

# Jeremy J. Houser, Ph.D.

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## HIGHLIGHTS

### SELECT DEGREE & EMPLOYMENT

Ph.D. in Applied Neuroscience (2007), University of Houston.

*Associate Professor* (2012-current) A.T. Still University, Kirksville, MO

Kirksville College of Osteopathic Medicine

Course Director for Human Gross and Developmental Anatomy I & II

*Secretary, Board of Education* (2017-current) Kirksville R-III School District

*Associate Professor* (2002-2012) Truman State University, Kirksville, MO

*Scientist* (2000-2002) NASA/Johnson Space Center, Houston, TX

### SELECT PUBLICATIONS & GRANT

Houser JJ, Kondrashov P. (2018). Gross Anatomy Education Today: The Integration of Traditional and Innovative Methodologies. *Missouri Medicine*, 115(1):69-73.

Peternell B, Snider E, Pazdernik V, Houser JJ, Webb S, Degenhardt B. A 3-Dimensional Infrared Kinematic Method for Detection of Inherent Slow Rhythmic Cranial Motion. 59<sup>th</sup> American Osteopathic Association Annual Research Conference; October 17-21, 2015; Orlando, FL.

Houser JJ, Degenhardt BF, Hodges C, Kirsch J, Pazdernik V, Yang Q, et al. Relationship of pelvic landmark positional asymmetry tests to low back pain syndromes. 58th American Osteopathic Association Annual Research Conference; October 25-27, 2014; Seattle, WA.

Houser JJ, Degenhardt BF, et al. Investigating Objective Functional Characteristics to Differentiate Sub-groups in Chronic Low Back Pain Patients. \$100,000. 2011-2014. American Osteopathic Association.

Degenhardt BF, Houser JJ, et al. (2010). Evaluating Muscle Activation Asymmetry in Women with Low Back Pain Syndromes. *J of American Osteopathic Association*, 110(8):445-484.

Mayhew JL, Houser JJ, et al. (2010). Comparison Between Hand and Electronic Timing of the 40-yd Dash Performance in College Football Players. *JSCR*, 24(2):447-451.

Degenhardt BF, Bird M, Houser JJ. Determining objective functional characteristics that differentiate between chronic low back pain, chronic sacroiliac joint pain, and control groups. \$11,500. 2009-2010. ATSU Strategic Research Fund Grant.

Decker L, Houser JJ, et al. (2009). The Effects of Shoe Traction and Obstacle Height on Lower Extremity Coordination Dynamics During Walking. *Applied Ergonomics*, 40(5):895-903.

Houser JJ, Decker LM, et al. (2008). Stepping Over Obstacles of Different Heights and Varied Shoe Traction Alter the Kinetic Strategies of the Leading Limb. *Ergonomics*, 51(12):1847-59.

### SELECT AWARDS

Mentor, AAA Anatomy Training Program (2019-current)

Recipient, *KOAA Honorary Membership* (2019)

Recipient, *Max Gutensohn Award for Outstanding Teaching* (2016, 2019; nom. 2010-2019)

Recipient, *A.T. Still Staff Award for Excellence in Teaching* (2015)

Space and Life Sciences Directorate – *Sustained Superior Scientific Achievement Award* (NASA; 2002)

## PROFESSIONAL EXPERIENCES

(current positions in **bold**)

**Mentor** (8/2019-current) American Association for Anatomy (AAA), Anatomy Training Program

**Secretary, Board of Education** (4/2018-current) Kirksville R-III School District

**Member, Board of Education** (4/2017-current) Kirksville R-III School District, Kirksville, MO; elected April 4, 2017 for a 3-year term

**Chair, ATSU Interdisciplinary Biomedical Research Symposium** (2017-current)

**Associate Professor** (7/2012-current) Dept. of Anatomy, Kirksville College of Osteopathic Medicine, A.T. Still University, Kirksville, MO

- **Course Director** for Human Gross and Developmental Anatomy I & II
- **Course Director** for Directed Studies in Human Gross and Develop. Anatomy
- **Gross Lab Supervisor** and embalmer
- Instruct in Neuroscience course

**Associate Professor** (7/2014-current) Missouri School of Dentistry & Oral Health, A.T. Still University, Kirksville, MO

- **Course Director** for Principle of Anatomy
- Instruct within a team-taught, cadaver-based course for 1<sup>st</sup> year dental students

**Principal Investigator** (8/2010-current) A.T. Still Research Institute, A.T. Still University, Kirksville, MO

- Providing leadership for a multi-site study investigating characteristics of various chronic low back pain populations.

**Director** (1/2013-1/2018) Center for Mechanistic Studies, A.T. Still Research Institute, A.T. Still University, Kirksville, MO

- Center Director overseeing numerous translational projects attempting to reveal underlying mechanisms related to Osteopathic principles and theory

**Associate Professor** (6/2009-6/2012) HES, Truman State University, Kirksville, MO

**Assistant Professor** (8/2002-5/2009) Dept. of Health and Exercise Sciences, Truman State University, Kirksville, MO

- Instructed Human Anatomy (w/ cadaver lab)
- Instructed Movement Neuroscience (w/ research lab)
- Directed student-centered research in movement control adaptation
- Academic Advisor - Premedical students

**Adjunct Assistant Professor** (6/2008-6/2012) Anatomy/KCOM/ATSU, Kirksville, MO

**Scientist** (1/2000-8/2002) Neuroscience Labs/NASA/Johnson Space Center, Houston TX

**Motor Control Teaching Fellow** (8/1999-5/2001) University of Houston, Houston, TX

**Biomechanics Graduate Assistant** (8/1997-5/1999) University of Nebraska, Omaha, NE

**Manager & Head Personal Trainer** (8/1993-8/1996) Body Dimensions, Iowa City, IA

## EDUCATION

**Doctor of Philosophy**, University of Houston, Houston, Texas. 2007

- Applied Neuroscience
- Advisor: Charles S. Layne, PhD
- Dissertation: *Does Enhanced Somatosensory Input Influence Postural Sway?*
- Magna Cum Laude

Master of Science, University of Nebraska, Omaha, Nebraska. 1999

- Biomechanics
- Advisor: Nicholas Stergiou, PhD
- Thesis: *Lower Extremity Coordination During Walking Over Obstacles With Shoes Of Different Traction.*
- Summa Cum Laude

Bachelor of Science, University of Iowa, Iowa City, Iowa. 1997

- Health Promotion

## AWARDS

### ATSU/KCOM

Nominated for *Max T. Gutensohn Award for Outstanding Teaching* (2020)

Received the **Kirkville Osteopathic Alumni Association Honorary KOAA membership** – recognizes individuals who rendered meritorious service to osteopathic education (October 11, 2019).

