



**D E S I G N
R E S E A R C H
E N G I N E E R I N G**

46475 Desoto Court
Novi, Michigan 48377
Tel: (248) 668 - 3450
Fax: (248) 668 - 3460

JULIE KLIMA, M.S.B.M.E.

Project Engineer

PROFESSIONAL SPECIALIZATION

Subject matter expert with over 17 years of experience specializing in impact biomechanics and occupant survivability:

- Engineering design, evaluation, and analysis of vehicle systems.
- Design analysis and experimental evaluation of the performance of interior technologies to mitigate injury in military vehicle systems and sub-systems.
- Failure and safety analysis of mechanical systems, including military sub-systems and components: restraint systems, seats, airbags, armor, chemical, biological, radiological, and nuclear technology, active and passive protective military systems, and flame smoke and toxicity requirements.
- Automotive engineering design, assembly manufacturing and testing of motor vehicle instrument panel and console systems.

EDUCATION

B.S.M.E. (Mechanical Engineering), Purdue University, 2008

M.S.B.M.E. (Biomedical Engineering), Wayne State University, 2012

AWARDS

U.S. Department of the Army, Civilian Service Commendation Medal (2023)

U.S. Department of the Army, Achievement Medal for Civilian Service (2019)

U.S. Department of the Army, Certificate of Appreciation for Exemplary Service (2019)

U.S. Food and Drug Administration, Center for Devices and Radiological Health (CDRH) Certificate (2012)

Toyota Value Engineering Award - Most Innovative Idea (2010)

PROFESSIONAL EXPERIENCE

Design Research Engineering - Project Engineer

Feb 2026 – Present

North Atlantic Treaty Organization, NATO Committee - Chairperson

Jun 2023 – Jan 2026

Chair Embarked Soldier Team of Experts (STANAG 4668) to develop international standards for soldier protection and accommodation.

U.S. Department of Defense, Ground Combat Systems, Program Executive Office - Survivability Product Manager

Oct 2022 – Jan 2026

XM30 Combat Vehicle. Manage passive and active survivability technologies to increase vehicle safety and occupant survivability.

U.S. Army Combat Capabilities Development Command (DEVCOM) Ground Vehicle Systems Center (GVSC)

Nov 2014 – Oct 2022

Lead Biomedical Engineer – Highly Reclined Seat Program. Developed new seat profile to protect occupants from threat events by collaborating with Indy car industry.

Lead Biomedical Engineer – Ground System Active Defense (GSAD) / Advanced Concepts for Active Defense (ACAD). Developed requirements, establish threats, lead technological development for airbag restraints, multi-directional seat, energy absorbing seat cushion, floor mat, roof liner, and stroking floor, improving vehicle safety standards.

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PROFESSIONAL EXPERIENCE *(continued)*

Lead Biomedical Engineer - Vehicle Borne Improvised Explosive Device. Replicate theater events in live fire laboratory environments to understand occupant injury patterns and implement seat and restraint changes to mitigate injury.

Lead Biomedical Engineer - Interior Flame, Smoke, And Toxicity Performance Specification. Develop military vehicle safety standards through multi-agency testing on military technologies.

Lead Biomedical Engineer - Evolving Threat Occupant Protection. Developed testing method for passive and active technology evaluation based on threat analysis of military vehicles.

Lead Biomedical Engineer - Military Vehicle Crash and Rollover Program. Developed and implemented rigorous testing protocols, leading to substantial improvements in vehicle crashworthiness and soldier protection.

Lead Biomedical Engineer - Lower Extremity Protection Technology. Led research and implementation of vehicle blast impacts, reducing lower leg injury risks with innovative test methods.

Lead Biomedical Engineer - Interior Impact Protective Solutions. Led analysis on head and neck injury reduction during blast events, improving vehicle safety.

Booz Allen Hamilton Biomedical Engineer

Dec 2013 – Nov 2014

Head, neck, and extremity impact injury protection. Led military vehicle head impact testing and analysis of vehicle safety standards.

Toyota Motor Engineering & Manufacturing North America

Jan 2009 – Dec 2013

Center Instrument Panel Design Engineer - Sienna Minivan. Managed development of center instrument panel for 2016 Sienna, enhancing design quality.

Console Design Lead Engineer - Tundra Full-Size Truck. Led console development for 2015 Tundra, enhancing design efficiency and safety standards.

Air Duct Design Engineer - Avalon Full-Size Sedan. Led air duct design for 2014 Avalon, boosting airflow efficiency and vehicle performance.

Cost Engineer - Engineered cost-effective, high-quality interior components through detailed analysis.

PROFESSIONAL AFFILIATIONS

Member, Society of Automotive Engineers (SAE)

PUBLICATIONS

“Developing Performance and Operating Requirements for Energy Attenuation (EA) Roof Liners for all U.S. Army Military Vehicles” Paper #31, In Proceedings of the Ground Vehicle Systems Engineering and Technology Symposium (GVSETS), Novi, MI, August 2021. See also SAE Technical Paper 2024-01-3904, August 2021.

