## EDUCATION

**WAYNE STATE UNIVERSITY**

- **MS,** Biomedical Engineering - Injury Biomechanics, Expected 2021

**UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN**

- **BS,** Bioengineering with a concentration in Cell and Tissue Engineering, 2019
- **BS,** Chemistry Science and Letters, 2019

## LICENSES & CERTIFICATIONS

- FAA Certified Drone Pilot - IACRA Registered, 2020
- Lightpoint Scientific Advanced Photomodeler for Collision Reconstruction, 2019
- SIEMENS MADYMO 7.7 Basic Course, 2019

## AFFILIATIONS

- Kappa Theta Tau
- Biomedical Engineering Society (BMES)

EXPLICO ENGINEERING

# DOMINIC DEMMA

*Biomechanics*

## PROFESSIONAL PROFILE

Mr. Demma's area of practice involves the investigation and reconstruction of incidents resulting in traumatic injury. He holds a B.S. in Bioengineering and a B.S in Chemistry from the University of Illinois at Urbana-Champaign. While qualifying for these degrees, Mr. Demma developed computation models for human physiology, designed 3D printed engineered tissues, and completed a capstone project prototyping a surgical device for a physician at the Carle Foundation Hospital's Heart Vascular Institute.

Prior to joining Explico Engineering Company, Mr. Demma conducted research on the replication of synthetic tissue drug testing platforms in the BIOLines Laboratory at the University of Pennsylvania. At the University of Illinois, he researched cutting-edge forms of bio fabrication and gene editing, specifically by 3D printing biomaterials and genetically engineering synthetic muscle tissue. Mr. Demma specialized in cell and tissue engineering and CRISPR gene editing at the University of Illinois and represented the university by teaching a cell and tissue engineering laboratory on campus.

As a Scientist for Explico Engineering Company, Mr. Demma conducts inspections, reviews cutting edge scientific literature, and analyzes incident-related documents. He uses state of the art reconstruction and 3D modeling techniques to build accurate accident reconstructions and visualizations. Mr. Demma's primary role at Explico is the advancement of biomechanics analyses using Finite Element and Multi-Body Situations. These situations can include, but are not limited to impact biomechanics and vehicle collision occupant kinematics. Mr. Demma has continued to build on his technical and investigative research skills throughout his time at Explico and actively pursues newly relevant methods in studying injury biomechanics.

## AREAS OF EXPERTISE

- Simulation Biomechanics
- Accident Reconstruction using UAVs/Drones, Laser Scanning, and Photogrammetry
- Simulating Vehicle Accident Dynamics
- Research in Tissue Engineering and Injury Biomechanics

## CONTACT INFORMATION

(248) 953-0956 | ddemma@explico.com | explico.com

## EXPERIENCE

- **Explico Engineering Company**
  Scientist — June 2019-Present
- **Cell and Tissue Engineering Lab**
  Lab Assistant — August 2017-May 2019
- **University of Pennsylvania — Center for Engineering Mechanobiology**
  Internship at the BIOLines lab sponsored by the NIH — June 2018-August 2018

## PRESENTATIONS

- Guest lecture presentation on Forensic Engineering at Lawrence Tech (2019)
- Senior Capstone Project poster session and final presentation (2019)
- National Conference for the Center for Engineering Mechanobiology (2018)

## UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

- Computational Modeling of Human Physiology
  - Principles of system analysis and body system modeling
- Biofabrication, Bio-bots, and CRISPR gene editing
  - Designed biomedical devices using CAD design and 3D printing
  - Genetically engineered synthetic tissues
- Senior Capstone Project
  - Utilized principals for engineering and design to produce a marketable prototype for a client at the Carle Foundation Hospital's Heart Vascular Institute

## AWARDS

- James Honors Scholar, 2015-2019
- University of Illinois College of Engineering Dean's List, 2015-2019
- Illinois Engineering Achievement Scholarship

## PRESENTATIONS AND PUBLISHED ABSTRACTS

Jeffs SB, Demma DR, Petroskey KJ, Bland ML, Rundell SA. “Computational Simulation of Sideswipe Collisions to Predict Head Injury Metrics.” XXVIII Congress of the International Society of Biomechanics, Stockholm, Sweden, 2021.

Podium presentation at the 2021 Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C2021) - Brain and Injury Mechanics: Kinematics

Demma DR, Button KD, Kappler EH, Rossman SM, Rundell SA. A Strategy for Validating the Kinematics of a Vehicle-Specific Madymo Model of a Low-Speed Rear-End Collision [Abstract #239]. Proceedings of the Summer Biomechanics, Bioengineering and Biotransport Conference; 2021 Jun 14–18; Virtual Conference: SB3C; 2021.

## PEER REVIEWED PUBLICATIONS

Blanco A, Mahajan T, Coronado RA, Ma K, Demma DR, Dar RD. Synergistic Chromatin-Modifying Treatments Reactivate Latent HIV and Decrease Migration of Multiple Host-Cell Types. Viruses. 2021; 13(6):1097. https://doi.org/10.3390/v13061097