



CURRICULUM VITAE

**Omar M. Siddiqui, MSME**

**SPECIALIZATION**

- Accident Reconstruction
- Vehicle Dynamics and Loss of Control
- Electric Vehicles and Regenerative Braking
- Computer Simulation (PC-Crash and HVE)
- Crash Data Recorder (CDR/EDR)
- Vibration Analysis

**EDUCATION**

- Master of Science in Mechanical Engineering (MSME)  
California State University, Los Angeles (2016)
- Bachelor of Science in Mechanical Engineering (BSME)  
King Fahd University of Petroleum and Minerals (2014)

**ADDITIONAL TRAINING**

- SAE, Photogrammetry and Analysis of Digital Media, June 2019
- California Motorcyclist Safety Program (CMSP), June 2019
- Human-Vehicle-Environment (HVE) Forum (EDSMAC/EDCRASH Training), February 2019
- SAE, Applied Vehicle Dynamics, December 2018
- SAE, Applying Automotive EDR Data to Traffic Crash Reconstruction, November 2018
- SAE, Side Impact Occupant Safety, November 2018
- SAE, Vehicle Crash Reconstruction: Principles and Technology, August 2018
- Southwestern Association of Technical Accident Investigators (SATAI) Conference, July 2018
- Tesla EDR Training, June 2018
- Collision Safety Institute – Crash Data Retrieval (CDR) Technician Course, June 2018
- I-CAR Collision Repair Course, May-June 2018
- Digital Photography- California Center for Digital Arts, May 2018
- PC-Crash Training Course, January 2018
- Engineering Dynamics Corporation – Reconstruction Training Course, January 2018
- CAARS 2017 3<sup>rd</sup> Quarter Training, August 2017

**PROFESSIONAL EXPERIENCE**

2016 to present

**MOMENTUM ENGINEERING CORP.**

*Forensic Engineer*

Accident reconstruction, including heavy trucks, automobiles, motorcycles, bicycles, and pedestrian accidents. State-of-the-art computer simulation. Engineering services, including vehicle and site inspections, re-enactments, visibility studies, traffic signal analysis, vehicle dynamics, rollover dynamics, crash testing, mechanical failure analysis, and design evaluation.

2015 (Summer)

**CHICAGO BRIDGE AND IRON COMPANY**

*Mechanical Engineering Intern*

Assist senior engineers working on the AP1000 Nuclear Power Plant. Evaluate and recalculate alarm set points for safety instruments installed in the power plant to ensure safety. Draft and modify piping and instrumentation drawings as per federal and state licensing protocol.

- 2012-2013 WEATHERFORD  
*Co-Op*  
Petroleum and Reservoir Engineering. Assemble and pressure test hydraulic production packers before running them downhole. Develop schematics and torque & drag reports for the Well Screen Department. Replace downhole equipment and assist engineers during various rig operations.
- 2011 (Summer) HONDA  
*Intern*  
Worked with service engineers to repair and provide maintenance of automobiles. Overhaul, diagnose, repair, and replace engine components. Work with the diagnostic team to identify problems in automobiles.

## **TECHNICAL BACKGROUND**

### **Accident Reconstruction:**

Reconstruction of automobile, heavy truck, bus, bicycle, motorcycle, and pedestrian accidents. Scene investigation and drawings, skid/crush analysis, photography, vehicle inspection, damage analysis, vehicle dynamics, loss of control, and human factors associated with accident reconstruction. Computer-based accident reconstruction using PC-Crash and HVE. Computer-based photographic analysis, including close range photogrammetry, scanning/analysis in Photoshop and use of Photomodeler to analyze skids and crush patterns. Computer simulation and animation, including the production of presentation-quality video animations. Crash testing and vehicle dynamics testing, data analysis, and reduction.

### **Automotive:**

Electric Vehicles, Regenerative Braking System, Noise Vibration & Harshness (NVH), steering, engines, drivetrain, suspension, frame, and body-structure repair.

### **Computer and Classical Analysis:**

Computer-based accident reconstruction, vibration, stress, and fatigue analysis.

### **Design Evaluation:**

Mechanical systems and components performance evaluation.

