DORI WATTS

MS

248.915.0703
dwatts@explico.com

BIOMECHANICS

EDUCATION

WAYNE STATE UNIVERSITY

PhD Candidate	Biomedical Engineering	
MS	Biomedical Engineering	**2021**

LAWRENCE TECHNOLOGICAL UNIVERSITY

BS	Biomedical Engineering with a concentration in Pre-Medicine	**2018**

LICENSES & CERTIFICATIONS

Certified Aerial Lift Operator
Certified Crash Data Retrieval (CDR) Technician
Engineer in Training
Certified Remote Pilot in Command
Recon-3D

AFFILIATIONS

Society of Automotive Engineers (SAE)
Society of Women Engineers (SWE)
Biomedical Engineering Society (BMES)
Tau Beta Pi
Alpha Eta Mu Beta

PROFESSIONAL PROFILE

Ms. Watts is a Senior Scientist at Explico with an expertise in the investigation and reconstruction of complex accidents, particularly those involving traumatic injuries. She provides technical consulting services across a broad spectrum of cases and routinely leads multidisciplinary teams through technically complex investigations. Her work requires extensive understanding of the technical scientific literature, advanced skills in physics-based simulation and modeling, and the ability to synthesize complex engineering findings into clear, trial-ready demonstratives. She has substantial field experience documenting and preserving scene evidence for a wide range of incidents, including multi-vehicle collisions, vehicle-pedestrian impacts, workplace injuries, commercial vehicle crashes, and railroad-related events.

As an experienced accident reconstructionist and injury biomechanist, Ms. Watts applies widely-accepted scientific analysis techniques and experimental methods to address challenging forensic questions. At Explico, she routinely designs and executes case-specific physical experiments to quantify forces and accelerations at play during various events. Her academic research at Wayne State University combines high-speed video capture and tracking, revolutionary tissue perfusion techniques, macroscopic and cellular level soft tissue injury classification, and precision high-g acceleration measurements to quantify the forces and tissue response during ballistic impact events.

Ms. Watts earned her undergraduate degree in Biomedical Engineering from Lawrence Technological University, where she also served as captain of the varsity women's golf team. She holds a master's degree in Injury Biomechanics from Wayne State University, and is in the process of completing her PhD in Biomedical Engineering.

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Areas of Expertise

Biomechanics
Accident Reconstruction
Injury Causation & Analysis
Collision Severity & Injury Potential Analysis
Litigation Support

Experience

Explico

2022 - Present *Senior Scientist*
2021 - 2022 *Scientist*
2018 - 2021 *Associate Scientist*
2018 *Biomechanics Intern*

Wayne State University

2019 - Present *Biomedical Engineering PhD Candidate*
Research focus: thoracic soft tissue injury in response to ballistic impact scenarios.

Yale University

2017 *Undergraduate Research Fellow*

Tenneco Automotive

2015, 2016 *Engineer*

Presentations

Guest lecture presentation on Thoracic Soft Tissue Injury at Wayne State University, 2025

Guest lecture presentation on Forensic Engineering at Lawrence Technological University, 2019, 2021, 2025

Yale University Poster Presentation

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Academic Coursework

Forensic Engineering

Vast review of the forensic engineering field and the types of cases and complex problem solving involved as well as generally-accepted analysis techniques.

Accident Reconstruction

Foundational accident reconstruction concepts including conservation of momentum, conservation of energy, Newton's laws, and analysis of physical evidence.

Biomechanics and Tissue Mechanics

Principles of human biomechanics at the macroscopic and cellular levels and the analysis tools used to study human motion (i.e., motion capture).

Impact Biomechanics

Overview of the impact biomechanics field with a focus on automotive impact biomechanics, including automotive crash testing, anthropomorphic test devices (ATDs) and their applications, and the injury criterion used to assess impact forces.

Vehicle Safety Engineering

An overview of the history of automotive safety as well as the applications of finite element analysis to vehicle safety.

Publications

Watts, D., Alejandro de Leon, L., Inaba, K., Bir, C. (Accepted 2025). Analysis of Injuries Sustained by Law Enforcement Officers Wearing Body Armour, Personal Armour Systems Symposium (PASS), Bruges, Belgium.

Professional Development

Applying Automotive EDR Data to Traffic Crash Reconstruction

Society of Automotive Engineers, April 2021

CDR Technician Course

Northwestern University Center of Public Safety, March 2019

Advanced Photogrammetry

Lightpoint Scientific, February 2019

MADYMO Introduction Training

Siemens, 2018