MICHAEL NRANIAN

Cell: 248-376-0338

ADDITIONAL AUTOMOTIVE PRODUCT DEVELOPMENT EXPERIENCE INFORMATION:

Ford Motor Company

Responsible for vehicle safety systems, ensuring legal and certification targets are achieved. Clarify requirements, resolve issues, and conduct certification testing. Identify legal and certification targets, and translate targets into build requirements. Monitor engineering development activities to ensure compliance, and assess and mitigate risks to program and system design, development, cost, and timing benchmarks. Interpret certification and regulatory requirements and communicate these to engineering teams. Perform data analysis, write reports, and monitor test and program plans. Conduct technical and legal analysis of vehicles, systems, and components, including airbags, inflatable curtains, seat belts, sensing systems, and system diagnostics and interpretation. Extensive trial and deposition testimony experience as corporate representative and expert witness. Extensive experience in the expert analysis of Ford, General Motors, and other domestic, European, and Pacific Rim crash recorders. (Direct design experience in these modules for over 20 years), Programming and algorithm source code development and verification to meet system requirements. Direct design experience in the development and verification of performance of algorithm and programming in these modules. Interpretation and analysis of the information stored in the memory of these systems and the correlation to field events and accident reconstruction Completed Northwestern Accident Reconstruction. Perform research on legal, regulatory, and technical issues and then recommend, plan, and follow through to improve systems. Very familiar with document production, and support of discovery and motion practice as well as trial and settlement procedures. Consultant to outside counsel in litigation involving customers, suppliers, and other third parties. Serve as the corporate representative and expert witness in litigation. Complete Forensic Analyses. Analyses of vehicle and component defect allegations. Extremely knowledgeable in overall restraint systems and vehicle crashworthiness for all front and side impacts and rollover. Determination of vehicle crush, BEV, accident reconstruction, occupant kinematics, and body structure performance. Extremely knowledgeable in FMVSS, ECE, regulatory and corporate standards, homologation, warnings, as well as obtaining SAE and NHTSA publications, and obtaining information related to NHTSA inquiries, recalls, and notices. Perform accident investigations, accident reconstructions, prepare expert witness reports, and testify in trials and depositions. Respond to requests for discovery in litigation. Direct experience in dealing with NHTSA inquiries, transport of Canada, and the interpretation of automotive regulatory requirements. Forensic Analyses and Investigations.

Direct experience in design, development, testing and release of SIR sensing and electrical systems, sensing algorithm development, sensing and airbag strategy, seatbelt/restraint systems and components, vision systems, airbag modules, airbag suppression systems, occupant and infant/child seat sensing, Occupant detection and Out-of-position occupant detection & injury mitigation, steering wheel, sheetmetal, structure, trim, front side and rollover sensing systems and front and side airbag/inflatable curtain systems. Extensive interface with suppliers, and manufacturing. Respond to consumer and plant issues related to electrical and safety systems. Develop the procedures for conducting electromagnetic interference testing. Wrote and published the system level Design Verification Plan and Report for prove out of both foreign and domestic safety systems. This includes all testing requirements for sensors, electrical, seats, and airbags, for corporate, European, and Federal Motor Vehicle Safety Standards.

Wrote and Published the Ford Motor Company Airbag Sensor and Electrical Design Standards, Airbag Sensor Design Manual, and Product Specifications. Directly responsible for the design validation and product verification of airbag sensor systems and airbag modules, inflatable curtains on the Mustang, Taurus, Explorer, Expedition, Escort, Focus, F-Series, Lincoln and Mark carlines. In depth experience in front, side, and rollover sensor system algorithm development and validation. In-depth experience in vehicle electrical system design and architecture - CAN, LIN, MOST, Byteflight, IDB1394, Flexray, Bluetooth, etc. In-depth experience in vehicle diagnostic, OBDII interfaces, vehicle bus interfaces, class II and serial communication protocols, and the analysis and interpretation of restraint system information stored in Electronic Crash Sensors, Restraint Control Modules, Sensing Diagnostic Modules, and other restraint & inflatable restraint system modules. Performed modeling and analysis to develop structural modifications, sensor locations/calibrations, and airbag module parameters to ensure these systems meet government regulations and design standards. Developed new electrical system protection and routing to maintain Supplemental Inflatable Restraints electrical system integrity during crash and over long-term vehicle life. Extensive experience in training and mentoring design, development, and test engineers as well as production and manufacturing personnel.

Conducted numerous crash, sled, and component tests. Managed body engineering and restraint engineering projects. Extensive experience in optimizing front, side, rollover, restraint, inflatable restraint, sensing, sensor algorithms, vehicle structure, interior seat and trim, IP, steering wheel, electrical diagnostic, passenger classification, and overall vehicle safety system performance to meet overall cost, timing and performance objectives. Developed design verification plans and reports, comprehensive statements of work, safety system management plans, failure modes and effects analyses, product and production validation plans, and then developed the products and systems to meet these requirements. Six Sigma Black Belt, very knowledgeable in design for manufacturing, quality control, and quality assurance techniques. Also very knowledgeable in QS/ISO 9000 & 14000, TS 16949 compliance and process setup, as well as Quality Operating systems, Business Operating Systems, design for manufacturing, quality control, and quality assurance techniques.

