

4/22/21

Curriculum Vitae

Name: Stephen Nicholas Housley

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ORCID.org/0000-0002-7046-9109

Citizenship: United States

Education:

Georgia Institute of Technology- Postdoctoral, Neurobiology: 2020 (Jan) - present

Georgia Institute of Technology- Ph.D., Applied Physiology: 2016-2020 (Jan)

Georgia State University- DPT., Doctor of Physical Therapy: 2013-2016

University of Georgia- B.S., Physiology: 2008-2013

Professional License: PT012655

Personal Statement: I am a neuroscientist, physiologist, and licensed physical therapist. In the broadest terms, my interests center on how the nervous system, cancer, and its treatment interact in mammalian systems. My research interests rest on my recent discoveries that securely establish the existence of reciprocal interactions between cancer, cancer treatment and the nervous system. My research focuses on addressing two fundamental questions. First, I ask how does the nervous system influence cancer? To address this question, I am performing fundamental studies to understand the role of the nervous system in the 1) initiation and 2) progression of cancer, and 3) how the nervous system can be leveraged to treat cancer. Second, I want to know how to mitigate cancer and cancer treatment's damaging effects on the nervous system that remain untreated.

Professional Experience, Service, and Employment:

Postdoctoral Fellow 2020-present: Georgia Institute of Technology

NIH Pre-Doctoral Fellow August 2016-2020: Georgia Institute of Technology

Research Coordinator August 2016-2018: Atlanta VA Medical Center

Graduate Research Assistant, January 2015- August-2016: Georgia State University Department of Physical Therapy. Responsibilities: Literature review, data acquisition, manuscript writing and editing, data analysis, grant writing and manuscript submission. (Anne K. Lorio, PT, DPT and Jane B. Gore, PhD)

Graduate Teaching Assistant, August 2014-December 2015: Georgia State University Athletic Department. Responsibilities: One-on-one student athlete tutoring and instructing: Anatomy and Physiology, Biomechanics, Biology, and Health Sciences.

Emory University and Georgia Institute of Technology

Lecturer. Interfacing Engineering Technology and Rehabilitation

Emory - DPT 988

GT - BMED 8813

Pitt – PT 2556

Harvard - HRS-952

Course Director Steven Wolf, PhD. Jan-March, 2021.

Lecturer. Interfacing Engineering Technology and Rehabilitation (BMED 8813 Emory DPT 988)
Course Director Steven Wolf, PhD. March 26, 2020.

Lecturer. Lateral Leg and Ankle Anatomy- (PT 6600). Course Director Deon Thompson, PhD.
September 18, 2015.

Georgia State University:

Lecturer. Lateral Leg and Ankle Anatomy- (PT 6600). Course Director Deon Thompson, PhD.
September 18, 2015.

Lecturer. Lateral Leg and Ankle Anatomy- (PT 6600). Course Director Deon Thompson, PhD.
September 12, 2014.

Lab Assistant. Neuroanatomy and Neurophysiology- (PT 7710). Course Director Jane B. Gore,
PhD. Spring 2015.

Physical Therapy Student Affiliations:

Athens Regional Medical Center (Acute/ICU) May 2016-July 2016
Clinical Instructor: Martha Connor, PT

Pro Performance Therapy (OP) January 2016 - March 2016
Clinical Instructor: Jake Irwin, PT, DPT

Signature Healthcare (SNF) June 2015 – July 2015
Clinical Instructor: Amy Licker, PT, DPT

Concentra (OP) June 2014 – July 2014
Clinical Instructor: Jennifer Andreae, PT, DPT

Glancy Rehabilitation Center (Rehab) August 2013-November-2013
Clinical Instructor: Patricia Needs, PT

Society Memberships:

Society for Neuroscience (SfN), 2016-
American Physical Therapy Association (APTA), 2013-
American Association of Clinical Anatomists (AACA) 2015-
Alpha Eta Honors Society 2016-

Honors and Awards:

2016-2020 Georgia Tech Foundation, President's Fellowships
2016 Alpha Eta Student Research Award
2016 Alpha Eta Honors Society Inductee for Allied Healthcare Professionals
2016 Student Research Award, Georgia State University
2016 PT Achievement Award, Georgia State University
2015 Alumni Association Graduate Student Scholarship, Georgia State University
2013 University of Georgia *Magna Cum Laude* Graduate

Grant Support:

Ongoing Research Support:

Northside Hospital Foundation

Housley (PI)

Start: 12/2020 - End: 11/2022.