Honored to hood the Graduating Class of 2019 at their Commencement Ceremony (May 18, 2019)

Received the **Max T. Gutensohn Award for Outstanding Teaching** (2019) as nominated by and voted on by the Class of 2022

Received the A.T. Still Memorial Library 3D printing contest award (1<sup>st</sup> place) for the design and production of the Ophthalmotrope 1.0, an interactive device for teaching and learning normal movements of the eye and pathological states related to cranial nerve lesions. (2017)

Received the **Max T. Gutensohn Award for Outstanding Teaching** (2016) as nominated by and voted on by the Class of 2019

Received the **A.T. Still Staff Award for Excellence in Teaching** (2015)

Nominated for *Max T. Gutensohn Award for Outstanding Teaching* (2015)

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Nominated for *Max T. Gutensohn Award for Outstanding Teaching* (2010)

## **TSU**

Nominated for *Educator of the Year* (2011 & 2012)

Nominated for *The Walker & Doris Allen Fellowship for Faculty Excellence* (2010, 12)

Nominated for Purple Challenge (2010)

Crowned the TSU Faculty Homecoming King (2009-2010)

Nominated to the TSU Faculty Homecoming Court (2008-2009)

The Panhellenic Council Scholarship Banquet – honored professor (2006-2009)

AMSA's "Dinner with Docs" – honored guest (2006-2009)

Alpha Gamma Delta – honored professor (2007-2012)

Sigma Sigma Sigma – honored professor (2006-2008)

## **NASA/JSC**

Acknowledgement for contributions to NASA/JSC/Neuroscience Lab study –  
"Changes in toe clearance during treadmill walking after long-duration space  
flight" in *Aviation, Space and Environmental Medicine* (2010)

Space & Life Sciences Directorate: Sustained Superior Scientific Achievement Award  
(NASA; 2002)

Manager's Choice Award – for excellent in research (Wyle Laboratories/NASA; 2001)

## **OTHER**

President's List – 4.0 GPA (UNO; all 4 semesters of Master's degree 1997-1999)

## GRANTS

**Houser JJ**, Degenhardt B, Kirsch J, Hodges C, Valovich McLeod T, Johnson J. (2011-2014). "Investigating Objective Functional Characteristics to Differentiate Sub-groups in Chronic Low Back Pain Patients.", **\$100,000**. Awarded by the American Osteopathic Association.

Degenhardt B, Bird M, **Houser JJ**. (2009 – 2010). "Determining objective functional characteristics that differentiate between chronic low back pain, chronic sacroiliac joint pain, and control groups.", **\$11,500**. Awarded by ATSU Strategic Research Fund Grant.

## PUBLICATIONS

**Houser JJ**, Kondrashov P. (2018). Gross Anatomy Education Today: The Integration of Traditional and Innovative Methodologies. *Missouri Medicine*, 115(1):69-73.

Gains GL, Swedenhjelm AN, Mayhew JL, Bird HM, **Houser JJ**. (2010). Comparison of speed and agility performance of college football players on field turf and natural grass. *Journal of Strength & Conditioning Research*, 24(10):2613-2617.

Mayhew JL, **Houser JJ**, Briney B, Williams T, Piper FC, Brechue WF. (2010). Comparison Between Hand and Electronic Timing of the 40-yd Dash Performance in College Football Players. *Journal of Strength & Conditioning Research*, 24(2):447-451.

Decker L, **Houser JJ**, Noble JM, Karst GM, Stergiou N. (2009). The Effects of Shoe Traction and Obstacle Height on Lower Extremity Coordination Dynamics During Walking. *Applied Ergonomics*, 40(5):895-903.

**Houser JJ**, Decker LM, Stergiou N. (2008). Stepping Over Obstacles of Different Heights and Varied Shoe Traction Alter the Kinetic Strategies of the Leading Limb. *Ergonomics*, 51(12):1847-59.

Moore AN, Decker AJ, Baarts JN, DuPont AM, Epema JS, Reuther MC, **Houser JJ**, Mayhew JL. (2007). Effect of Competitiveness on 40-yd Dash Performance in College Men and Women. *Journal of Strength and Conditioning Research*, 21(2):385-388.

Mulavara AP, **Houser J**, Miller C, Bloomberg JJ. (2005). Full-Body Gaze Control Mechanisms Elicited During Locomotion: Effects of VOR Adaptation. *Journal of Vestibular Research*, 15(5-6):279-89.

Layne CS, Forth KE, Baxter MF, **Houser JJ**. (2002). Voluntary Neuromuscular Activation is Enhanced When Paired with a Mechanical Stimulus to Human Plantar Soles. *Neuroscience Letters*, 334(2): 75-8.

Byrne JE, Stergiou N, Blanke D, **Houser JJ**, Kurz MJ & Hageman PA. (2002). Comparison of Gait Patterns Between Young and Elderly Women: An Examination of Coordination. *Perception and Motor Skills*, 94(1):265-80.

Scholten S, Stergiou N, Hreljac A, **Houser J**, Blanke D, & Alberts LR. (2002). Foot Strike Patterns After Obstacle Clearance During Running. *Medicine and Science in Sports and Exercise*, 34(1):123-9.

## PRESENTATION ABSTRACTS

Goldenstein AJ, Howell MM, Pazdernik VK, **Houser JJ**. Impact of Premedical Anatomy Experience, its Perceived Benefit, and Study Effort on Student Performance in Medical Gross Anatomy. *Accepted to Experimental Biology Conference*, April 2020.

Hintz M, Brannen D, Oney K, Helman A, Pazdernik V, **Houser JJ**, Kondrashov P. Predictors of Success in a Medical Gross Anatomy Course. *FASEB J*, April 2019, 33:LB127.

