

Kyle B. Heer, M.S., P.E.

Compass Consulting Engineers P.C.
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EDUCATION

Colorado School of Mines – Golden, Colorado

- M.S. Mechanical Engineering (Biomechanics) 2015 – 2017

University of Tulsa – Tulsa, Oklahoma

- B.S. Engineering Physics (Mechanical) 2004 – 2008

ACCREDITATIONS

- Professional Engineer (PE), Colorado #58054
- FAA Certified UAS Remote Pilot – 2019
- Heavy Vehicle Event Data Recorder Download Technician and Analyst – March 2021
- Crash Data Retrieval (CDR) Certified Download Technician – August 2021

PROFESSIONAL EXPERIENCE

Compass Consulting Engineers P.C. – Westminster, Colorado

Senior Engineer, 2018 – Present

- Perform investigation, reconstruction and analysis of incidents including motor vehicle accidents, SUV rollovers, heavy vehicles, bicycles, motorcycles and pedestrian impacts, and other incidents leading to personal injury
 - Perform site, vehicle, and equipment inspections using photographs, three-dimensional lidar, scans and UAV footage to collect and quantify physical evidence
 - Create damaged and exemplar vehicle models from point cloud data using FARO SCENE, Autodesk ReCap, and Pix4D
 - Perform photogrammetric analysis to locate and quantify destroyed physical evidence
 - Reconstruct motor vehicle accidents using recognized software tools including HVE SIMON, EDCRASH, EDSMAC, AutoCAD
 - Mathematical analysis using industry recognized software tools including Mathworks MATLAB, PTC Mathcad, Microsoft Excel
 - Prepare technical reports and exhibits, provide expert testimony for litigation
- Perform full-scale, instrumented dynamic automotive testing and data analysis
 - Instrumentation suite includes capability for simultaneous data collection of vehicle CAN-BUS communication, steering wheel torque, brake pedal force, GPS, accelerometer
- Analyze, incorporate, and present data from instrumented vehicle testing, vehicle “black-box” downloads, simulations
- Quantify forces and accelerations to assess injury mechanism and likelihood of injury using widely-accepted forensic biomechanical methods, injury criteria, and published scientific research
- Motor vehicle occupant kinematics analysis

Colorado School of Mines – Golden, Colorado

Student, Master of Science, 2015 – 2017

- Biomechanics coursework and research focus

- Experimental methods in biomechanical research: experiment design, biomechanical data collection (motion capture, electromyography, 6-axis ground reaction forces), hypothesis testing, kinematic/kinetic musculoskeletal modeling, inverse dynamics calculations
- Computer simulation of musculoskeletal mechanics, tissue modeling, joint mechanics, experimental validation of computational techniques
- Statistical applications of probabilistic analysis methods to biomechanical systems and analyses
- Master's Thesis: *Lower-Limb Exoskeleton Emulator for Accelerated Development of Gait Exoskeletons*
 - Design and implementation of a haptic research platform capable of real-time torque delivery and sensing for sagittal-plane lower-limb joints of the wearer.
 - Investigation of external elastic potential energy storage during gait to aid and improve gait patterns in impaired populations

FlightSafety International – Broken Arrow, Oklahoma

Mechanical Engineer, 2008 – 2014

- Design, prototype, and manufacture of electromechanical simulated avionic cockpit instruments and their integration into in-house-manufactured FAA Level D certified full-flight simulators for pilot training.
- Modified and documented existing designs for cost-reduction, ease of manufacture and ease of assembly.
- Piloted use of 3D scanning hardware and data conversion software training to manipulate point cloud data into parametric models.

PROFESSIONAL AFFILIATIONS

- Society of Automotive Engineers (SAE)
- American Society of Mechanical Engineers (ASME)
- National Association of Professional Accident Reconstruction Specialists, Inc. (NAPARS)

SPEAKING ENGAGEMENTS

- Colorado Defense Lawyers Association – 2024
 - *Forensic Biomechanics: Methods, Applications, and Deliverables*

ADDITIONAL PROFESSIONAL ACTIVITIES

- Colorado Defense Lawyers Association Trial Academy – 2024
- Siemens Simcenter MADYMO Introduction Course – 2023
- Heavy Vehicle Event Data Recorder (HVEDR) Use in Traffic Crash Investigation Course – 2021
- HVE Forum by Engineering Dynamics Corporation, 2020 – Austin, TX
- HVE Forum by Engineering Dynamics Corporation, 2019 – Las Vegas, NV