

Malaka (Graci) Finco, CPO/LPO, MS
Curriculum Vitae

Structural Anatomy and Rehabilitation Sciences
University of North Texas Health Science Center
Fort Worth, Texas 76107
MalakaFinco@my.unthsc.edu

Education

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| 2019- present | Ph.D. in Biomedical Sciences Candidacy achieved Nov. 2021 Dissertation: “Quantifying Musculoskeletal and Biomechanical Symmetry to Identify Fall Risk in Individuals with Unilateral Lower-Limb Loss” Structural Anatomy and Rehabilitation Sciences University of North Texas Health Science Center, Fort Worth, TX |
| 2016 | M.S. in Orthotics and Prosthetics Thesis: “Kinematic comparison of body-powered and myoelectric prostheses in users with transradial amputations” Baylor College of Medicine, Houston, TX |
| 2014 | B.S. in Biology Minors in Chemistry, History, and Journalism University of North Texas Health Science Center, Fort Worth, TX |

Professional Positions and Residencies

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| 2017-2019 | Research Prosthetist and Orthotist , Shirley Ryan AbilityLab (formerly known as the Rehabilitation Institute of Chicago), Chicago, IL |
| 2017 | Clinician , Orthotic and Prosthetic Associates, Houston, TX |
| 2015-2016 | 3-month Residency Rotations: Hanger Clinic, Austin, TX Lake Prosthetics, Euless, TX VA Hospital, Houston, TX Muilenburg Prosthetics, Houston, TX Texas Scottish Rite, Dallas, TX Hanger Clinic, San Antonio, TX |

Certification and License

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| 2019- present | Certified Prosthetist Orthotist- CPO #04086 |
| 2019- present | Texas State Licensed Prosthetist Orthotist- #1997 |

Research Interests

Prosthetic alignment and socket design, wearable sensors in clinical practice, orthotic and prosthetic product development, musculoskeletal changes in individuals with limb loss.

Research Skills

Motion capture, wearable sensors (inertial measurement units and pressure insoles), anatomical imaging, anatomical dissection, histology.

Fellowships and Grants

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| 2021 - 2022 | American Orthotic and Prosthetic Association \$14,254 Center for Orthotic & Prosthetic Learning & Outcomes/Evidence-Based Practice <i>“Wearable Sensors in Prosthetic Practice: Can Walking Symmetry Supplement Clinical Measures to Assess Fall Risk?”</i> Principal Investigator: Pilot Grant |
| 2021 - 2022 | Renewal of T32 NIH Training Fellowship \$25,320 Neurobiology of Aging and Alzheimer’s Disease |
| 2020 - 2021 | T32 NIH Training Fellowship \$24,320 Neurobiology of Aging and Alzheimer’s Disease |

Honors

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| 2021 | Center for Healthy Aging Award \$250 Selected from 11 T32 Fellow Podium Presentations at Annual Symposium Title: “Quantifying Muscular Differences in Anatomical Donors with Lower-Limb Amputations” |
| 2021 | Outstanding Graduate Student for 2020-2021 \$250 Structural Anatomy and Rehabilitation Sciences |

Travel Awards

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| 2020 | Student Travel Award \$250 American Society of Biomechanics |
| 2020 | Graduate School of Biomedical Sciences Travel Award \$500 University of North Texas Health Science Center |

Dissemination of Research

Publications:

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| 2021 | Finco MG, Menegaz R. Skeletal Asymmetries in Anatomical Donors with Lower-Limb Amputations. <i>PM&R: The Journal of Injury, Function, and Rehabilitation</i> . Online ahead of print. https://doi.org/10.1002/pmrj.12599 |
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Manuscripts Under Review:

Finco MG, Moudy SC, Patterson RM. Normalization of kinematic walking symmetry data to inform clinical considerations for individuals who use lower-limb prostheses.

Manuscripts In Progress:

Finco MG & Kim S (co-first authors), Ngo W, Menegaz R. A review of musculoskeletal adaptations in individuals following major lower-limb amputation.

Finco MG & Finnerty C (co-first authors), Ngo W, Holley B, Menegaz R. Musculoskeletal differences between amputated and non-amputated lower-limbs: comparison to diabetic and healthy control groups.