Curtis H, Smart L, Burchett K, **Houser JJ**. Tracheostomy Education: Is Cadaver Dissection Beneficial for Teaching Residents? Northeast Regional Medical Center Still Opti Resident Posters. May 2018; Kirksville, MO.

Peternell B, Snider E, Pazdernik V, **Houser JJ**, Webb S, Degenhardt B. A 3-Dimensional Infrared Kinematic Method for Detection of Inherent Slow Rhythmic Cranial Motion. 59<sup>th</sup> American Osteopathic Association Annual Research Conference; October 17-21, 2015; Orlando, FL.

**Houser JJ**, Degenhardt BF, Hodges C, Kirsch J, Pazdernik V, Yang Q, Webb SJ, Shurtz NR, McDonald M, Molzen E, Webb EK, Pamperin K. Relationship of pelvic landmark positional asymmetry tests to low back pain syndromes. 58<sup>th</sup> American Osteopathic Association Annual Research Conference; October 25-27, 2014; Seattle, WA.

Boehm K, Fraticelli N, Jordan R, Riccardi M, **Houser J**, Kondrashov P. Does alternating dissection effect student performance on practical examinations? *FASEB J*, April 2014, 28:LB29.

**Houser JJ**, Degenhardt BF, Bird M, Valovich McLeod TC, Hodges C, Shurtz N, Kvam V, Kirsch J. "Comparing EMG in Women with Low Back Pain During Selected Functional Tasks." 8<sup>th</sup> Interdisciplinary World Congress on Low Back & Pelvic Pain, Dubai, October 2013.

Rodden C, Mogus S, Hurst J, Mayhew J, **Houser JJ**, Bird M. "An Exploration of Anxiety, Physiological Arousal, Stretching, and Performance." 37<sup>th</sup> Annual Meeting of the American Society of Biomechanics, Omaha, NE, September 2013.

Swaters LN, Degenhardt BF, Bird M, **Houser JJ**, Johnson JC, Shurtz N, Pamperin K. "Muscle Activation Asymmetry in Females with Lower Back Pain During a Step Over Functional Task." Central States American College of Sports Medicine, Lawrence, KS, October 2010.

**Houser JJ**, Griffin LE. "Stability in the Adaptation of the Visuomotor System." Central States American College of Sports Medicine, Lawrence, KS, October 2010.

Degenhardt BF, **Houser JJ**, Bird M, Johnson JC, Shurtz N, Yang Q, Mueller G, Pamperin K. (2010). "Evaluating Muscle Activation Asymmetry in Women with Low Back Pain Syndromes." Poster presented at: 54<sup>th</sup> Annual American Osteopathic Association Research Conference; October 24-26, 2010; San Francisco, CA. Abstract published in: *Journal of the American Osteopathic Association*, 110(8):457-458.

**Houser JJ**, Mayhew JL, Meinke AH, Dodge LM, Jones DP, Anders GI, Hollingsworth ZA, Horschig AD. (2010). "Determining the Source of Temporal Differences Between Electronic and Hand Timing Systems in the 40 Yard Dash." National Strength and Conditioning Association National Conference, Orlando, FL, July 2010. *Journal of Strength & Conditioning Research*. 24:1.

Mayhew JL, Gaines G, Swedenhjelm A, Cooper J, Bird M, **Houser JJ**. (2010). "Difference in 40-Yd Dash and Pro-Agility Times on Artificial Turf and Natural Grass." National Strength and Conditioning Association National Conference, Orlando, FL, July 2010. *Journal of Strength & Conditioning Research*. 24:1.

**Houser JJ**, O'Connor DP & Layne CS. "Enhanced Cutaneous Sensation Mitigates Vibration Induced Postural Sway." Society for Neuroscience, Chicago, IL, October 2009.

Mayhew JL, **Houser J**, Briney B, Piper FC, Brechue WF. "Inter-Rater Reliability and Validity for the 40-yd Dash in College Football Players." National Strength and Conditioning Association National Conference, Atlanta, GA, July 2007.

Mulavara AP, **Houser J**, Peters B, Miller C, Richards J, Marshburn A, Brady R, Cohen H, Bloomberg JJ. "Full-Body Gaze Control Mechanisms Elicited During Locomotion Effects of VOR Adaptation." Barany Society XXII International Congress, Paris, France, July 2004.

Richards JT, Mulavara AP, Marshburn AM, Miller CA, **Houser JJ**, Bloomberg JJ. "Adaptive Modification of Locomotor Performance Following Exposure to a Passive-Immersive Virtual Environment During Treadmill Walking." Medicine Meets Virtual Reality Conference, Newport Beach, CA, January 2003.

Layne CS, Forth KE, Baxter MF, **Houser JJ**. "Enhanced Neuromuscular Activity from Mechanical Foot Stimulation." World Space Congress, Houston, TX, October, 2002.

