CURRICULUM VITAE

ARJUN PADMANABHAN, MSAE

SPECIALIZATION

- Crash Data Recorder
- Vehicle Dynamics and Loss of Control
- Vehicle Crashworthiness
- Accident Reconstruction
- Computer Simulation and Animation
- Occupant Kinematics & Injury Coding

EDUCATION

- Master of Science in Automotive Engineering (MSAE)
  Lawrence Technological University, Michigan (2017)
- Bachelor of Science in Automobile Engineering (BSAE)
  PSG College of Technology, India (2011)

ADDITIONAL TRAINING

- SAE, Applying Automotive EDR Data to Traffic Crash Reconstruction, December 2019
- SAE, Vehicle Dynamics for Passenger Cars and Light Trucks, December 2019
- CA2RS Fall Conference, October 2019
- Collision Safety Institute - Crash Data Retrieval (CDR) Technician Course, June 2018
- SAE, Vehicle Crash Reconstruction: Principles and Technology, April 2018
- Engineering Dynamic Corporation - Accident Reconstruction Course, January 2018
- PC-Crash Training Course, January 2018

PROFESSIONAL EXPERIENCE

2017 to present — MOMENTUM ENGINEERING CORP.
Forensic Engineer
Accident reconstruction and investigation of heavy truck, automobiles, bicycles, and pedestrian collisions. Engineering services including vehicle and site inspections utilizing laser measurement, event data recorder access and interpretation, crash testing, re-enactments, visibility studies, traffic signal analysis, vehicle dynamics, rollover dynamics, mechanical failure analysis and design evaluation. Extensive use of computer-based analysis, as well as momentum and energy-based equations.

2011-2014 — JP Research India
Crash Investigator & Technical Manager
Analyzing real time vehicle crashes including bicycle and pedestrian accidents by onsite investigation, measurements, vehicle dynamics, crash worthiness, occupant kinematics, human factors and safety systems. State of the art computer simulation for accident reconstruction.

NOT FOR DESIGNATION

TECHNICAL BACKGROUND

Accident Reconstruction:
Reconstruction of automobile, heavy truck, bus, bicycle, motorcycle and pedestrian accidents. Vehicle inspection, damage pattern analysis, scene investigation and drawings, skid, photography, vehicle dynamics, human factors and occupant kinematics. Reconstruction of vehicular and motorcycle accidents using PC-Crash and EDCRASH. Vehicle crash tests, vehicle dynamics and statistical data analysis. Computer based photographic analysis using Photoshop and 3D Studio to analyze skid and crush patterns.
Automotive:
Automotive Mechanical Systems and Diagnostics (brakes, steering, engines, cooling systems, clutches, transmissions, drive lines, suspension, frame), Crashworthiness - FMVSS Regulation on Impacts, Noise Vibration & Harshness (NVH).

Computer and Classical Analysis:
Computer-based accident reconstruction, Matlab, Finite Element Modeling, nondestructive and destructive testing.

Design Evaluation:
Mechanical systems and components, performance evaluation, and material selection.

High Performance Experience:
Team engineer in design and testing of FSAE Hybrid for a year.

PUBLICATION

Padmanabhan, A., "In-Depth study on Motorized Two-Wheeler Accidents in India," International Research Council on Biomechanics of Injury (IRCOBI), Berlin, German - 2014

PROFESSIONAL AFFILIATIONS

- Society of Automotive Engineering
- American Society of Mechanical Engineering

AWARDS AND ACCOMPLISHMENTS

- 2016-2017 Secretary, National Society of Automotive Engineers (NSBE).

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ADDITIONAL TRAINING DETAIL

- SAE, Applying Automotive EDR Data to Traffic Crash Reconstruction, December 2019
    - In-Class training course understanding sensor operation, data interval and duration, resolution and limitation based of manufacturer compliance towards part 563. Analyzing the speed loss prior to braking, impact speed and Delta V based on EDR data and other sources towards crash analysis. An insight knowledge to satisfy court Frye and Daubert requirements for EDR data and methods to present EDR data that will communicate the data understandably to attorneys and lay juries.
- SAE, Vehicle Dynamics for Passenger Cars and Light Trucks, December 2019
    - Reviewing engineering analysis and formulas towards vehicle performance in acceleration/braking, ride, handling and rollover. Also, understanding the working of sub-component like powertrain systems and steering systems.
- CA2RS Fall Conference, October 2019
    - Assessing collision dynamics models for pedestrian and bicycle crash scenarios. Understanding the operation and performance characteristics of electric scooters.
- Collision Safety Institute - Crash Data Retrieval (CDR) Technician Course, June 2018
    - In-Class training on the use of BOSCH tool to retrieve the EDR & PCM data from the vehicles.
- SAE, Vehicle Crash Reconstruction: Principles and Technology, April 2018
    - Determining various types of crashes and documentation techniques. Understanding the basic principles and mechanics involved in each crash. Summarizing the data with literature for each collision type.
- Engineering Dynamic Corporation - Accident Reconstruction Course, January 2018
    - Understanding general process in accident reconstruction. Describing real time vehicle crashes based on CDC and PDOF. Execution of EDCRASH program in the reconstruction of motor vehicle accidents.
- PC-Crash Training Course, January 2018
    - Understanding the basic engineering concepts and simulate real world crash with PC-Crash software.

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