



Michael Vredenburgh, M.S.

Michael@Vantage-Forensics.com | Direct:(813)833-2990 | 4/28/2026

EXPERT PROFILE Consulting expert specializing in Human Factors Engineering and Applied Biomechanics. Applies fundamental engineering, physics-based computational simulations, and validated human-performance metrics to evaluate human-system interactions, risk perception, perception-reaction times (PRT), and accident causation. Retained as a primary expert in over 100 litigation matters, providing objective, evidence-based analyses for both plaintiff (approx. 50%) and defense (approx. 50%) counsel. Extensive background in transportation safety, premises liability, product design, and biomechanical injury simulation. Qualified to testify in state and federal courts with a record of 15 depositions and 2 trials testimonies since 2021, with zero *Daubert* exclusions.

CORE AREAS OF EXPERTISE

Transportation Human Factors: Perception-Reaction Time (PRT), Driver Fatigue & Drowsiness (PERCLOS methodology), “Looked But Failed To See” (LBFTS) Errors, Satisfaction of Search (SOS), Driver Expectancy, and Positive Guidance.

Applied Biomechanics & Kinematics: Computational Biodynamic Impact Modeling (e.g., 1-DOF mass-spring-damper simulations), NIOSH Lumbar Compression Analysis, Injury Mechanism & Tolerance Evaluation, Occupant Kinematics, and Mechanical Decelerations.

Infrastructure & Safety Engineering: Intersection Sight Distance (ISD) Analysis, Signal Phasing & Dilemma Zones, “See-Through Traps,” Heavy Machinery & Elevator Dynamics, and Premises/Work Zone Safety.

Industry Standards & Regulatory Compliance: Federal Highway Administration (FHWA) Safe System Approach,

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AASHTO Geometric Design Guidelines, NCHRP, MUTCD, FMCSA Commercial Driving Regulations, and ASME A17.1.

Expert Profile

EXPERT WITNESS & FORENSIC EXPERIENCE

Core Areas of Expertise

Vantage Forensics: Human Factors, Accident Reconstruction, & Biomechanics Inc.

Expert & Forensic Experience

Founder and Principal Consultant | 2026 – Present

Directs forensic consulting operations and serves as the primary engineering expert in complex personal injury, product liability, and transportation litigation matters nationwide.

Engineering, UX, & Product Development

Develops custom, physics-based computational simulations (using Python and MATLAB) to reconstruct vehicle kinematics, biodynamic forces, and environmental variables.

Education

Conducts quantitative visual analyses, including frame-by-frame PERCLOS coding and head-pose estimations from dashcam/bodycam footage to objectively evaluate commercial driver fatigue.

Technical Methodologies

Authors comprehensive, scientifically rigorous Rule 26 expert reports integrating human limitations with infrastructure and system demands to clarify complex scenarios for the trier of fact.

Peer-Reviewed Publications

Affiliations & Awards

Vredenburgh & Zackowitz, Inc.

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Industrial and Human Factors Engineer | 2016 – 2024

Systems and Research Analyst | 2010 – 2016

Early-Career Researcher & Forensic Assistant | 2006 – 2010

Progressed from an early-career research role to a leading comprehensive engineering analyses in forensic investigations, serving as a primary retained expert.



Conducted nationwide site inspections evaluating driver reaction times, visibility restrictions, and compliance with safety standards.

Early Career Research: Demonstrated exceptional early aptitude in human factors and biomechanics; conducted ADA wheelchair accessibility research, won 1st Place at the California State Science Fair, and successfully passed peer-review to publish as a primary author in the Human Factors and Ergonomics Society (HFES) prior to university matriculation.

ENGINEERING & PRODUCT DEVELOPMENT

Cherry Tomato Engineering, LLC.

Founder and CEO | 2022 – Present

Directs R&D and prototyping for proprietary, patent-pending technical engineering systems built from first principles.

Applies human-computer interaction (HCI) and physical ergonomics principles to optimize industrial safety.