- Layne CS, Mulavara AP, Bloomberg JJ, Forth KE, Baxter MF, **Houser JJ**, Kozlovskaya IB. "Using Dynamic Foot Stimulation During Space Flight as a Countermeasure to Muscle Degradation." 24th Annual International Conference of the IEEE/EMBS (Institute of Electrical and Electronics Engineers, Inc. and Engineering in Medicine and Biology and Annual Fall Meeting of the BMES (Biomedical Engineering Society), Houston, TX, October, 2002, *an invited paper*.
- Baxter MF, **Houser JJ**, Forth KE, Layne CS. "Timing of Somatosensory Stimulation to the Feet Modifies Human Neuromuscular Activation." Annual Meeting of the Society for Neuroscience, San Diego, CA, October 2001.
- Miller CA, Mulavara AP, Richards JT, **Houser JJ**, Marshburn AM, Cohen HS, Bloomberg JJ. "Do Changes in Body Loading Modify Interpretation of Visual Scene Motion during Locomotion?" Annual Meeting of the Society for Neuroscience, San Diego, CA, October 2001.
- Richards JT, Mulavara AP, Miller CA, **Houser JJ**, Marshburn AM, Cohen HS, Layne CS, Bloomberg JJ. "Effects of Virtual Scene Content and Rotation on Postural Stability during Treadmill Locomotion." Annual Meeting of the Society for Neuroscience, San Diego, CA, October 2001.
- Layne CS, Forth KE, Baxter MF, **Houser JJ**. "Controlled Somatosensory Input Modifies Neuromuscular Activation." Annual Meeting of the North American Society for Psychology of Sport and Physical Activity, St Louis, MO, May 2001.
- Bloomberg JJ, Mulavara AP, Cohen H, Miller C, Richards JT, **Houser J**, McDonald PV, Seidler RD, Merkle LA, Stelmach GE. "Developing Sensorimotor Countermeasures to Mitigate Postflight Locomotor Dysfunction." American Institute of Aeronautics and Astronautics Space 2001 Conference and Exposition, Albuquerque, NM, April, 2001.
- Bloomberg JJ, Mulavara AP, Miller C, McDonald PV, Layne CS, **Houser J**, Kozlovskaya IB. "Locomotion after Long-Duration Spaceflight: Adaptive Modulation of a Full-Body Head and Gaze Stabilization System." Bioastronautics Investigators' Workshop, Universities Space Research Assoc., Galveston, TX, Jan., 2001.
- Mulavara AP, Miller CA, **Houser J**, Richards JT, Bloomberg JJ. Gaze Stabilization during Locomotion Requires Full Body Coordination. *Proceedings of the 25th Annual Meeting of the American Society of Biomechanics*, San Diego, CA, August, 2001, pp.141-142.
- Houser J**, Stergiou N, Scholten SD, Noble J, Karst GM, Layne CS. Investigation of Friction following Obstacle Clearance during Walking. *Proceedings of the 24th Annual Meeting of the American Society of Biomechanics*, Chicago, IL, August, 2000, pp. 3-4.
- Stergiou N, Scholten SD, **Houser J**, Dierks T, Blanke D. Segmental Interactions during Running Over Obstacles of Increasing Height. *Proceedings of the 24th Annual Meeting of the American Society of Biomechanics*, Chicago, IL, August, 2000, pp. 83-84.



Layne CS & **Houser J.** "Modifications in Locomotor Strategies Associated with Grasping Different Objects." Annual Meeting of the Society of Neuroscience, New Orleans, LA, November 2000.

Layne CS & **Houser J.** "Modification of Gait Parameters in Preparation for Reaching." Texas Motor Behavior Conference, Houston, TX, March 2000.

Layne CS, **Houser JJ**, Miller KM, Lester T. (2000). The Effect of Grasping Different Objects on Locomotion Strategies. *Journal of Sport and Exercise Psychology*, 22, S53.

**Houser J**, Stergiou N, Scholten SD, & Layne CS. (2000). Lower Extremity Coordination during Walking Over Obstacles with Shoes of Different Traction. *Journal of Sport and Exercise Psychology*, 22, S67.

Scholten SD, Stergiou N, **Houser J**, & Blanke D. Footstrike Patterns during Running over Obstacles of Different Heights. *Proceedings of the 23rd Annual Meeting of the American Society of Biomechanics*, Pittsburgh, PA, 1999, pp.220-221.

Stergiou N, Jensen JL, Bates BT, & **Houser J**. A Dynamical Systems Investigation of Lower Extremity Coordination during Running. *Proceedings of the International Society of Biomechanics XVIIth Congress*, Calgary, Canada, 1999, pp. 440.

**Houser J**, Stergiou N, Scholten S, Noble J, & Tzetzis G. (1998). Study of Obstructed Locomotion: Implications for the Elderly and Sports. *Exercise & Society*, 20, 204.

## **INVITED PRESENTATION**

**HouserJJ** Sigma Sigma Phi Induction Ceremony, Class of 2022. Keynote address. (October 12, 2018)

**HouserJJ** William Matthew Middle School 8<sup>th</sup> grade promotion ceremony, Class of 2022. Keynote address. (May 21, 2018)

**HouserJJ** Sigma Sigma Phi Induction Ceremony, Class of 2021. Keynote address. (April 28, 2018)

**HouserJJ** Faculty Farewell Address. Class of 2020 Transition Ceremony. (April 23, 2018)

**HouserJJ** "Running and Osteopathic Medicine." Invited speaker for the Sport Medicine Club at A.T. Still University. (May 2015, April 2017)

**HouserJJ** "Hepatic and biliary tract anatomy." Invited speaker for the Northeast Regional Medical Center Residency Didactic Series. (September 30, 2016)

**HouserJJ** "Technology in Teaching." Invited speaker for the Lunch & Learn Series at A.T. Still University. (March 20, 2016)

**HouserJJ** "NASA and primary education." Invited speaker for the Kirksville Primary Elementary school. (April 15, 2015)

**Houser JJ** "Neuroscience: Avengers of Weakness. A conversation about neuroscience, neuroprosthetics and unique approaches to learning." Inaugural invited speaker for "Eat, Listen, and Learn" series in the School of Health Sciences and Education at Truman State University, February 11, 2013.

**Houser JJ** & Bird M. "Functional Measurements in Low Back Pain." Invited Oral Presentation. A.T. Still University / Truman State University Interdisciplinary Biomedical Research Symposium, Kirksville, MO, October 2010.

**Houser JJ** & Bird M. "Research in Health and Exercise Sciences." Invited Oral Presentation. A.T. Still University / Truman State University Interdisciplinary Biomedical Research Symposium, Kirksville, MO, September 2009.

**Houser JJ.** "Foot Health: One Step at a Time." Invited Oral Presentation. Faculty/Staff Wellness Fair. Truman State University, Kirksville, MO, March 2009.

**Houser JJ.** "Time Saving Strategies: Sharing Data Among Computer Applications. Technology Presentation." Invited Oral Presentation. Missouri Association for Health, Physical Education, Recreation, and Dance Convention, Lake of the Ozarks, Missouri, November 2004.

## **STUDENT – ADVISED PRESENTATION ABSTRACTS**

Ward AE, Mayhew J, **Houser JJ.** "Skeletal Dimensions to Predict Lean Body Mass in College Men and Women." Truman State Student Research Conference, Kirksville, MO, April 2011.

