Catalina Mantilla

Ph.D.

Biomechanist II

Department
Accident Reconstruction & Forensic Animation

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Locations
Miami, FL
Boca Raton, FL

Biography

Catalina Mantilla received a Bachelor of Science in Biology from the Pontificia Universidad Javeriana in Bogotá, Colombia. She completed her Master of Science in Biology from Florida International University, and her doctoral degree (Ph.D.) from Temple University, both with a focus on locomotion and Biomechanics.

Dr. Mantilla's masters and doctoral investigations focused on evaluating the body's response to changes in substrate properties and inclination during locomotion. For her doctoral dissertation, she specifically assessed locomotion over compliant particle-composed ground commonly found in outdoor environments (i.e. gravel, sand), which can cause challenging incidents, such as slips and trips. By accurately measuring
foot/leg kinematics using high-speed 2D/3D motion tracking, and analyzing particle dynamics in response to these kinematics, her investigation revealed novel strategies to compensate for substrate changes and maintain affective performance during locomotion.

Dr. Mantilla has over 10 years of experience in collaborative and integrative environments, developing investigative projects. She is knowledgeable in analyzing data using advanced kinematics, statistical, and computer-based simulation tools. Her work encompasses investigating and analyzing incidents related to slip/trip and stairway falls from a scientific perspective using principles of human movement Biomechanics, Human Factors and Building Codes and Standards.

Credentials

- Ph.D.
- Teaching in Higher Education

Professional Experience

- 2025 - Current | Biomechanist | YA Group
- 2022 - 2024 | Senior Biomechanist | ARCCA, LLC.
- 2022 - Current | Adjunct Assistant Professor | Temple University
- 2012 - 2017 | Research/Teaching Assistant | Florida International University

Area of Practice

- Biomechanics
- Human Factors
- Premises Liability
- Slip and Fall Evaluations
- Accident Reconstruction

Publications and Presentations

- Mantilla, C., Levitan, A. December 2022. Slips, Trips and Falls in the Hospitality Industry: The Role of Forensic Experts During Incident Investigations. NRRDA Newsletter.
- Kefala, V., Mantilla, C., Levitan, A., & Joganich, T. 2023. The Importance of Understanding Foot Posture Strategies during Stair Descent for Forensic Incident Investigations. In Proceedings of the Human Factors and Ergonomics Society Annual Meeting. Vol. 67, No. 1, pp. 2437-2440.
- Mantilla, D.C., Morales, S.D., Parra-Medina, R., Stroud, J.T. 2019. Histopathology of large epidermal cysts on the invasive Puerto Rican crested anole (Anolis cristatellus) in Miami, Florida USA. Anolis Newsletter VII, p. 154-157. Eds. Stroud, J.T., Geneva, A.J., Losos, J.B. Washington University, St. Louis MO.
- Hoyos, J.M., Mantilla, D.C., Galindo, D, Salgar, L. 2014. Phylogenetic analysis within the Pristimantis unistrigatus (Anura, Craugastoridae) group based on morphological characters. Caldasia. 36(1):107-124. DOI: 10.15446/caldasia.v36n1.43894
- Chang, B., Greenwood, A., Mantilla, D.C., Hsieh, S.T. in prep. Granular Media Force Response Due to Angled Instrusions and Angled Substrates.
- Mantilla, D.C., Tucker, E.L., Chang, B., Hsieh, S.T. in prep. Surface kinematics of sand specialist and non-specialist lizards running on level and incline granular media.

Education

- Pontificia Universidad Javeriana - Bachelor of Science - Biology - Bogota - Colombia
- Florida International University - Master of Science - Biology/Biomechanics - Miami - Florida
- Temple University - Doctor of Philosophy - Biology/Biomechanics - Philadelphia - Pennsylvania

Training Courses

- 2021 IBC Essentials (ICC)

Affiliations

- Human Factors and Ergonomics Society (HFES)
- International Code Council (ICC)
- American Society for Testing and Materials (ASTM) F13 Committee for Pedestrian/Walkway Safety and Footwear
- American Society of Biomechanics (ASB)