. Digital Measures Committee, College of Engineering, Spring and Fall 2010.

### **University Committees**

1. Graduate School Dean Representative: Manish Ranjit, Department of Industrial, Manufacturing and System Engineering, March 24, 2017.
2. Graduate School Dean Representative: Ben Qin, Department of Biology, TTU, March 24, 2017.
3. Graduate School Dean Representative: Tianxi Dong, Rawls College of Business, Texas Tech University, July 8, 2016.
4. Women's Studies Scholarship Committee, Texas Tech University, Spring 2016.
5. Graduate School Dean Representative: Dayong Wu, Department of Civil and Environmental, and Construction Engineering, Texas Tech University, March 7, 2016.
6. Graduate School Dean Representative: Ikenna Ivenso, Department of Mechanical Engineering, Texas Tech University, Oct. 28, 2015.
7. Graduate School Dean Representative: Zhi Lu, Uncertainty Analysis of the Manufacturing Process and Systems, Department of Industrial Engineering, Texas Tech University, January 15, 2015.
8. Graduate Program Review Committee, Graduate School, Texas Tech University, Dec. 2014-May 2015.
9. Graduate School Dean Representative: Jie Ding, Department of Civil and Environmental Engineering, Texas Tech University, October 9, 2014.
10. Graduate School Dean Representative: Sungae Lee, Thermomechanical Reliability of Thin Carbon Film under High Speed Sliding Contact, Department of Mechanical Engineering, Texas Tech University, March 31, 2014.



11. Graduate School Dean Representative: Dali Wei, Data-Driven Modeling and Transportation Data Analytics, Department of Civil Engineering, Texas Tech University, March 25, 2014.
12. Chancellor's Council Distinguished Research Award Committee, Fall 2013.
13. Graduate School Dean Representative: Fisseha Alemayehu, Probabilistic Multibody Dynamic Analysis of Gear Systems for Wind Turbines, Department of Mechanical Engineering, Texas Tech University, May 31, 2013.
14. Graduate School Dean Representative: Kunal Patil, Mathematical Modelling, HIL Testing and In-vehicle Validation of E 85 Fueled Two-Mode Hybrid Electric Vehicle, Department of Mechanical Engineering, Texas Tech University, March 26, 2013.
15. Graduate School Dean Representative: Siming Li, A New Model for the Simulation of Dynamic Clinical Trials, PhD. Dissertation, Department of Mathematics and Statistics, Texas Tech University, October 12, 2012.
16. Graduate School Dean Representative: Krystal Kaliecta Castillo, A Strategic Model for Supply Chain Network Design Including Quality, PhD. Dissertation, Department of Industrial Engineering, Texas Tech University, October 19, 2011.
17. Graduate School Dean Representative: Miao Hu, Rheological Responses of Polymer Materials with Different Architectures, PhD. Dissertation, Department of Chemical Engineering, Texas Tech University, June 22, 2011.
18. Graduate School Dean Representative: Rula Allaf, A Novel Approach to Fabricating Interconnected Porous PCL-Based Biodegradable Scaffolds for Articular Cartilage Tissue Engineering, PhD. Dissertation, Department of Industrial Engineering, Texas Tech University, April 4, 2011.
19. Graduate School Dean Representative: Xi Zhang, Modeling, Control, Fault Detection and Isolation of Chemical Processes using a Bond Graph Framework, Ph.D. Dissertation, Department of Chemical Engineering, Texas Tech University, December 5, 2008.

### **Outreach Programs**

- Dunbar Middle School Field Trip Program (January and May 2010, February 2011, April 2012)
- Native American Summer Bridge Institute, Texas Tech University (Summer 2010, 2011, 2012)

### **Community**

- Judge for the FIRST Tech Challenge-Robotics Competition for 9-12, Lubbock, TX, May 21, 2011.