Nichols SN, Lockyer KL, Bird M, **Houser JJ.** "Effect of Selected Auditory Stimuli on Bicycle Ergometer Pedal Rate." Truman State Student Research Conference, Kirksville, MO, April 2011.

Harlow AN, Palisch AR, Durst KA, Schuerman AM, Lantz CD, **Houser JJ.** "A Comparison of Ascending vs. Descending Blood Alcohol Concentrations on Motor Tasks Related to Driving." Truman State Student Research Conference, Kirksville, MO, April 2010.

Griffin LE, Douglas RF, **Houser JJ.** "How Does Lack of Visual Input Affect Visuomotor Adaptation Following Acquisition of a New Steady State?" Truman State University Student Research Conference, Kirksville, MO, April 2010.

Zimmerman K, Kremer J, Gilmer L, Smith C, **Houser JJ.** "An Investigation of Balance Capabilities in Autistic Children." Truman State University Student Research Conference, Kirksville, MO, April 2010.

- Barr NM, Clennin MN, Weurtz AG, Kremer LM, **Houser J**. "Effect of Instruction Mode on Motor Performance Utilizing the Sport of Archery." Truman State University Student Research Conference, Kirksville, MO, April 2009.
- Gaines GL, Swedenhjelm AN, **Houser J**, Bird M, Mayhew J. "Comparing 40-yard Dash and Pro-Agility (20 yd Shuttle) Times on Natural Grass and Synthetic Turf." Truman State University Student Research Conference, Kirksville, MO, April 2009.
- Meinke AH, Dodge LM, Jones DP, Anders GI, Hollingsworth ZA, Horschig AD, Mayhew J, **Houser J**. "Difference in Hand Timing and Electronic Timing in the 40 Yard Dash Among College Males." Truman State University Student Research Conference, Kirksville, MO, April 2009.
- Zee-Cheng B, **Houser J**. "EMG Analysis of Muscle Activation in Cyclists at Shallow and Steep Seat Tube Angles." Truman State University Student Research Conference, Kirksville, MO, April 2009.
- Grafelman SE, Wise FC, Salmon J, **Houser J**. "The Effects of Rotation in Three Different Orthogonal Planes on Postural Sway." Truman State University Student Research Conference, Kirksville, MO, April 2008.
- Hays AM, Serrano A, Fowler K, Lauer C, Totura GA, **Houser J**. "Effects of Muscle Vibration on Isometric Contraction Strength." Truman State University Student Research Conference, Kirksville, MO, April 2008.
- Lacy DB, Miley JH, **Houser J**. "The Effect of Cryotherapy on Isometric Maximal Grip Strength." Truman State University Student Research Conference, Kirksville, April 2008.
- Moody AM, Lyons S, **Houser J**. "Influence of Movement Direction on the Proprioception Ability of the Elbow Joint During Triceps Brachii Vibration." Truman State University Student Research Conference, Kirksville, MO, April 2008.
- Weese LR, Becker JJ, Watton AN, Bridges AR, Howell DE, McLaury RT, **Houser J**. "Effects of a Distraction Source and Learning Style on a Simple Motor Task." Truman State University Student Research Conference, Kirksville, MO, April 2008.
- Hall EM, Wogtech ZJ, **Houser J**, Mayhew JL. "Comparison of Hand Reaction Times, Movement Times, and Total Response Times between Male and Female Athletes and Nonathletes." Missouri Association for Health, Physical Education, Recreation, and Dance Convention, Lake of the Ozarks, MO, November 2007.
- White L, Welter E, Schweig A, Vescovo M, **Houser J**. "The Effects of Music on Running." Missouri Association for Health, Physical Education, Recreation, and Dance Convention, Lake of the Ozarks, MO, November 2007.

- Brown AA, Copeman JM, Gerber JL, Madsen T, Meek AM, Mayhew J, **Houser J**. "Effects of Cell Phone Usage and Eating on a Driver's Response Time." Missouri Association for Health, Physical Education, Recreation, and Dance Convention, Lake of the Ozarks, MO, November 2006.
- Esbenshade M, **Houser J**. "Effect of Sport-Specific Training on General Agility Performance Among College Athletes." Missouri Association for Health, Physical Education, Recreation, and Dance Convention, Lake of the Ozarks, MO, November 2006.
- Miller MC, Bird PJ, Mayhew J, **Houser J**. "The Effect of Fatigue on Dominant Arm Proprioception." Truman State University Student Research Conference, Kirksville, MO, April 2006.
- Brown AA, Copeman JM, Gerber JL, Meek AM, Mayhew J, **Houser J**. "Effects of Cell Phone Usage and Eating on a Driver's Response Time." Truman State University Student Research Conference, Kirksville, MO, April 2006.
- Faul MK, **Houser J**. "Visuomotor Adaptation to Practice in Differing Visual Environments." Truman State University Student Research Conference, Kirksville, MO, April 2006.
- Moore N, Baarts J, Decker A, DuPont A, Epema J, Reuther M, Mayhew J, **Houser JJ**. "Effect of Competitiveness on 40-yd Dash Performance in College Men and Women." Missouri Association for Health, Physical Education, Recreation, and Dance Convention, Lake of the Ozarks, MO, November 2004.

## **CONTINUING MEDICAL EDUCATION FACILITATION**

Japanese Traditional Osteopathic College anatomical studies (May 27-31, 2019)

Pain management – lumbar spinal injections (March 2019)

A.T. Still Founders Day CME Program (October 2018) – invited lectures

- "Historical and current evidence of rib cage somatic dysfunction: Biomechanics of rib cage motion."
- "...and let it be known: Going beyond patient reported experiences as adequate dissemination."

