PATRICIA DONNELLY

MS

248.794.3745
pdonnelly@explico.com

BIOMECHANICS

EDUCATION

WAYNE STATE UNIVERSITY

PhD Candidate	Biomedical Engineering	
MS	Biomedical Engineering - Injury Biomechanics	2024
BS	Biomedical Engineering Concentration in Bioinstrumentation	2019

LICENSES & CERTIFICATIONS

Fundamentals of Engineering (FE) Certification - NCEES

TS/SCI Clearance

Certified NASIC Synthetic Aperture Radar analyst

Remote Pilot, Certified Small Unmanned Aircraft - Federal Aviation Administration (FAA)

PROFESSIONAL PROFILE

With a solid foundation in biomedical engineering, specializing in injury biomechanics, Ms. Patricia Donnelly brings a wealth of academic achievement and practical experience to her role as an Scientist at Explico. Here, she performs a range of tasks from case material review and synthesis to in-depth biomechanics testing and experimentation, all while maintaining communication with the clients and other involved parties.

Ms. Donnelly holds a master's in biomedical engineering from Wayne State University in Detroit, where she also earned her Bachelor of Science with honors in the same field. Her career path has been distinguished by roles that have provided a diverse skill set, most recently allowing her to hone her analytical and critical thinking skills as an intelligence analyst defense contractor collaborating with the Air Force and other key agencies. In this capacity, she excelled in producing comprehensive intelligence reports and graphics, briefing high-ranking military and government leaders on mission critical targets.

During her undergraduate studies, Ms. Donnelly undertook pivotal internships at the Federal Bureau of Investigation and Lear Corporation. These internships provided education on topics crucial to accident reconstruction and biomechanics such as evidence collection, use of Faro 3D scanners, vehicle seat design, and vehicle occupant safety. Her academic journey also featured significant research endeavors, including projects focused on wearable devices for detecting head impact forces and the use of Optical Coherence Tomography laser scanning for forensic bite mark analysis.

Ms. Donnelly is enthusiastic about leveraging her academic achievements and professional background at Explico, where she aims to establish herself in forensic biomechanics and ultimately become a respected expert witness. Committed to solving complex challenges and serving others with the highest standards of respect, honesty, and integrity, she is intent on providing meaningful contributions to her field.

DONNELLY

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Areas of Expertise

LS DYNA
AutoCAD
MATLAB
Python
vCrash
MADYMO

Experience

Explico

2026 - Present *Scientist*
2024 - 2025 *Associate Scientist*

Altamira Technologies Corp.

2019 - 2024 *Research Engineer III*

Lear Corporation

2018 - 2019 *Biometric Seating Team, Co-Op*

Federal Bureau of Investigation

2017 - 2019 *Honors Intern*

Engineering Projects

Wearable Head Impact Force Detection Device, 2017-2019

Optical Coherence Tomography Scanner for Use in Bite Mark Analysis, 2018-2019

Patents

Donnelly, P. & Gallagher, D. (2021) Method and system for proactively adjusting vehicle occupant biometric monitor in view of upcoming road conditions (20210031777) U.S. Patent and Trademark Office. https://patents.justia.com/patent/11001267

Migneco, F., Gallagher, D., and Donnelly, P. (Under review) Adaptive and Predictive Climate Control System Using Infrared Image-Based Imaging (20220176778) U.S. Patent and Trademark Office. https://patents.justia.com/patent/20220176778

DONNELLY

MS

Presentations

Donnelly, P. (2019) “High definition spectroscopic investigation of bite marks on different materials using optical coherence tomography.” Trends in Forensic Science Conference, Windsor, ON, Canada.

Donnelly, P. (2025) Guest Lecturer at Lawrence Technological University (BME 4093 Lecture).