Use of LIDAR and Digital Forensics in Crash Analysis Training Course

Professional Development Training Course Outline

Category	Traffic Management & Road Safety	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Use of LIDAR and Digital Forensics in Crash Analysis Training Course is designed for professionals seeking to enhance their expertise in advanced accident reconstruction, data-driven crash investigation, and forensic analysis techniques. Leveraging cutting-edge LiDAR scanning technology, 3D modeling, and digital evidence collection, this course equips participants with the ability to meticulously reconstruct vehicular accidents, identify causative factors, and provide accurate, court-admissible evidence. Participants will gain hands-on experience in integrating digital forensics with LiDAR-generated spatial data to optimize crash investigation outcomes.

Through a combination of practical case studies, interactive workshops, and scenario-based learning, attendees will develop skills in collision dynamics, evidence preservation, and digital reconstruction methodologies. The program emphasizes accuracy, reproducibility, and advanced analytical techniques to empower investigators, law enforcement personnel, insurance analysts, and traffic safety professionals. By the end of the course, participants will confidently apply LiDAR technology and forensic tools to real-world crash analysis, enhancing public safety, legal compliance, and investigative efficiency.

Programme Curriculum

Use of LIDAR and Digital Forensics in Crash Analysis Training Course

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Course Duration

10 day

Course Objectives

1. Master the principles of LiDAR-based crash reconstruction.
2. Apply digital forensics methodologies to accident investigations.
3. Conduct 3D mapping and spatial analysis of crash scenes.
4. Integrate vehicular dynamics modeling with digital evidence.
5. Analyze collision causation factors using data-driven approaches.
6. Enhance evidence collection and preservation protocols.
7. Interpret black box and telematics data for forensic purposes.
8. Utilize photogrammetry and scanning technologies in crash analysis.
9. Develop court-admissible reports and visual reconstructions.
10. Apply simulation software for crash scenario modeling.
11. Improve traffic safety analysis through digital insights.
12. Enhance decision-making with AI-assisted crash reconstruction tools.
13. Build proficiency in integrated LiDAR and forensic workflow.

Target Audience

1. Accident reconstruction specialists
2. Forensic investigators
3. Law enforcement officers
4. Traffic safety engineers
5. Insurance claim analysts
6. Legal professionals involved in vehicular cases
7. Automotive safety researchers
8. Public safety and risk management professionals

Course Modules

Module 1: Introduction to LiDAR in Crash Analysis

- Basics of LiDAR technology and applications
- Understanding point cloud generation
- LiDAR vs traditional survey methods
- Accuracy and limitations in crash reconstruction
- **Case Study:** Highway collision reconstruction using LiDAR

Module 2: Digital Forensics Fundamentals

- Principles of digital forensics in vehicular accidents
- Data acquisition from electronic devices
- Chain of custody protocols
- Legal admissibility of digital evidence
- **Case Study:** Vehicle telematics analysis in court

Module 3: Crash Scene Data Collection

- Field survey techniques
- LiDAR scanning procedures
- Photogrammetry integration
- Safety and environmental considerations
- **Case Study:** Multi-vehicle accident scene reconstruction

Module 4: 3D Modeling and Visualization

- Processing LiDAR data into 3D models
- Scene reconstruction software
- Interactive visualization techniques
- Combining GIS and crash data
- **Case Study:** Intersection collision 3D modeling

Module 5: Vehicular Dynamics Analysis

- Fundamentals of collision physics
- Speed, momentum, and energy calculations
- Impact point determination
- Vehicle deformation analysis
- **Case Study:** High-speed crash investigation

Module 6: Telematics and Black Box Data

- Understanding Event Data Recorders (EDR)
- Data extraction techniques
- Interpreting speed, braking, and steering data
- Integration with LiDAR models
- **Case Study:** Accident reconstruction using black box data

Module 7: Evidence Preservation and Documentation

- Legal and forensic standards
- Digital evidence storage best practices
- Scene documentation techniques
- Reporting for litigation purposes
- **Case Study:** Admissible evidence presentation

Module 8: Advanced Collision Analysis

- Multi-vehicle crash analysis
- Pedestrian and cyclist accident reconstruction
- Roadway condition evaluation
- Factor-based analysis

- **Case Study:** Urban intersection multi-vehicle crash

Module 9: Software Tools for Reconstruction

- LiDAR processing software
- Collision simulation platforms
- 3D modeling suites
- Data integration tools
- **Case Study:** Software-driven reconstruction of highway incident

Module 10: Integrating AI and Machine Learning

- Predictive modeling for crash scenarios
- AI in pattern recognition
- Data-driven decision-making
- Automation in forensic analysis
- **Case Study:** AI-assisted accident causation analysis

Module 11: Legal and Court Considerations

- Expert witness preparation
- Presenting digital evidence in court
- Cross-examination defense strategies
- Report structuring for legal standards
- **Case Study:** Courtroom presentation of LiDAR reconstruction

Module 12: Traffic Safety Analysis

- Risk factor identification
- Data-driven safety recommendations
- Accident hotspot mapping
- Public safety policy applications
- **Case Study:** Traffic safety improvement planning

Module 13: Integrating LiDAR and Forensics

- Workflow optimization
- Multi-source data integration
- Accuracy enhancement techniques
- Collaborative investigation strategies
- **Case Study:** Complex accident investigation workflow

Module 14: Hands-on Crash Reconstruction Workshop

- Field scanning practice
- Data processing exercises
- 3D scene reconstruction
- Team-based investigative scenarios
- **Case Study:** Realistic accident reconstruction simulation

Module 15: Reporting and Presentation Skills

- Professional report writing

- 3D visualization for non-technical stakeholders
- Interactive presentation techniques
- Communicating findings to authorities
- **Case Study:** Presenting reconstruction results to insurance and court

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call +254769199797

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price

23 Nov 2026	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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