Pain management - caudal epidural and SI Joint injections (April 2018)

Airway maintenance – tracheotomies (March 2018)

Chest tube placement (February 2018)

Joint pain management – shoulder, hip, knee bursae injections (February 2018)

Pain management – lumbar and cervical spinal injections (November 2017)

A.T. Still Founders Day CME – Cadaver-based training - Bursae Injection Instruction Lab (October 2016)

## **PROFESSIONAL MEMBERSHIPS / ASSOCIATIONS**

International Parkinson and Movement Disorder Society (2014-current)  
National Association of Medical Minority Educators, Inc. (2009-current)  
American Association for Clinical Anatomists (2009-current)  
International Brain Research Organization (2009-current)  
Omicron Delta Kappa Society (1998-current)  
Society for Neuroscience (1999, 2009-2017)  
Council on Undergraduate Research (2010-2012)  
World Congress on Low Back & Pelvic Pain (2010)  
Central States – American College of Sports Medicine (2010-2011)  
North American Society for the Psychology of Sport & Physical Activity (1999–2003)  
American Society of Biomechanics (2000-2003)  
International Society of Biomechanics (1998-2000)

## **SERVICE**

### ***Directorship***

Course Director, Principles of Human Anatomy for Dental Students (2014-current)  
Course Director, Directed Studies in Human Gross Anatomy (2013-current)  
Course Director, Human Gross and Developmental Anatomy I & II (2012-current)  
Course Director, Cadaver-based anatomical studies of general and fasciae anatomy.  
Japanese Traditional Osteopathic College (May 2019)  
Director, Center for Mechanistic Studies at A.T. Still Research Institute (2013-2018)  
Director, Human Anatomy Cadaver Laboratory at TSU (2002-2012)  
Co-Director, Fontaine Piper Movement Analysis Laboratory at TSU (2006-2012)  
Co-Director, Motor Learning & Biomechanics Laboratory at TSU (2002-2006)

## **Committees**

### **ATSU/KCOM**

Chair, COCA Standard 9: Students Committee (July 2019-**current**)

Center for Teaching and Learning Steering Committee (2019-**current**)

KCOM Promotion and Tenure Committee (2018-**current**)

COCA Standard 9: Students Committee (July 2018-**current**)

Faculty Development Committee (July 2018-**current**)

Invited Nina Kim to present a Faculty Development session on improving PowerPoint design for the classroom. Nina Kim is the Associate Director of the Center for Digital Education at Washington University, a renowned graphic designer who helps educators improve their digital media.

Curriculum Committee (July 2013-**current**)

Chair selection subcommittee (2020)

Taskforce on KCOM Final Exam Weighting (2019)

Vice-Chair selection subcommittee (2019)

Grade Policy Task Force subcommittee (2018)

My initiative to implement a final exam grade policy that rewards semester-long performance.

Chair selection subcommittee (2017)

Still Research Institute – Associate Director Selection Committee (2015)

Still Research Institute – Biomechanics Researcher Selection Committee (2014–2015)

Pharmacology Department Chair Selection Committee (2015)

Pre-requisite subcommittee – Curriculum Committee (2015)

Interprofessional Education Curricula subcommittee (2014)

Physiology Department Chair Selection Committee (2014)

Next Generation LMS subcommittee (2013-2014)

Interdisciplinary Biomedical Research Symposium sponsored by ATSU / TSU / Still Research Institute – Founding Committee member (2008-2014)

Foundations Curriculum Planning Group member (2013)

Ad Hoc "Semester Preplanning Subcommittee" of the Curriculum Committee (2013)

ATSU / Anatomy Department Chair Selection Committee (2009-2010)

## **Committees**

### **TSU & Other**

Health and Exercise Sciences Promotion and Tenure Committee (2010-2012)

Health and Exercise Sciences Peer IRB reviewer (2002-2012)

Faculty Senator, representing HES dept and School of HSE (2009-2011)

Chair, Truman State University Homecoming Court Selection Committee (2010)

Exercise Science Recruitment Improvement Committee (2009)

Exercise Science Curriculum Implementation Committee (2008-2009)

TSU / Master of Art in Education, Thesis Committee (April 2009)

Student: Paul A. Hamilton Title: "Assessment in Physical Education."

Chair, TSU Undergraduate Summer Research Stipend Selection Comm. (2006-2009)

TSU Undergraduate Summer Research Stipend Selection Committee (2003-2005)

Division Rep., Undergraduate Research Committee (2002-2007)

Committee to select a new swimming pool bulkhead (2004)

Assistant Football Coach Selection Committee (2004)

McNair Summer Research Internship Selection Committee (2004)

McNair Spring Workshop Discussion Panel (2004)

Research Methods Course Development Committee (2002)

Teaching Evaluation Revision Committee (2002)

UNO Graduate Program Committee, graduate student representative (1998-1999)

## **Advisory**

### **ATSU/KCOM**

Faculty Advisor, Sexuality in Medicine (2016-current)

Faculty Advisor, Lifestyle Medicine Group (2016-current)

Faculty Advisor, Emergency Medicine Club (ACOEP) (2015-current)

Faculty Advisor, ENT Student Interest Group (2013-current)

Faculty Advisor, Student Osteopathic Surgical Association (SOSA) (2012-current)

Group Mentor, mentor a group of ~30 students per year (2011-current)

### **TSU & Other**

Pershing Scholar Mentor

    Brian Kim, Pershing Scholar Recipient (2009-2012)

    Ashley Ward, Pershing Scholar Recipient (2008-2011)

Chapter Advisor, *Alpha Sigma Alpha* sorority, Alpha Beta chapter (2007-2012)

Faculty Advisor, *pre Student Osteopathic Medical Association* (2004-2012)

Faculty Advisor, *American Medical Student Association* (2004-2012)

Chair, *Premedical Advisory Committee* (2003-2012)

Faculty Advisor, *TSU Bike Co-Operative* (2007)

Faculty Advisor, *TSU Mountain Biking Club* (2005-2007)

Premedicine Academic Advisor (2002-2012)

- Academic advisor, 450+ HES Pre-Medicine Students
- Creator and webmaster, TSU Pre-Med Website <http://premed.truman.edu>
- Composed >500 letters of recommendation for >200 students seeking admissions to graduate school

Advisor, University of Missouri in Columbia - *Bryant Scholars* (2006-2012)

Truman State Liaison, *Still Scholar Program* at KCOM/ATSU (2005-2012)



## **Academic**

*Anatomical Sciences Education* reviewer (2019-current)

*Journal of Sport Sciences* reviewer (2012-current)

*University of Nebraska at Omaha*: Fund for Investing in the Research Enterprise (FIRE) research proposal reviewer (2011-current)