Translation of novel ovarian cancer treatments

Stephen Nicholas Housley

Objectives are to investigate the effects of a novel combinatorial ovarian cancer treatment in a first in human clinical trial.

Role: PI

Ovarian Cancer Institute Postdoctoral Fellow **Housley (PI)** **Start 5/1/2020 - End 3/31/2023.**

Neurobiological interactions between cancer and nervous system.

Objectives are to examine the systemic and local interactions of cancer and the nervous system and to test whether reciprocal interactions can be leveraged to attenuate the progression or halt the development of cancer.

Role: PI

Completed Research Support:

1. Investigator Status: Graduate Student Fellow
National Institutes of Health (NIH) T32
Training Movement Scientists: Focus on Prosthesis and Orthotics, National
Effort: 1.0
Date: 08/2016-07/2019.
2. Investigator Status: Graduate Student Fellow
Georgia Tech Foundation
Presidential Fellow
Date: 08/2016-07/2020.

Seminar Invitations, and Professional Presentations: Podium Presentations (Published Abstracts*)

1. **S.N. Housley**. "Virtual Rehabilitation, Exergames, and Tele-Rehabilitation: Untangling Terminology, Evidence, Efficacy, and Application to Practice" ASNR 2021 Virtual Annual Meeting, April 2021
2. **S.N. Housley**, P. Nardelli, T.C. Cope. "Observations in motor neuron behavior following cancer treatment." Society for Neuroscience Annual Conference, Chicago IL, October 2019 *
3. **S.N. Housley**, T.C. Cope. "Neuronal Impairment with Chemotherapy." Northwestern University, Feinberg School of Medicine 2018, December 2018 *
4. Andrew Butler, **Stephen Housley**, Ashley Garlow, Tanya Thomas, Katelyn Ducote, Alexandria Howard, David Wu, Kimberly Richards. "Increasing Access to Cost Effective Home-Based Robotic Telerehabilitation for Stroke Survivors" APTA Combined Sections Meeting 2018 in New Orleans, LA from February 21-24
5. **Stephen N. Housley**, David Wu, Kimberly Richards, Samir Belagaje, Maysam Ghovanloo, Andrew J. Butler. "Improving upper extremity function and quality of life with a tongue driven exoskeleton: a pilot study quantifying stroke rehabilitation" Association of Schools of Allied Health Professions (ASAHP) National Conference, New Orleans, LA. October 19-21, 2016,
6. Butler A, Richards K, Rodriguez M, Warthen L, Wu D, Yarbrough C, **Housley S**, Yadav A, Ostadabbas S and M. Ghovanloo . A Tongue-Controlled Robotic Rehabilitation: Preliminary Evidence for Function and Quality of Life Improvement in Stroke Survivors." Georgia State University: Continuing Education. April 18, 2015.
7. **Housley, S.N.** Lewis, J., Thompson, D., Warren G. Proximal peroneus brevis muscle insertion and the prevalence of split tendons: a cadaveric study. Fourth Annual Research Symposium. Brenau University, Gainesville, GA. April 10, 2015. DOI: 10.13140/RG.2.1.2814.6646*

8. **Housley S.N**, Lewis J, Scott C, Epling S, Danish E. "Lateral Ankle Instability: Peroneus Brevis tendon length and prevalence of longitudinal tears: A Cadaveric Study" Georgia State University: Continuing Education. April 26, 2014.