“Multipurpose Spall Protective, Energy Absorbing HybridSil Materials for Military Vehicle Interiors”, 2019 Ground Vehicle Systems Engineering & Technology Symposium (GVSETS), Materials & Advanced Manufacturing Technical Session, Novi, MI, August 2019 (with V. Bararaskas). See also SAE Technical Paper 2024-01-3810, 2019

“Seatbelt-Mounted Airbag Design for Occupant Protection in Tactical Vehicles During Frontal Crashes”, 2019 Ground Vehicle Systems Engineering & Technology Symposium (GVSETS), Modeling & Simulation, Testing and Validation Technical Session, Novi, MI, August 2019 (with J. Hu N. Orton, K. Boyle, N. Ashok, C. Staniak, R. Scherer, M. Reed). See also SAE Technical Paper 2024-01-3796, 2019.

“Vehicle Borne IED Forensic Analysis and Occupant Protection” Paper #303, 2018 Survivability & Protection Symposium, Fort Benning, GA, November 2018 (with R. Scherer, J. Ehrgott, D. Vaughan, J. Payne, J. Swain, D. Danko, S. Trombetta, D. Abell).

“Women in Combat: Collision Mechanics During High Vertical Acceleration” Paper #419, 2018 Survivability & Protection Symposium (with S. Pankiewicz)

“Flame, Smoke, and Toxicity Energy Attenuating Materials for Use in Military Vehicles” Society of Automotive Engineers, SAE Technical Paper 2018-01-0847, SAE World Congress, Detroit, MI, April 2018 (with R. Marquardt).



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PUBLICATIONS *(continued)*

- “Neck Injury Response in High Vertical Accelerations and its Algorithmical Formalization to Mitigate Neck Injuries”, Paper #17S-12, 61st Stapp Car Crash Conference, Charleston, SC, November 2017 (with J. Kang, A. Meldrum, S. Pankiewicz). See also SAE Technical Paper 2017-22-0008, 2017.
- “Fire Resistant Energy Attenuating Materials for Use in Military Vehicles” Paper #505, 2016 Ground Vehicle Systems Engineering & Technology Symposium (GVSETS), (with R. Marquardt).
- “Interior Head Impact Protective Components and Materials for Use in U.S. Army Vehicles” Paper #24, 2015 Ground Vehicle Systems Engineering & Technology Symposium (GVSETS), (with R. Marquardt). See also SAE Technical Paper 2024-01-3544, 2015.

RESEARCH GRANTS

- Department of Defense (DoD) Small Business Innovation Research (SBIR) Program, 2018: “Spall Liner Energy Attenuating (EA) Material Development”.
- Defense Technical Information Center (DTIC), In-House Laboratory Independent Research (ILIR) Fiscal Year 2017: “Women in Combat: Collision Mechanics During High Vertical Acceleration”.
- Defense Technical Information Center (DTIC), In-House Laboratory Independent Research (ILIR) Fiscal Year 2016: “Axial Impact Loading and Dynamic Responses of Vehicle Interior Roof Structure Design”.
- Department of Defense (DoD), Small Business Innovation Research (SBIR) Program, 2015: “Innovative Active Protective Technologies for Underbody Blast, Head-Neck Impact Injury Roof Protection”.
- Defense Technical Information Center (DTIC), In-House Laboratory Independent Research (ILIR) Fiscal Year 2015: “Neck Injury Response Foundation in High Vertical Accelerations and its Algorithmical Formalization to Mitigate Neck Injuries”.
- Department of Defense (DoD) Small Business Innovation Research (SBIR) Program, 2014: “Flame, Smoke and Toxicity Resistant Recoverable Interior Trim Energy Absorption Material”.

GUEST LECTURER

- “Flame, Smoke, and Toxicity Energy Attenuating Materials for Use in Military Vehicles”, Society of Automotive Engineers, World Congress, Detroit, MI, April 2018.
- “Vehicle Borne IED Forensic Analysis and Occupant Protection”, on Paper #303, 2018 Survivability & Protection Symposium, Fort Benning, GA, November 2018.
- “Women in Combat: Collision Mechanics During High Vertical Acceleration”, 2018 Survivability & Protection Symposium, Fort Benning, GA, November 2018.
- “Introduction of Energy Absorbing Materials for Interior Impact Prevention in U.S. Army Vehicles”, Foam Expo, Novi, MI, February 2017.
- “Neck Injury Response in High Vertical Accelerations and its Algorithmical Formalization to Mitigate Neck Injuries”, on Paper #17S-12, 61st Stapp Car Crash Conference, Charleston, SC, November 2017.
- “Fire Resistant Energy Attenuating Materials for Use in Military Vehicles”, U.S. Army Research Laboratory Fire Information Exchange, Aberdeen, MD, July 2016.
- “Fire Resistant Energy Attenuating Materials for Use in Military Vehicles” on Paper #505, Ground Vehicle Systems Engineering & Technology Symposium (GVSETS), Novi, MI, August 2016.
- “Interior Head Impact Protective Components and Materials for Use in U.S. Army Vehicles”, on Paper #24, Ground Vehicle Systems Engineering & Technology Symposium (GVSETS), Novi, MI, August 2015.

