

Exponent®
Engineering & Scientific Consulting

Dale Jiang, Ph.D., P.E.

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Professional Profile

Dale Jiang, Ph.D., P.E., is a senior engineer in Exponent's Vehicle Engineering practice specializing in accident reconstruction, crash investigation, and forensic engineering. He advises law firms, insurers, and automotive manufacturers on vehicle collision analysis and product liability matters, with particular expertise in computer simulation and mechanical engineering applied to on-road and off-road crashes.

Dr. Jiang has received specialized training through a Northwestern University accident reconstruction course, a PhotoModeler collision reconstruction course, event data recorder (EDR) courses, a motorcycle collision reconstruction course, and the HVE Forum.

Motor Vehicle Accident Reconstruction

Dr. Jiang applies mechanical engineering principles and physics-based analysis to reconstruct motor vehicle accidents involving passenger cars, trucks, motorcycles, and off-road vehicles. His reconstruction work encompasses vehicle and scene inspections, three-dimensional (3D) laser scanning, photogrammetry, and the application of momentum, energy, and kinematics methods to determine pre-impact speeds, collision configuration, and post-impact trajectory. He uses industry-standard simulation platforms, including HVE (Human-Vehicle-Environment), to model crash dynamics and validate reconstruction findings with quantitative rigor.

Automotive Crash Investigation

Dr. Jiang conducts detailed crash investigations for both low-speed and high-speed impact scenarios, integrating physical evidence from vehicle inspections with computational modeling to establish the sequence of events leading to a collision. His investigations address vehicle kinematics, vehicle damage analysis, event data recorder (EDR) interpretation and crash severity. This multidisciplinary approach enables him to provide defensible, technically grounded insights on causation and contributing factors in complex motor vehicle incidents.

Forensic Investigation

Dr. Jiang supports forensic investigations involving vehicles and mechanical systems by combining field inspection techniques with advanced analytical tools. His forensic toolkit includes 3D scanning and CAD reconstruction. He is also a FAA Part 107 Certified Commercial Drone Pilot, enabling aerial site documentation and evidence collection that enhances the completeness and accuracy of forensic investigations.

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Academic Credentials & Professional Honors

Ph.D., Mechanical Engineering, Baylor University, 2021

M.S., Mechanical Engineering, Baylor University, 2017

B.S., Mechanical Engineering, Baylor University, 2015

ASME North Texas Section Student of the Year for Baylor, 2019-2020

2019 AIAA Aviation Flow Visualization Showcase: Most Quantitatively Description Flow Visualization

Baylor Presidential Fellowship Scholarship

Licenses and Certifications

Professional Engineer Mechanical, Texas, #150989

FAA Part 107 Certified Commercial Drone Pilot (TX)

Professional Affiliations

American Society of Mechanical Engineering

Languages

Mandarin Chinese

Publications

Journals

Jiang, D., & Ling, Y. (2021). "Impact of inlet gas turbulence on the formation, development and breakup of interfacial waves in a two-phase mixing layer," Journal of Fluid Mechanics, 921, A15. doi:10.1017/jfm.2021.481.

Delin Jiang, Yue Ling. "Destabilization of a planar liquid stream by a co-flowing turbulent gas stream," International Journal of Multiphase Flow, Volume 122, 2020, 103121.

Jiang, D.; Hoglund, R.; Smith, D.E. "Continuous Fiber Angle Topology Optimization for Polymer Composite Deposition Additive Manufacturing Applications," Fibers 2019, 7, 14.

Delin Jiang, Douglas E. Smith. "Anisotropic mechanical properties of oriented carbon fiber filled polymer composites produced with fused filament fabrication," Additive Manufacturing, Volume 18, 2017, Pages 84-94.

My Google Scholar link

Conference Presentations

D Jiang, Y Ling. “Impact of inlet gas turbulence on longitudinal and transverse instabilities in a two-phase mixing layer”, Bulletin of the American Physical Society, 2021.

Delin Jiang, Yue Ling, Daniel Fuster, Stephane Zaleski, Gretar Tryggvason. “Manipulating gas-assisted atomization by inlet gas turbulence”. APS Division of Fluid Dynamics Meeting Abstracts. Nov 2019.

Delin Jiang, Yue Ling, Gretar Tryggvason and Stephane Zaleski. "Impact of Inlet Gas Turbulent Intensity on the Characteristics of Droplets Generated in Airblast Atomization," AIAA 2019-3721. AIAA Aviation 2019 Forum. June 2019.

Delin Jiang, Stephane Zaleski, Gretar Tryggvason, Yue Ling. “Destabilization and breakup of a planar liquid stream assisted by a co-flowing turbulent gas stream”. Bulletin of the American Physical Society. Nov, 2018.

Delin Jiang, DE Smith. “Topology optimization for 3D material distribution and orientation in additive manufacturing”, 2017 International Solid Freeform Fabrication Symposium, August 2017, Austin, Texas.

Jiang, D., & Smith, D. E. (2017). Predicting Short Fiber Composite Material Distribution and Orientation Using Optimization for Additive Manufacturing Applications. SPE ANTEC® Anaheim, 2017, 94-99.

D Jiang, DE Smith. “Mechanical behavior of carbon fiber composites produced with fused filament fabrication”, Solid Freeform Fabrication 2016: Proceedings of the 26th Annual International Solid Freeform Fabrication Symposium, August 2016, Austin, Texas.

See my Google Scholar link above.

Project Experience

- **Motorcycle and Vehicle Crash Reconstruction:** Investigated and analyzed multiple motorcycle-vehicle collision matters, including evaluation of motorcycle and vehicle pre-impact speeds, impact configuration, and post-impact trajectories.
- **Passenger Vehicle Incident Analysis:** Investigated passenger vehicle incidents and supported biomechanics experts by evaluating vehicle crash severity relevant to alleged occupant injuries.
- **Vehicle Inspection and EDR Analysis:** Conducted numerous vehicle inspections, including event data recorder (EDR) imaging, to document vehicle damage, evaluate crash severity, and support reconstruction analyses.
- **Site Inspection and Evidence Documentation:** Conducted numerous site inspections using drone-based documentation and laser scanning to collect, preserve, and analyze accident-scene evidence.

Additional Education & Training

HVE Forum, virtual, 2022

PhotoModeler Collision Reconstruction Course

Northwestern Accident Reconstruction Course

Peer Reviews

Rapid Prototyping Journal

Computer and Fluids Journal