BACKGROUND

Mr. Helker is an accident reconstructionist specializing in the reconstruction of motor vehicle, pedestrian, and bicycle collisions. He has training and experience in constructing scene diagrams and drawings using computer aided design software, is certified as a Bosch Crash Data Retrieval (CDR) Tool Technician, and is experienced in documenting evidence utilizing three-dimensional laser scanning. Mr. Helker earned his Bachelor of Science in Mechanical Engineering at Drexel University, where he graduated Magna Cum Laude from the Pennoni Honors College. As an engineering student, he was involved with the Drexel University Chapter of the American Society of Mechanical Engineers (ASME). He is a researcher in the field of accident reconstruction, whose work on vehicle control history data management has been published.

AREAS OF SPECIALTY

- Accident Reconstruction
- EDR (Black Box) Imaging and Analysis
- Three-Dimensional Laser Scanning
- Sightline Obstruction Analysis
- Pedestrian Accident Analysis
- Scene Documentation and Diagramming
- Vehicle Control History Data Download and Analysis
- Photogrammetry
- Forensic Video Analysis
- Infotainment Download and Analysis
- Nighttime Visibility/Conspicuity

EDUCATION

- Bachelor of Science in Mechanical Engineering, Drexel University Pennoni Honors College, 2020
- Bosch CDR Tool Technician, University of North Florida Institute of Police Technology and Management, 2020
- Event Data Recorder Use in Traffic Crash Reconstruction for Engineers, Ruth Consulting, 2021

PROFESSIONAL EXPERIENCE

June 2020 – Present | ARCCA, LLC | Forensic Engineer

- Investigates and reconstructs motor vehicle collisions
- Images Event Data Recorders in passenger vehicles
- Documents and analyzes evidence utilizing 3D laser scanning hardware and software
- Conducts vehicle, site, and damage inspections
- Assesses vehicle dynamics in response to applied crash forces
- Utilizes reconstruction software such as EDCRASH, EDSMAC, Virtual CRASH, SCENE, and 3DF Zephyr

September 2018 – March 2019 | ARCCA, Incorporated | Accident Reconstruction Co-op

- Utilized 3-D laser scanners and CAD software to inspect vehicles and sites involved in crashes in order to recreate and analyze the scene.
- Examined and analyzed the data recorded in infotainment systems.
- Researched and developed tests comparing the crash data received from infotainment systems to that of supplemental restraint systems.

September 2017 – March 2018 |Genesis Engineers. | Mechanical Engineering Co-op

- Designed a new HVAC system as part of a team of four on a healthcare building renovation project.
- Performed static pressure calculations, load calculations, and duct fitting under the supervision of senior project engineers.
- Utilized AutoCAD and Revit to create and markup ductwork, airflow, piping, and control diagrams.
- Reviewed specifications to assist with the selection of mechanical equipment and materials.

September 2016 – March 2017 |Children's Hospital of Philadelphia | Operations and Maintenance Project Co-op

- Managed six renovation projects on HVAC systems, elevators, boilers, chillers, and cooling towers.
- Communicated with contractors and filled out pre-construction risk assessments, daily checklists, hot work permits, and fire impairments to confirm work was done safely and effectively.
- Led a multidisciplinary team of 10 co-workers to ensure all specially pressurized rooms were kept in the correct condition by performing walkthroughs and updating spreadsheets.
- Reviewed as-builts, operations and maintenance manuals, architectural floorplans, and NFPA guidelines to troubleshoot mechanical and electrical equipment and resolve problems safely.

PROFESSIONAL AFFILIATIONS

- National Association of Professional Accident Reconstruction Specialists (NAPARS)

PUBLICATIONS

- Teitelman, J., Rodos, E., Wolfe, D., **Helker, M.**, (2021) "Toyota Vehicle Control History: 'Sudden Braking History' Recording Characteristics," Collision: The International Compendium for Crash Research. Fall, 2021 Issue.