Poster Presentations (Published *)

1. *AB Wang, **SN Housley**, TC Cope, AM Flores, EJ Perreault (2020) Quantitative assessment of proprioceptive dysfunction in cancer survivors post oxaliplatin-containing chemotherapy. Journal of Clinical Oncology 38 (15_suppl), e24071-e24071
2. ***SN Housley**, P Nardelli, AB Wang, AM Flores, EJ Perreault, T Cope (2020) Cancer's role in chemotherapy-induced neuropathy. Journal of Clinical Oncology 38 (15_suppl), e24064-e24064
3. ***S Housley**, DV Arce, H James, Z Dunkle, G Warren, A Butler. (2019) Quantifying Stroke Rehabilitation Dose-Response: A Systematic-Review and Meta-Analysis Using Active Dose Archives of Physical Medicine and Rehabilitation 100 (12), e216-e217
4. ***Housley, S. N.**, Flores, A. M., Wang, A. B., Perreault, E. J., Nardelli, P., Carrasco, D., ... & Cope, T. C. (2019). Chemotherapy-induced neuronal dysfunction in the absence of axon degeneration. "ASCO Annual Conference.
5. **S.N. Housley**, P. Nardelli, T.C. Cope. "Feature extraction by mechanosensory neurons impaired following cancer treatment." Society for Neuroscience Annual Conference, Chicago IL, October 2019 *
6. **S.N. Housley**, P. Nardelli, T.C. Cope." Origin of acute chemotherapy induced spontaneous activity." Society for Neuroscience Annual Conference, Chicago IL, November 2018." Society for Neuroscience Annual Conference, San Diego CA*
7. **Stephen N. Housley**, Jacob A Vincent, Paul Nardelli, Dario I Carrasco, Timothy C. Cope. "Origin of acute chemotherapy induced spontaneous activity." 11th International Motoneuron Meeting, Boulder, Colorado, June 2018
8. P. Nardelli, **S. N. Housley**, D. I. Carrasco, R. K. Powers, T. C. Cope "Chronic defects in repetitive of spinal motoneurons from a decrease in persistent inward current after chemotherapy" Society for Neuroscience Annual Conference, San Diego CA*
9. D. I. Carrasco, P. Nardelli, **S. N. Housley**, T. C. Cope "Relocation of the axonal initial segment in lumbar motoneurons of rats receiving chemotherapy" Society for Neuroscience Annual Conference, San Diego CA*
10. K. P. Blum, K. S. Campbell, P. Nardelli, **S. N. Housley**, T. C. Cope, L. H. Ting "Muscle spindle primary afferents transduce intrafusal muscle force differentially in healthy and impaired function" Society for Neuroscience Annual Conference, San Diego CA*e
11. **S.N. Housley**, K.P. Blum, P. Nardelli, D.I. Carrasco, T.J. Burkholder, L.H. Ting, T.C. Cope. "Neural contributions to firing behavior of Ia muscle spindle afferents." Society for Neuroscience Annual Conference, Washington DC, November 2017 *
12. D.I. Carrasco, P. Nardelli, **S.N. Housley**, T.C. Cope. Voltage-gated sodium channel expression by muscle-spindle receptors in a rat model of chemotherapy induced peripheral neuropathy (CIPN) Society for Neuroscience Annual Conference, Washington DC, November 2017 *