*Clinical Biomechanics* reviewer (2010-current)

*Perceptual and Motor Skills* reviewer (2006-2016)

Presented an interactive cadaver experience for students of the Joseph Baldwin Academy (2009-2015), STAPH (2011-2015), and Zombie Academy (2013-2015)

Anatomy Textbook Reviewer for Lippincott Williams & Wilkins (2007)

Anatomy Textbook Reviewer for Cambridge University Press (2006)

Anatomy/Physiology Media Reviewer for McGraw Hill Publishing (2004)

Space Camp: European Space Agency's 8th European Symposium on Life Sciences Research in Space and the 23rd Annual International Gravitational Physiology Meeting (UH, 2002)

American Society of Biomechanics (ASB) Executive Board (2000-2001)

- ASB Education Committee (2000-2001)
- ASB Newsletter Editorial Board (2000-2001)
- ASB National Student Representative (2000-2001)

Banneker PLUS: School and University project (NSF funded; UNO; 1997-1999)

Mentor, 1998 Job Shadowing Program (Riverside H.S. Oakland, IA)

**Recruitment / Other Service**

Mental Health First Aid Ambassador (2018-current)

Cadaver embalming (50+ bodies; 2015-current)

Campus Security Authority (2012-current)

ATSU-KCOM Admission Interviews (2012-current)

Tours of KCOM cadaver lab (2002-current; e.g. 87 hours in 2017)

Volunteer work for the American Society of Biomechanics meeting (Sept. 2013)

Developed a study abroad course titled "Revealing Anatomy in the Art and History of Italy."

- Toured 7 cities in Italy over an 11 day period (March 2012; TSU)

HES representative at Student Visit Days (~5 per semester; 2006-2012)

Prospective student tours (2004-2012)

Outdoor Activities: Faculty/Student trip to Moab, UT (2009, 2010)

Pershing Renovations (2008-2011)

Primary Partners Program – *Body Works* (2008, 2009)

Diversity Visit Day – Pre-medicine presentation (2008)

Donate to the Piper Movement Analysis Lab Campaign (2007-2009)

Regular donor to Truman's Faculty & Staff Campaign

Majors/Minors Fair – HES representative (2007)

United Way HES Group Leader (2003-2007)

ATSU & MAHEC Student Recruitment Day (2004)

## **Community**

**Secretary, Board of Education** (April 2018-current) KV R-III

**Member, Board of Education** (April 2017-current) Kirksville R-III School District, Kirksville, MO; elected April 4, 2017 for a 3-year term

- MSBA Annual Conference (2017-current)
- MSBA Regional Conference (2017-current)
- School safety committee (2018-current)
- Wellness committee (2018-current)
  - Chair, Social / Emotional Wellness subcommittee (2018-current)
- Technology committee (2018-current)
- Calendar committee (2017-current)
- Numerous search committees for administrative positions (2017-current)
- Facilities committee (2017-current)
- Chair, Healthy Schools committee (2017-current)
  - Leading the implementation of a School Based Health Center, successfully implemented, serving students and staff
  - Leading the mental health initiatives, including placement of a licensed counselor in each building
- Meet and Confer committee (2017-current)
- Scholarships committee (2017-current)
- Kirksville Parks & Recreation committee (2017-current)
- Major successful initiatives
  - Improved key administrative positions, 3 essential changes
    - Superintendent (2019)
      - New superintendent evaluation system
      - Administration evaluation system – NEE
    - Middle school principal (2019)
    - Elementary principal (2017)
  - Annual Board/Administration Retreat (2018, 2019)
  - School-Based Health Center (2019)
  - Multi-Tiered System of Support (2019)
  - The Learning Center (2018)
  - Two-hour delay for inclement weather (2019)
  - Major overhaul of numerous procedures across campus (2018)

Founding Member/Leader, KV Makers (2014-2018)

Judge, Ray Miller Elementary 5<sup>th</sup> grade Science Fair (2018, 2020)

Member of the Kirksville Community School District - Comprehensive School Improvement Program (CSIP; 2015-2017)

- Post-secondary success team
- Curriculum planning and implementation

Northeast Missouri Triathlon Volunteer (2003-2017)

Judge, Miss Kirksville Pageant of the Miss America Organization (2017)

Men's Ministry Director, Cornerstone Church of Kirksville (2015-2017)

Founding Member, Cornerstone Church of Kirksville (2012-2017)

Coach, Kirksville 5-6<sup>th</sup> grade club basketball (2015-2017)

Webmaster, Cornerstone Church of Kirksville (2014-2016)

Make Kirksville Shine volunteer (2015)

Coach, YMCA soccer and basketball (2010-2015)

Den Leader, Troop 404 (2011-2015)

Genesis House Maternity Home – labor and consultation volunteer (2009-2014)

Member, Kirksville Church of the Nazarene (2008-2012)

Smoke-Free Kirksville Campaign Volunteer Speaker (2006-2007)

Thousand Hills State Park – Volunteer Trail Maintenance (2005-2007)

Deacon, Rehoboth Baptist Church (2005-2008)

Parent-Teacher Co-Op, Kirksville Child Development Center (2007)

Shape-Up Kirksville Volunteer (2005)

## **ASSORTED ACTIVITIES**

Surgery shadowing

- NRMCC – Dr. Danks – Indirect Inguinal Lap Mesh Repair (2019)

Northeast Regional Medical Center – Clinical Case Review Series

- Musculoskeletal Radiology Conferences (2012-2015)
- Orthopaedic Conferences (2012-2015)

Ipad training seminars (4 topics throughout 2013)

Presented HES Student Awards at the Academic Honor Awards Assembly (2005, 2010, 2012)

Judge, TSU Delta Zeta's *Big Man On Campus* pageant (2007-2012)

Judge, PumpCan Competition for Salvation Army food drive (2010)

"Professor Pie Throw" top raiser for PEK fundraiser (2010)

Judge, TSU *Greek Week Opening Ceremonies* (Lip Sync and others; 2007-2009)

Advisor Training – "How to be an effective academic & organization advisor." (2009)

