

## CURRICULUM VITAE OF HENRY V. VEGA, P.E., ACTAR

March 2019

### **I. General Information**

A. Position                      Senior Mechanical Engineer  
Semke Forensic  
11545 West 183<sup>rd</sup> Place, Suite 111  
Orland Park, Illinois  
Telephone: 708-478-4000

### **II. Professional Summary**

A. Education:                      Bachelor of Science  
Mechanical Engineering  
Northern Illinois University  
DeKalb, Illinois  
1997

Associate of Science  
Pre-Engineering  
College of Lake County  
Grayslake, Illinois  
1994

B. Experience:

March 2010 to Present

Position: Senior Mechanical Engineer  
Semke Forensic  
11545 West 183<sup>rd</sup> Place, Suite 111  
Orland Park, Illinois

Responsible for mechanical engineering projects with emphasis in vehicular accident reconstruction, failure analysis, and mechanical design analysis. Download and analyze vehicle Event Data Recorder. Map accident scene with digital station survey equipment. Create 3D computer simulations of vehicle and multibody accident scene events with PC-Crash software. Obtain vehicle crush and accident scene measurements with the use of PhotoModeler photogrammetric software. Analyze video surveillance data to obtain position and velocity extraction. Conduct acceleration and deceleration testing of exemplar vehicle for use in computer simulations. Evaluate passenger vehicle brake systems. Conduct water pipe failure investigations.

January 2009 to March 2010

Position: Senior Forensic Engineer  
Donan Engineering Co., Inc.  
Louisville, Kentucky

Responsible for mechanical engineering projects with emphasis in vehicular accident reconstruction, ATV, failure analysis, and mechanical design analysis.

February 2007 to December 2008  
Position: Senior Consultant  
Rimkus Consulting Group  
Westmont, Illinois

Provided vehicle accident reconstruction analysis, including the causes and countermeasures of vehicle accidents with the use of scientific methodologies and computer simulation software. Experienced in vehicle accident reconstruction of commercial and passenger vehicle accidents. Provided forensic mapping of vehicle accident sites, inspection of vehicles, analysis, and reporting of findings to clients. Evaluated the mechanical function of commercial vehicles involved in vehicle accidents. Conducted downloads of commercial vehicle engine control modules and passenger crash data recorders for the purpose of vehicle accident reconstruction. Provided consulting services for legal, insurance, and corporate clients on safety incidents related to transportation and mechanical engineering.

September 2005 to January 2007  
Position: Project Manager  
EFI Global  
San Antonio, Texas

Performed vehicle accident reconstruction analysis, which included full scale vehicle collision testing used for the purpose of vehicle accident reconstruction research. Responsibilities included analysis and preservation of evidence and producing technical reports. Conducted moisture intrusion evaluation of commercial structures related to hurricane events. Evaluated various plastic component failures used in residential plumbing applications. Provided consulting services to legal and insurance clients pertaining to technical investigation in the areas of vehicle accident reconstruction, mechanical failure analysis, and fire causation.

January 2003 to April 2005

Position: Project Manager  
Verifact Corporation  
San Antonio, Texas

Provided consulting services to legal clients pertaining to technical investigations in the areas of Vehicle Accident Reconstruction, mechanical failure analysis, product liability investigation, fire causation, component testing, safety analysis, and equipment design. Researched, designed, tested, and implemented a vehicle battery cut off system used as a safety device in vehicle collisions. Responsibilities included evidence preservation, engineering analysis, construction of courtroom exhibits, management of technical personnel, and production of technical reports.

March 2001 to November 2002

Position: Pipe Stress Analyst Associate  
Sargent and Lundy  
Chicago, Illinois

Conducted wind, thermal, and seismic simulations on piping used in the power industry. Responsibilities included the analysis and production of technical reports for piping support loads, forces, and stresses generated by computer simulations. Investigated on-scene pipe support failures and determined failure mode.

September 1998 to November 2000

Position: Project Manager  
Stilson Consulting  
Grayslake, Illinois

Conducted technical investigations in the areas of Vehicle Accident Reconstruction, mechanical failures, fire causation, and component testing. Conducted vehicle fuel system siphon analysis and testing of exemplar vehicle fuel systems. Conducted full-scale exemplar vehicle fuel fed fire testing. Investigated vehicle airbag data and conducted testing of exemplar vehicle airbag systems. Responsibilities included analysis of evidence, evidence preservation, construction of courtroom exhibits, and producing technical reports.