13. **Stephen N. Housley**, David Wu, Kimberly Richards, Samir Belagaje, Maysam Ghovanloo, Andrew J. Butler. "Combining Robotic & Assistive Technologies To Improve Outcomes: A Pilot Study Quantifying Stroke Rehabilitation" ACRM 94th Annual Conference, *Progress in Rehabilitation Research (PIRR)*, Atlanta, GA, October 2017.*
14. Lorio A, **Housley S.N.**, Gore J. The Power of Peer-Assisted Learning (PAL): An Interprofessional Mobility Lab Experience. American Physical Therapy Association's Combined Sections Meeting, Anaheim, CA February 2016*
15. Butler A, Richards K, Rodriguez M, Warthen L, Wu D, Yarbrough C, **Housley S**, Yadav A, Ostadabbas S and M. Ghovanloo. Improved upper extremity function in stroke patients using the tongue drive system and hand mentor: a preliminary study. Physical Therapy Association of Georgia. Oct. 2014.
16. **Housley S.N.**, Butler A, Richards K, Wu D, Yadav A, Ostadabbas S and M. Ghovanloo. "Improved upper extremity function in stroke patients using the tongue drive system and hand mentor: a preliminary study." The APTA's Pediatric and Neurology Sections IV STEP Conference. Columbus, OH. July 14-19, 2016*
17. **Stephen N. Housley**, Carson Scott, Kathleen Grundy, Alison Bishop, Christopher Lane, Kristian Lawrence. "Improved Upper Extremity Function in Stroke Patients Using the Tongue Drive System and Hand Mentor: A Preliminary Study." Lewis School Graduate Research Conference. Atlanta, GA. April 11, 2016.
18. **Stephen N. Housley**, Ashley R. Garlow, Katelyn Ducote, Alexandria Howard, Tanya Thomas, David Wu, Kim Richards, Andrew J. Butler. Increasing access to cost effective home-based rehabilitation for rural Veteran stroke survivors. VA Rural Health State of the Science. Washington D.C. September 12-13, 2016.

Invitations to National or International Conferences

1. American Society of Neurologic Rehabilitation 2021 Virtual Annual Meeting, April 2021. "Virtual Rehabilitation, Exergames, and Tele-Rehabilitation: Untangling Terminology, Evidence, Efficacy, and Application to Practice"
2. Motor Systems Symposium, Northwestern University, Society for Neuroscience Annual Conference, "Observations in motor neuron behavior following cancer treatment." October 2019 *
3. Northwestern University, Feinberg School of Medicine, Department of Physiology. "Neuronal Impairment with Chemotherapy", December 14, 2018
4. Society for Neuroscience Annual Conference, Chicago IL, October 2019
5. "Increasing Access to Cost Effective Home-Based Robotic Telerehabilitation for Stroke Survivors" APTA Combined Sections Meeting (CSM) 2018 in New Orleans, LA from February 21-24
6. "Improving upper extremity function and quality of life with a tongue driven exoskeleton: a pilot study quantifying stroke rehabilitation" Association of Schools of Allied Health Professions (ASAHP) National Conference, New Orleans, LA. October 21, 2016,
7. "Improved upper extremity function in stroke patients using the tongue drive system and hand mentor: a preliminary study." The American Physical Therapy Association's Pediatric and Neurology Sections IV STEP Conference. Columbus, OH. July 14-19, 2016

8. "The Power of Peer-Assisted Learning (PAL): An Interprofessional Mobility Lab Experience." American Physical Therapy Association's Combined Sections Meeting, Anaheim, CA February 17-20, 2016
9. "Proximal peroneus brevis muscle insertion and the prevalence of split tendons: a cadaveric study." 32nd Annual Meeting of the American Association of Clinical Anatomists. Henderson, NV. June 11, 2015.
10. "Improving Upper Extremity Impairments with Tongue Driven Robotic Assisted Rehabilitation: A Pilot Study." International Conference on Neurorehabilitation. La Granja de San Ildefonso' Segovia, Spain
October 18, 2016
11. "Increasing access to cost effective home-based rehabilitation for rural Veteran stroke survivors." VA Rural Health State of the Science. Washington D.C. September 12-13, 2016.