Note: Operations and product specifics (including a novel, large-scale construction 3D printer) are currently maintained in confidential “stealth/R&D mode” to protect intellectual property and pending patents.

EDUCATION

Wright State University

Ph.D. Candidate (ABD), Industrial and Human Factors Engineering (*Currently on academic leave to pursue commercial ventures*)

M.S., Industrial and Human Factors Engineering (2020)

Certificate: User Experience (UX) and Design Thinking (2021)

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**University of California, Berkeley**

B.S., Bioengineering (Concentration: Computational Biology) (2016)

TECHNICAL SKILLS & METHODOLOGIES

Analysis & Simulation: Computational biomechanical simulation (1-DOF standing models), kinematic physics engines, spatial geometry/sightline analysis, and PERCLOS psychophysiological metric analysis.

Software & Data: Python (custom kinematic/biodynamic scripting, OpenCV), MATLAB (perception modeling), R, SPSS (statistical analysis of health/accident data), 3D Design/CAD.

PEER-REVIEWED PUBLICATIONS (*Last 10 Years*)

Vredenburgh, M.J., Stone, P.B., & Cao, C.G.L. (2021). User Experience: An evaluation of the Pilot Education Platform and Online Learning at Wright State University. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 65(1), 1215-1219.

Vredenburgh, A., & Vredenburgh, M. (2020). Human Factors Analysis of a Rotating Restaurant. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 64(1).

Borzendowski, S., Vredenburgh, M., Darlson, C., Hersh, M., Vredenburgh, A., & Zackowitz, I. (2019). Children's safety workshop: A demonstration of human factors professionals' preparation with practicing attorneys. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 63(1), 227.

Vredenburgh, M.J., Bench, M.L., Zackowitz, I.B., Runge, K., & Vredenburgh, A.G. (2018). Amusement Park Guest Injured on a Water Ride: A Human Factors and Biomechanics Evaluation.

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Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 62(1), 440-444.

Bench, M.L., Vredenburgh, M.J., Zackowitz, I.B., & Vredenburgh, A.G. (2017). An epidemiological perspective of individual and population health risk prevention. In P. Arezes (Ed.), *Advances in Safety Management and Human Factors* (pp. 357-368). Springer.

Bench, M.L., Vredenburgh, M.J., Zackowitz, I.B., & Vredenburgh, A.G. (2017). Risk Communication for Consumer Products. In P. Arezes (Ed.), *Advances in Safety Management and Human Factors* (pp. 225-235). Springer.

Zackowitz, I.B., Vredenburgh, M.J., Bench, M.L., & Vredenburgh, A.G. (2017). Types of Consumer Products. In G. Emilien, R. Weitkunat, & M. Ludicke (Eds.), *Consumer Perception of Product Risks and Benefits* (pp. 3-22). Springer.

PRESENTATIONS & LECTURES

Human Factors Analysis of a Rotating Restaurant. Human Factors and Ergonomics Society Annual Meeting (October 2020).

Children's safety workshop: A demonstration of human factors professionals' preparation with practicing attorneys. Session Chair, Human Factors and Ergonomics Society Annual Meeting, Seattle, WA (October 2019).

Amusement Park Guest Injured on a Water Ride: A Human Factors and Biomechanics Evaluation. Human Factors and Ergonomics Society Annual Meeting, Philadelphia, PA (October 2018).

Risk Communication for Consumer Products. AHFE International Conference on Safety Management and Human Factors, Los Angeles, CA (July 2017).

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**PROFESSIONAL AFFILIATIONS & AWARDS**

Human Factors & Ergonomics Society (HFES): Elected Secretary/Treasurer, Forensics Professional Group (2020–2022).

AHFE International Conference: Technical Session Chair, “Risk Prevention and Assessment” (July 2017).

AngelHack SF (2015): Top Prize Winner. Developed a machine learning-based email optimization system applying human-computer interaction (HCI) principles.

California State Science Fair: First Place Award Winner for early-career engineering research.