## **PROFESSIONAL AFFILIATIONS**

- California Association of Accident Reconstruction Specialists (CA2RS)
- Society of Automotive Engineers (SAE International)
- Southwest Association of Technical Accident Investigators (SATAI)
- Institution of Engineering and Technology (IET)

## **AWARDS AND ACCOMPLISHMENTS**

- 2016 Dean's List (Special Recognition in Graduate Studies)
- 2012-2014 President, Institution of Engineering and Technology (IET-KFUPM)

### ADDITIONAL TRAINING DETAIL

- SAE, Photogrammetry and Analysis of Digital Media, June 2019
  - Theory and techniques for getting the most out of digital media, including correctly processing raw video and photographs, correcting for lens distortion, and using photogrammetric techniques to convert the information in digital media to usable scaled three-dimensional data. Hands-on training using actual case studies and a variety of software titles such as 3D Studio Max, PTLens, Photoshop, and PFTrack.
- California Motorcyclist Safety Program (CMSP), June 2019
  - The California Highway Patrol (CHP) is statutorily responsible for California's official motorcyclist safety and training program. The Motorcyclist Training Course is a 15 hour course which includes 5-hours of classroom instruction and 10 hours of actual riding.
- HVE Forum (EDSMAC/EDCRASH Training), February 2019
  - Series of workshops designed for HVE users to brush up on present skills, learn new techniques of applying simulation modeling, and learn how to use the latest advancements available in the software. Attend HVE White Paper Session.
- SAE, Applied Vehicle Dynamics, December 2018
  - Three-day class (theory + track time) on fundamental principles associated with longitudinal and lateral vehicle dynamics. Learn tire-road friction limits and to compose the friction circle for a given vehicle system. Illustrate the physics of turning and calculate lateral weight transfer. Estimate brake system balance and brake proportioning. Measure and graph a vehicle's understeer gradient. Calculate the most efficient path for a vehicle to negotiate a given maneuver.
- SAE, Applying Automotive EDR Data to Traffic Crash Reconstruction, November 2018
  - SAE class providing the skills necessary to analyze EDR data that has already been imaged, apply it to crash reconstruction, and reconcile it with calculations using other data sources. Enable the participant to analyze any current and future EDR data set without regard to manufacturer.
- SAE, Side Impact Occupant Safety, November 2018
  - Engineering principles behind vehicle and restraint designs for occupant safety; including mechanics of side crashes and how vehicle structures, restraint systems, and interiors affect occupant safety. Discuss NHTSA crash test protocols.
- SAE, Vehicle Crash Reconstruction: Principles and Technology, August 2018
  - Principles of physics and empirical data to analyze the physical, electronic, video, audio, and testimonial evidence from a crash to determine how and why the crash occurred.

- SATAI Summer Conference, July 2018
  - Encourage and promulgate the development of professional technical accident investigation; to promote research and development of programs leading to better technical accident investigations; to promote dissemination of new knowledge in the field of traffic safety and accident investigation.
- Tesla EDR Training, June 2018
  - Training on imaging/downloading crash data from Airbag Control Module of Tesla vehicle.
- Collision Safety Institute – Crash Data Retrieval (CDR) Technician Course, June 2018
  - Hands-on training on the use of the Bosch Crash Data Retrieval system to collect electronic data from event data recorders installed in vehicles; using the CDR interface module, CDR 900, CDR 500, adapters and cables. Completed imaging of data from vehicles through the diagnostic link connector and directly to the module.
- I-CAR Collision Repair Course, May-June 2018
  - Online certification dedicated to providing the information, knowledge, and skills required to perform complete, safe, and quality repairs. Training covers Collision repair, Original Equipment Manufacturers, Education on tools, equipment & suppliers, etc.
- Digital Photography- California Center for Digital Arts, May 2018
  - Familiarizing with all the options in the camera, understanding the principles of photography, and learning how to shoot with correct Aperture and Shutter speeds.
- PC-Crash Training Course, January 2018
  - 4-day live PC-Crash training on how to import vehicles, aeriels, 3-D roads, etc. Lectures on the theory behind the models. Practice sessions on modeling several simulations covering a wide range of real-world accident scenarios.
- Engineering Dynamics Corporation – Reconstruction Training Course, January 2018
  - EDC Reconstruction (EDCRASH) course for accident reconstructionists; analysis of vehicle damage and crash scene data to determine how an accident occurred. With the information obtained from inspections, the reconstructionist can use *EDCRASH* to determine impact speeds and crash severity (delta V).
- CAARS 2017 3<sup>rd</sup> Quarter Training, August 2017
  - California Association of Accident Reconstruction Specialists. Trained on Crush, Crush measurements, Stiffness Values, and Force balance. Examined Traffic signal timing plan elements through case examples.