Finco MG & Kim S (co-first authors), Menegaz R. Structural and physiological plasticity in thigh musculature of anatomical donors with lower-limb amputation.

National/International Podium Presentations:

- 2022 **Finco MG**. Musculoskeletal and Biomechanical Adaptations Post-Amputation. Part of Symposium: “*Anatomy of Amputation: Surgical, Biomechanical, and Educational Implications.*” American Association for Anatomy’s Annual Meeting at Experimental Biology. Philadelphia, PA.
- 2021 **Finco MG**, Moudy S, Patterson R. Walking Symmetry in Lower Limb Prosthesis Users: Considerations for Clinical Practice and Future Research. American Academy of Orthotists and Prosthetists Annual Meeting and Scientific Symposium.
- 2020 **Finco MG**, Moudy S, Stevens G, Bugnariu N, Patterson R. Gait Symmetry: Comparison of K2 and K3 Feet in Users with Unilateral Transtibial Amputation. American Orthotic and Prosthetic Association National Assembly.
- 2017 **Finco MG**, Keener K, Amonette W, Krouskop T. Kinematic comparison of body-powered and myoelectric prostheses in users with transradial amputations, in MEC17 Symposium -A Sense of What's to Come, Fredericton, NB, Canada, ISBN 978-1-55131-190-6.

Local Podium Presentations:

- 2021 **Finco MG**, Kim S, Menegaz R. Muscular Asymmetries in Anatomical Donors with Lower-Limb Amputations: Preliminary Results. UNTHSC Research Appreciation Day.
- 2021 **Finco MG**, Kim S, Menegaz R. Muscular Asymmetries in Anatomical Donors with Lower-Limb Amputations. T32 Symposium.

Peer-Reviewed Abstracts:

- 2021 **Finco MG**, Kim S, Menegaz R. Muscular Asymmetries in Anatomical Donors with Lower-Limb Amputations. Experimental Biology. Federation of American Societies for Experimental Biology (FASEB) Journal 35(S1). Poster presentation.
- 2020 **Finco MG**, Moudy S, Hensel K, Papa E, Bugnariu N, Patterson R. Lower Limb Kinematic Asymmetries and Correlation to Clinical Measures in Individuals with Parkinson's Disease. American Society of Biomechanics National Conference. Poster presentation.
- 2018 Kaveny KJ, Simon AM, Lenzi T, Finucane SB, Seyforth EA, **Finco MG**, Culler KL, Hargrove L. Initial results of a variable speed knee controller for walking with a powered knee and ankle prosthesis. BIOROB 2018 - 7th IEEE International Conference on Biomedical Robotics and Biomechatronics. IEEE Computer Society, 2018. pp. 764-769

Local Abstracts:

- 2020 **Finco MG**, Moudy S, Bugnariu N, Patterson R. Correlation of Kinetic and Musculoskeletal Asymmetries in Individuals with Transtibial Amputation. South Central meeting for the American Society of Biomechanics hosted by the University of North Texas. Podium presentation scheduled. Canceled due to COVID-19.
- 2020 **Finco MG**, Moudy S, Menegaz R. Musculoskeletal Asymmetry in Individuals with Lower Limb Amputation. Research Appreciation Day. University of North Texas Health Science Center. Poster presentation scheduled. Canceled due to COVID-19.

Invited Speaking to General Audiences

- 2021 **Identifying and Leveraging Your Values to Avoid Burnout.** Selected for a Business Education Presentation at the American Orthotics and Prosthetics Association National Assembly. Boston, MA.
- 2021 **Monthly science topic contributor on live radio** throughout 2021 based on 2020 performance below. Topics range from memory to dinosaurs.
- 2020 Selected from over 100 applicants to speak live on the **#20phds20mins program** on radio station 3RRR in Melbourne, Australia based on a two sentence lay-summary of research. Nov. 22, 2020. Link to the episode: <https://www.rrr.org.au/explore/programs/einstein-a-go-go/episodes/13986-einstein-a-go-go-22-november-2020>
- 2020 **Walking Symmetry in Prosthesis Users: Using Anatomical and Biomechanical Techniques to Inform Clinical Practice.** General

Interest Seminar and Talk (GIST) to department faculty and students. Lay-summary of PhD research for a half-hour with questions to over 65 biological scientists (geneticists, microbiologists, etc.).