Bibliography

a. Research articles (clinical, basic science, other) in refereed journals:

1. AB Wang, **SN Housley**, AM Flores, EJ Perreault, TC Cope, review of movement disorders in chemotherapy-induced neurotoxicity. *Journal of neuroengineering and rehabilitation*, 18(1), 1-18.
2. Mark M. Rich, **Stephen N. Housley**, Paul Nardelli, Randal K. Powers, Timothy C. Cope (2020). Imbalanced subthreshold currents following sepsis and chemotherapy: a shared mechanism offering a new therapeutic target? *The Neuroscientist*, 1073858420981866
3. Kyle P. Blum, Kenneth S. Campbell, Brian C. Horslen, Paul Nardelli, **Stephen N. Housley**, Timothy C. Cope, Lena H. (2020) Ting Diverse muscle spindle firing properties emerge from multiscale muscle mechanics. *Elife*, 9, e55177.
4. Huang, K. M., Leblanc, A. F., Uddin, M. E., Kim, J. Y., Chen, M., Eisenmann, E. D. **Housley, S. N.**, Cope, T. C., ... & Xia, S. H. (2020). Neuronal uptake transporters contribute to oxaliplatin neurotoxicity in mice. *The Journal of Clinical Investigation*. [10.1172/JCI136796](https://doi.org/10.1172/JCI136796)
5. **Stephen N. Housley**, Paul Nardelli, Randal K. Powers, Mark M. Rich, Timothy C. Cope (2020). Chronic Defects in Spike Encoding by a CNS Neuron Following Chemotherapy. *Experimental Neurology* <https://doi.org/10.1016/j.expneurol.2020.113354>
6. **Housley, S. N.**, Nardelli, P., Carrasco, D., Rotterman, T., Pfahl, E., Matyunina, L., McDonald, J. F., & Cope, T. C. (2020). Cancer Exacerbates Chemotherapy Induced Sensory Neuropathy. *Cancer Research* <https://doi.org/10.1158/0008-5472.CAN-19-2331>
7. Epeagba, S., Tekes, C., Jerkovic, B., Ellis, N., **Housley, S. N.**, & Wu, D. (2020). Ultrasound Based Wrist Intent Recognition Method for Robotic-Assisted Stroke Rehabilitation. (pp. 1022-1027). IEEE.
8. Gardner, N., Tekes, C., Weinberg, N., Ray, N., Duran, J., **Housley, S. N.**, ... & Hung, C. C. (2020, October). EMG Based Simultaneous Wrist Motion Prediction Using Reinforcement Learning. (pp. 1016-1021). IEEE.
9. Horstman, G. M., **Housley, S. N.***, & Cope, T. C. (2019). Dysregulation of mechanosensory circuits coordinating the actions of antagonist motor pools following peripheral nerve injury and muscle reinnervation. *Experimental neurology*. (*co-first author) <https://doi.org/10.1016/j.expneurol.2019.04.017>