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ADDITIONAL AUTOMOTIVE PRODUCT DEVELOPMENT EXPERIENCE INFORMATION:
(CONTINUED FROM PREVIOUS PAGE)

Ford Motor Company

In-depth knowledge of Ford, General Motors, as well as other domestic, European, & Pacific Rim component and system design/performance specifications and requirements. Extremely experienced in electronics and electrical diagnostic systems for vehicles. Extremely knowledgeable in digital electronic circuitry, computers and microprocessors, modeling, algorithm development, electrical diagnostic systems, chemical engineering, metallurgical engineering, materials science, solid state electronics, software development, source code, all Microsoft applications, and new safety system technologies including sensing, airbag, curtain, seatbelt, pretensioners, passenger recognition, occupant classification, vision, radar, and the development of these systems and technologies involving multiple engineering disciplines. Strong background in commercial and operational matters, product development, and project/program management/leadership. Extensive experience in interaction with suppliers, OEMs, customers, assembly plants, and manufacturing. Workplace safety/standards/policies, Fall Protection, - OSHA, ANSI, etc. Inertia mechanisms, webbing, harnesses, forensics investigations and analyses.

Experience in multi-cultural environments. Interfaced extensively with Mazda in Japan, Ford of Europe, Ford of Mexico as well as suppliers and assembly plants. Conducted field investigations on vehicle accidents to evaluate legal and technical issues. Completed 1-year timeline in 10 months to develop mandated airbag systems for multiple product lines. Saved $9 million annually and cut number of components needed by 20% to 40% for 3 product lines. Protected $1.4 billion annual revenue with turnaround of underperforming system.

General Motors Truck Engineering

Responsible for vehicle and system level compliance with Domestic, European, and Pacific-Rim regulatory requirements, as well as overall vehicle homologation for truck platforms. Responsible for the design, development, testing, and release of SIR sensing and electrical systems for the Chevy S-10 and Jimmy Truck platforms and their derivatives. Developed the Sensing Diagnostic Module systems for truck platforms. Development and verification of performance of algorithm and programming in these controllers/modules. In-depth experience in sensing system design and development, sensor algorithm development and validation, and airbag, seatbelt, vehicle structure, and vehicle interior design and development. Perform analysis to establish the best overall system performance to meet FMVSS, ECE, SAE, corporate, and due-care requirements. Developed various airbag suppression systems for rear facing infant seats. Occupant detection and Out-of-position occupant detection & injury mitigation. Technologies under review include ultrasonic, infrared, radio frequency, light emitting diode, camera, vision, and seat pressure pattern recognition. Developed, designed, and integrated the active passenger airbag suppression switch until passive systems become production ready. Interface extensively with suppliers, assembly plants, and manufacturing. Extensive experience in reporting and presenting issues and appropriate next steps to regulatory agencies and senior management. Saved $15 million annually by leading development of new electronic sensor systems.

AlliedSignal Automotive

Developed system and vehicle plans to demonstrate compliance to domestic, Asian, and European regulations and requirements. Develop contracts, statements of work and comprehensive design and testing requirements for complete restraint system development for domestic, Asian, and European suppliers and customers. Managed domestic and European programs for the design, development, testing, and release of airbag modules for the Opel J-Car, Saab 9000, Isuzu, and Chrysler platforms, and the stored gas driver and passenger hybrid inflators. Lead the cross-functional teams of development & test engineers and technicians dedicated to these programs. Conducted component, deployment, and sled and barrier testing to determine hybrid inflator performance standards. Build sled bucks to match vehicle design parameters. In-depth knowledge of Chrysler, Ford, General Motors, Asian, European, and Australian business practices and requirements. Developed requirements for system electrical diagnostic interface.

Additional Background:

Certified in Accident Reconstruction - Northwestern University's Traffic Accident Reconstruction program. Developed critical guidelines and corporate standards for OEMs and the supply base. Extensive design & development experience in automotive electrical systems, sensing systems, diagnostic systems, as well as restraints, crash and sled testing, frontal, side, rollover impacts, occupant kinematics, injury and accident data bases, fire cause and origin, SAE and technical publications, and accident reconstruction. Direct experience in all aspects of intellectual property, including patents, joint venture agreements, trademarks, trade secrets, standards boards, antitrust issues, International Trade Commission cases, and licensing. Conduct objective assessment and evaluation. Conduct research on legal, regulatory, and technical issues. In-depth knowledge of domestic, European, Pacific Rim component and system design/performance specifications and requirements including necessary due-care airbag system development requirements. Expert investigation and analysis of vehicle electrical systems, electrical components, as well as airbag, seatbelt, and electrical diagnostic systems for vehicles. Expert analysis of domestic, European, and Pacific Rim crash recorders & crash pulse analyses. Extensive experience reviewing service bulletins, recalls, field service actions, customer contacts, owner and shop manuals for technical accuracy and adherence to federal standards. Direct experience in design, development, testing and release of SIR, sensing, & electrical systems.