2019 **Post-operative and Transitional Care for a New Amputee.** Continuing Medical Education presentation to 50+ local healthcare providers, Fort Worth Amputee Coalition, Fort Worth, TX

Teaching Interests

Clinical research in orthotics and prosthetics, clinical care in orthotics and prosthetics, pathologies in orthotics and prosthetics, upper and lower extremity anatomy with dissection, typical and pathological gait biomechanics.

Teaching Assistantships

Fall 2021 **Musculoskeletal and Nervous System Anatomy** for the Texas College of Osteopathic Medicine Medical School Program. Upper-limb with dissection (20hrs). Lower-limb with dissection (20hrs). Head and neck with dissection (20hrs). Nervous system with prosection (16hrs).

Summer 2021 **Regulatory Affairs** for the Clinical Research Management Master's Program. (10hrs).

Summer 2021 **Clinical Data Management** for the Clinical Research Management Master's Program. (10hrs).

Spring 2021 **Musculoskeletal Anatomy** for the Medical Science Master's Program. (40hrs).

Guest Teaching Lectures

2021 **Muscles, Actions, Innervations, & Blood Supply of the Upper Arm and Arm**, pre-matriculation medical school and physical therapy students, UNTHSC, Fort Worth, TX

2019 **Research in Orthotics and Prosthetics**, orthotics and prosthetics students, Baylor College of Medicine, Houston, TX

2018 **Research in Orthotics and Prosthetics**, orthotics and prosthetics students, Baylor College of Medicine, Houston, TX

Mentorship

2021 **Caitlyn Finnerty, Junior Undergraduate Student**
Research mentorship provided through an 8-week summer internship program, which extended to an abstract submission and manuscript.

2020- 2021 **Courtney Miller, PhD Student**

General mentorship provided for a year through UNTHSC's Graduate School of Biomedical Sciences.

- 2020 **Emily Hurst, CPO, MS**
General mentorship provided for a year through the American Academy of Orthotists and Prosthetists.
- 2019 **Joey Zisk, CPO, MS**
Effect of prosthetic ankle-foot repositioning on transtibial socket pressures during ramp walking. Presented at the 2020 American Academy of Orthotists and Prosthetists Annual Meeting.
- 2019 **Landon Davis, CPO, MS**
Initial development and testing of a novel, low-cost prosthetic socket to be used in low-income areas with limited resources. Presented at the 2020 American Academy of Orthotists and Prosthetists Annual Meeting.
- 2018- 2019 **Annie Lewis, CPO, MS**
Kinematic comparison of myoelectric and body-powered prostheses. Presented as Master's thesis at Baylor College of Medicine in 2019.

Service

- 2022 - 2024 **Research Committee:** American Orthotic and Prosthetic Association
- 2021 **Skype A Scientist:** Taught 7th & 8th grade students about prosthetics
- 2021 **Grant Reviewer:** Department of Defense
- 2021 **STEM Outreach Speaker:** Summer Bridge for High School Students.
- 2021 **Abstract Reviewer:** American Society of Biomechanics South Central Regional Conference.
- 2021 **Organized Session Leader:** Psychosocial Considerations in Stroke Rehabilitation. Moderator. American Academy of Orthotists and Prosthetists 2021 National Assembly.
- 2020 **Grant Reviewer:** Department of Defense.
- 2020 **STEM Outreach Speaker:** Summer Bridge for High School Students.
- 2016- 2020 **Research Consultant:** Baylor College of Medicine Orthotics and Prosthetics Students.
- 2017- 2018 **Volunteer Coordinator:** Achilles International Chicago Chapter.

Professional Organizations

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| 2021- present | American Association for Anatomy |
| 2020- present | American Society of Biomechanics |
| 2020- present | International Womxn in Biomechanics |
| 2014- present | American Academy of Orthotists and Prosthetists |