June 1996 to August 1996

Position: Manufacturing Engineering Co-op  
US Robotics  
Mount Prospect, Illinois

Programmed automation equipment used to manufacture high-speed commercial modems. Recommended manufacturing specification of high-speed modems based on thermal analysis of circuit board. Designed and installed assembly line fixture to existing manufacturing configurations.

June 1995 to August 1995

Position: Civil Engineering Co-op  
Wilmette Department of Engineering  
Mount Prospect, Illinois

Generated drawings of proposed community projects that included pedestrian concrete walkways under the supervision of the village engineer. Responsibilities included the documentation of village roadways with inadequate water drainage issues.

December 1994 to January 1995

Position: Lab Technician Co-op  
ITW Paslode  
Lincolnshire, Illinois

Evaluated metallic fasteners and adhesive formulations under the direction of the company's research and development engineers. Conducted stress-strain evaluation on metallic fasteners.

**III. Seminars and Technical Courses Attended**

2004 – Traffic Accident Reconstruction I  
2004 – Vetronix Crash Data Retrieval (CDR) System Certified Technician  
2006 – ARC-CSI Crash Conference  
2006 – Electrical Arson Fire Investigation  
2007 – Traffic Accident Reconstruction II  
2007 – Heavy Vehicle Crash Reconstruction  
2008 – Hazardous Waste Operations and Emergency Response Certified, Level D  
2008 – Bendix Air Brake Product School Training  
2008 – HVE Simulation Training  
2009 – WI IAAI Basic Fire Investigating  
2009 – Bosch Crash Data Retrieval (CDR) System Certified Analyst  
2010 – PC-Crash Simulation Training  
2010 – PhotoModeler Training  
2011 – Bosch Crash Data Retrieval (CDR) System Certified Analyst  
2011 – Investigation of Gas and Electric Appliance Fires  
2012 – IL IAAI Fire Investigator Seminar  
2012 – Finite Element Analysis  
2012 – Vibration Modal Analysis  
2012 – Piping Engineering  
2012 – Pavement Markings  
2012 – Horizontal Curve Safety  
2012 – Forensic Engineering-Metallic Material Failures  
2012 – IATAI Human Factor for Traffic Accident Reconstruction  
2012 – IATAI Annual Conference  
2013 – IL IAAI Fire Investigator Seminar  
2013 – Heavy Vehicle EDR  
2013 – PC-Crash 9.2 Rollover/Validations  
2014 – IL IAAI Vehicle Fire Seminar  
2014 – PC-Crash 9.2 Collision Theory  
2014 – Truck Fires  
2014 – Liquefied Natural Gas Fundamentals  
2014 – Residential Propane Gas Explosion Case Study  
2014 – Anatomy of Waste Water Tank Explosion  
2014 – HVAC Chilled Water  
2014 – Root Cause  
2014 – Forensic Analysis of Stair Decent Falls  
2014 – Failure Appraisement  
2014 – Marine Accident Reconstruction  
2014 – Explosion and Chemical Accident Investigations  
2015 – IL IAAI Flashover and Unusual Fire Patterns

2015 – Fundamentals of Digital Images and Video Processing Using MatLab  
2015 – Motor Vehicle Accident Reconstruction - Tire, Brake, and Steering Failures  
2015 – Human Factors in Forensic Analysis of Accidents  
2015 – Ladder Safety  
2016 – FARO Technologies Laser Scanner  
2017 – Fundamentals of Acoustics  
2017 – Advanced Crash Reconstruction Utilizing Human Factor Research  
2017 – Intro to Bumper Damage Analysis  
2018 – iINPUT-ACE  
2018 – Pedestrian Collision Investigation  
2019 – FARO From the Scanner to Deliverable  
2019 – iINPUT-ACE Reverse Projection

**IV. Professional Registration**

Registered Professional Engineer in the states of Illinois, Missouri, Indiana, Ohio, Michigan, Texas, and Wisconsin.  
ACTAR Accreditation.  
FAA Certified Unmanned Aircraft System (UAS) Pilot.