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**APPENDIX A: FEDERAL RULE 26 TESTIMONY HISTORY**

*Maintained pursuant to Federal Rule of Civil Procedure 26(a)(2)(B)(v).
Includes depositions and trial testimony over the past four years.*

1. Brenda Jewell Manter v. Jamie Palm, et al.

Jurisdiction: Superior Court of California, County of Fresno
(Case No. 24CECG00053)

Testimony: Defense Deposition – March 24, 2026

2. Richard Gardner v. Scripps Health

Jurisdiction: Superior Court of California, County of San
Diego (Case No. 37-2024-00011059-CU-PA-CTL)

Testimony: Plaintiff Deposition – March 2, 2026

3. Arcelia Elizarraraz v. County of Los Angeles

Jurisdiction: Superior Court of California, County of Los
Angeles (Case No. 24PSCV02623)

Testimony: Plaintiff Deposition – February 26, 2026

4. Good Samaritan Medical Center, Inc., et al. v. The Leapfrog Group

Jurisdiction: U.S. District Court, Southern District of
Florida (Case No. 9:25-cv-80526-DMM)

Testimony: Defense Deposition – September 30, 2025

5. Ignacio Velasquez, et al. v. Los Angeles County Metropolitan Transportation Authority, et al.

Jurisdiction: Superior Court of California, County of Los
Angeles (Case No. 21STCV24818)

Testimony: Plaintiff Deposition – August 2, 2024

6. Pamela Sarazen v. Costco Wholesale Corporation

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Jurisdiction: Superior Court of California, County of Santa Barbara (Case No. 21CV00852)

Testimony: Plaintiff Deposition – June 27, 2024

7. *Daniel Torres and Sergio Gonzalez v. Kaila Jean Reyes Rivera, et al.*

Jurisdiction: Superior Court of California, County of Orange (Case No. 30-2021-01214322)

Testimony: Defense Trial – April 26, 2024

Testimony: Defense Deposition – March 29, 2024

8. *James Newman v. The City of San Diego*

Jurisdiction: Superior Court of California, County of San Diego (Case No. 37-2022-00006235-CU-PO-CTL)

Testimony: Plaintiff Deposition – February 1, 2024

9. *Dee Allen Brannum v. City of Corcoran, County of Tulare, et al.*

Jurisdiction: Superior Court of California, County of Tulare (Case No. VCU290414)

Testimony: Plaintiff Trial – December 7, 2023

Testimony: Plaintiff Deposition – November 21, 2023

10. *Fabian Sanchez v. Big 5 Corp.*

Jurisdiction: Superior Court of California, County of San Diego (Case No. 37-2020-00018007-CU-PO-CTL)

Testimony: Plaintiff Deposition – June 26, 2023

11. *Alexander v. Ritchie Bros. Auctioneers (America) Inc.*

Jurisdiction: Superior Court of California, County of Riverside (Case No. CVR12000564)

Testimony: Defense Deposition – April 13, 2023

12. *Damion Collins v. Overland Park Urban Air LLC, et al.*



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Jurisdiction: U.S. District Court, District of Kansas (Case No. 2:2023mc00212) / American Arbitration Association (Case No. 01-22-0001-5781)

Testimony: Plaintiff Deposition – April 5, 2023

13. Illusion Smith v. San Diego Unified School District (SDUSD)

Jurisdiction: Superior Court of California, County of San Diego (Case No. 37-2019-00038831-CU-PO-CTL)

Testimony: Plaintiff Deposition – July 27, 2022

14. Cole Lee and Lindsey Lee v. Southeast Logging, Inc., et al.

Jurisdiction: Superior Court of Glynn County, State of Georgia (Case No. CE21-00457)

Testimony: Plaintiff Deposition – June 3, 2022

15. Carmen Martinez and Hector Martinez v. McKibbon Hotel Group, Inc., et al.

Jurisdiction: State Court of Chatham County, State of Georgia (Case No. STCV20-00581)

Testimony: Plaintiff Deposition – December 8, 2021

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