"Pie Your Favorite Faculty " top fundraiser -St. Jude Children's Hospital. Hosted by *Up 'til Dawn* (2008) Raised over \$500

Attended *Body Worlds 3*, St. Louis, MO (2007)

Attended Pre-Medicine Advisor Meetings

- Medical College of Wisconsin (2007)
- Kansas City University of Medicine & Biosciences (2007)
- Logan University – College of Chiropractic (2007)
- Des Moines University – College of Osteopathic Medicine (2005)
- University of Iowa – College of Medicine (2005)
- A.T. Still University – Kirksville College of Osteopathic Medicine (2004)

Creighton University Physical Therapy Advisor Meeting (2006)

## **Certifications**

Mental Health First Aid by the National Council for Behavioral Health (2018-current)  
American Heart Association CPR certified (1990–2006)  
25,000 feet Physiological Rapid Decompression Training (NASA; 2001)  
American Heart Association AED certified (2000–2002)  
American Council on Exercise – Fitness Trainer (1996–1999)

## **COURSES PREVIOUSLY TAUGHT**

### ***at TSU***

Advanced Anatomical Studies (ES 535/ES 535G)  
Human Anatomy with cadaver laboratory (BIOL 365)  
Movement Neuroscience (ES 343)  
Field Experience / Practicums (ES/HLTH 370; ES/HLTH 250)  
Independent Studies in HES (ES 375 / HLTH 374; 13 students)  
Research in Exercise Science / Health Science (ES 470 / HLTH 470; 12 students)  
Biology Research (BIOL 441; 1 student)  
Microcomputer Applications (ES/HLTH 346)  
Lifetime Health and Fitness (HLTH 195)  
Mountain Biking (HLTH 196)

### ***at UH***

Motor Learning and Control (lecture with embedded lab; KIN 4315)  
Motor Learning and Control (online version; KIN 4315)  
Developed and implemented the 1<sup>st</sup> online course at HPP/UH  
Human Performance Assessment Lab (KIN 4269)  
Weight Training (PEP 1151)  
Health and Fitness (PEP 1101)

### ***at UNO***

Biomechanics with Laboratory (PE 4630)  
Kinesiological Analysis of Motor Skills Laboratory (graduate; PE 8450)  
Laboratory Methods in Exercise Science (graduate; PE 8016)

## **OTHER RESEARCH INVOLVEMENT**

### ***Current***

Impact of curriculum modification on anatomy course performance and step-1 examinations.

Predicting student success in Gross Anatomy via previous anatomy experiences, perceived benefit of those experiences, study effort and psychological profiles.

Investigating the impact of radiology workshops on student ability to interpret radiography and on student comfort/confidence in radiology

Variability of human movement control as studied through the lens of the Dynamical Systems Theory using the Lyapunov Exponent.

### ***Previous***

Developing a mechanized model to assess the sensitivity and accuracy of palpatory skills.

Developing an OpenSim musculoskeletal comprehensive model of the lumbar spine with moving pelvis and sacrum, allowing for the input of osteopathic manipulative treatment

Research using biomechanics and motor behavior to investigate the impact that Osteopathic Manipulative Medicine has on pain and functional movements in low back pain patients.

Adaptation of visuomotor control during various motor tasks: practice organization effects.

A 3D infrared kinematic method for detection of inherent slow rhythmic cranial motion in humans.

Effects of ascending and descending blood alcohol levels on automobile driving related perceptions and motor tasks.

Impact of autism on balance and various motor tasks.

Postural responses to centrifugation and other sensory disturbances.

Effects of cellular phone use on simulated driving performance.

Influence of vibratory somatosensory input on various postural, strength and movement control parameters.

Influence of fatigue upon proprioception.

Contribution of head movement control to the modulation of shock.

Promoting sensorimotor response generalizability: A countermeasure to mitigate locomotor dysfunction after long-duration space flight.

Effects of body loading and visual scene motion on locomotion kinematic variability.

Effects of virtual scene content and rotation on treadmill locomotion postural stability.

Using dynamic foot pressure to modify neuromuscular activation.

An investigation of grasping upon various locomotion parameters.

A comparison of gait patterns between young and elderly individuals: An examination of coordination.

A dynamical systems theory examination of intralimb coordination during running over obstacles of different heights.

An interdisciplinary examination of human movement variability.

Coordination between joints as an injury mechanism.

## **SKILLS / TECHNICAL PROFICIENCIES**

Overall, I am a very mechanically-oriented person. I invent, create and use a large variety of equipment to facilitate the needs of the classroom or laboratory.

### ***Anatomical***

Dissection (8 full body dissections; supervised dissections of medical anatomy since 2008 (~35 body's/yr.)

Prosection (60+ full bodies prepared)

Embalming (50+ bodies)

VH Dissector (ToITech)

### ***Neuromechanical***

NeuroCom Balance Master® & EquiTest® systems

High speed video capture movement analysis systems

Vicon, Motion Analysis, Ariel, and Peak systems

ISCAN Eye Motion Measurement System

National Instruments USB-6229 M Series DAQ Device

Accelerometers (Kistler, Entran)

Bertec Force Plate System

AMTI & Kistler force platforms

EMG software/hardware

Delsys Trigno System

Noraxon Telemetry System

Delsys Myomonitor System and EGAA; RC Electronics, Inc.



Kistler Gateway instrumented treadmill  
Motion Lab Systems footswitches  
Photocell timing system  
Biodex Dynamometer  
Cable Tensiometer  
Electrogoniometry

***Physiological***

SensorMedics VMax 29 metabolic cart  
12 lead electrocardiograph  
Graded Exercise Testing  
Body Composition: underwater, skinfold calipers, iDXA (certified, May 2011)  
Pulmonary function: Collins GS spirometer

***Computers & Robotics***

Canvas LMS  
3D scanning and printing  
Raspberry Pi and related programming software  
Arduino and related programming software and support hardware  
OpenSim modeling  
Robotic software  
LabVIEW  
MatLab (programming)  
SPSS, StatView, StatWin, Minitab (statistical packages)  
Microsoft software packages  
Camtasia  
DreamWeaver, Fireworks, MS Frontpage, (web development)  
Blackboard LMS  
General hardware maintenance and networking