10. Chang, Y. H., **Housley, S. N.**, Hart, K. S., Nardelli, P., Nichols, R. T., Maas, H., & Cope, T. C. (2018). Progressive adaptation of whole-limb kinematics after peripheral nerve injury. *Biology open*, 7(8), bio028852.
11. Lorio, Anne K., Terri M. Florman, Jane B. Gore, **Stephen N. Housley**, and Michelle A. Nelson. "Power of Peer-Assisted Learning: An Interdisciplinary Mobility Laboratory Experience." *Journal of Nursing Education* 55, no. 2 (2016): 83-86. DOI: 10.3928/01484834-20160114-04
12. Andrew J. Butler, Justiss Kallos, **Stephen N. Housley**, Michelle C. LaPlaca, Stephen F. Traynelis, and Steven L. Wolf, "Randomized, Placebo-Controlled, Double-Blind Pilot Study of D-Cycloserine in Chronic Stroke," *Rehabilitation Research and Practice*, vol. 2015, Article ID 534239, 14 pages, 2015. DOI:10.1155/2015/534239
13. Lorio, A. K., Gore, J. B., Warthen, L., **Housley, S. N.**, & Burgess, E. O. (2016). Teaching Dementia Care to Physical Therapy Doctoral Students: A Multimodal Experiential Learning Approach. *Gerontology & Geriatrics Education*. DOI 10.1080/02701960
14. **Housley S.N.** Lewis J., Thompson D., Warren G. A Proximal Fibularis Brevis Muscle is Associated with Longitudinal Split Tendons: a Cadaveric Study. (2016) *The Journal of Foot and Ankle Surgery, Volume 56 , Issue 1 , 34 – 36* DOI: <http://dx.doi.org/10.1053/j.jfas.2016.09.009>
15. **Housley S.N.** Lewis J., Thompson D., Warren G. (2015) Proximal peroneus brevis muscle insertion and the prevalence of split tendons: a cadaveric study. "Annual Conference of American Association of Clinical Anatomists. Henderson, Nevada, 2015." *Clinical Anatomy* 29: 78-103. 2016. DOI: 10.1002/ca.22658
16. Ostadabbas S, **Housley S.N.**, Sebkhi N, Richards K, Wu D, Zhang Z, Rodriguez M, Warthen L, Yarbrough C, Belagaje S, Butler AJ, Ghovanloo M. A Tongue-Controlled Robotic Rehabilitation: Preliminary Evidence for Function and Quality of Life Improvement in Stroke Survivors. (2016). *Journal of Rehabilitation Research and Development*, 53(6)
17. **Housley, S. N.**, Garlow, A. R., Ducote, K., Howard, A., Thomas, T., Wu, D., ... & Butler, A. J. (2016). Increasing access to cost effective home-based rehabilitation for rural veteran stroke survivors. *Austin journal of cerebrovascular disease & stroke*, 3(2), 1.
18. **Housley, S. N.**, Wu, D., Belagaje, S., Ghovanloo, M., & Butler, A. J. (2017). Improving Upper Extremity Impairments with Tongue Driven Robotic Assisted Rehabilitation: A Pilot Study. In *Converging Clinical and Engineering Research on Neurorehabilitation II* (pp. 1181-1186). Springer International Publishing DOI: 10.1007/978-3-319-46669-9_192
19. Bajaj S, **Housley S**, Wu D, Dhamala M, James GA and Butler A (2016). Dominance of the Unaffected Hemisphere Motor Network and its Role in the Behavior of Chronic Stroke Survivors. *Front. Hum. Neurosci.* 10:650. doi: 10.3389/fnhum.2016.00650
20. **Housley S.N.**, Wu D, Richards K, Zhang Z, Belagaje S, Ghovanloo M, Butler A.J. Improving upper extremity function and quality of life with a tongue driven exoskeleton: a pilot study quantifying stroke rehabilitation. *Stroke Research and Treatment* (2017)
21. Lorio A, Huggins C, Leo S, Wheeler J, **Housley S.N.**, Get Smart? A Covert Operation to Investigate Smartphone and Technology Behaviors in the Classroom and Clinic. *Journal of Physical Therapy Education* JOPTE-04-16-0035
22. Irwin J, Butler A, Clark D, Johnson M, Richards K. **Housley S. N.** An Attempt to Improve Accuracy and Reliability of Shoulder Active Range of Motion Goniometric Measurement: A Randomized Controlled Trial. *International Journal of Orthopedic Studies*, 1(1): 2017

Bibliography (in preparation/review)

23. **Housley, S. N.**, Nardelli, P, and Cope, T. C. (2021). Mechanosensory encoding and neural decoding of musculoskeletal dynamics impaired following cancer treatment. *PNAS* (in review)
24. **Housley, S. N.**, Nardelli, P., Carrasco, D., Rotterman, Cope, T. C. (2021). Effects of route of administration on neural exposure to platinum-based chemotherapy treatment: a pharmacokinetic study in rat. *Neurotoxicology* (in review)
25. **Housley, S. N.**, Kyle P. Blum, Powers R., Nardelli, P., Lena H. Ting, Cope, T. C. Contributions of biophysical properties to muscle spindle firing in health and disease: a simulation study (in preparation)
26. Rotterman, T., **Housley, S. N.**, Nardelli, P., Carrasco, D., Cope, T. C. Motoneuron excitability depends on axon initial segment morphology. (in preparation)