Barry St. Pierre

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Career Summary

I am a technical manager who enjoys removing roadblocks so my teammates can focus their brilliance and creativity on their tasks and goals. I am looking for a position where I can further develop these skills while expanding my engineering knowledge and experience.

Professional Experience

Mahindra GenZe, Ann Arbor, Michigan

Mahindra GenZe is a start-up electric scooter and eBike manufacturer backed by Mahindra & Mahindra.

Manager – Homologation and Engineering Services March 2017 – Present

- I have been helping manage the Mechanical Structures group since the manager left to pursue an MBA in July 2018. This includes local employees and employees in Pune, India.
- I am currently working on implementing Arena Solutions Product Lifecycle Management product to move away from our current Excel form method of part release and control.
- I am responsible for managing GenZe's homologation activities which includes ensuring the company meets US and European regulations and investigating requirements for possible future markets.
- We successfully completed the Euro3, approval process working with our homologation partner, IDIADA.
- We have successfully achieved vehicle approval under the new Euro4 rules for L1e-B category vehicles with an approval date of April 2018.
- I am also responsible for managing the product validation, CAD and CAE activities. I have a team of local CAD operators and a test engineer as well as a team of CAD, CAE and test validation engineers in India that I lead.
- GenZe's CAD data management system for released data consisted of saved STEP files of the 3D geometry and saved PDF files of the 2D drawings. We wanted to setup our CREO CAD system to indicate revisions with letters instead of numbers and implement a data freeze and release process within the CAD environment. Initial discussions with our software reseller did not give us confidence that they would be successful in handling this conversion for us and ultimately told us it could not be done. We decided to take on this task on our own. Since we had not frozen any data under the old revision scheme we felt it was possible to convert to the letter scheme. After many iterations of completing the updates on a test server and testing the results we had enough confidence that we knew what to do and it would work. We finally upgraded the production server and are in the process of freezing all of our current CAD data.

Senior Engineer November 2012 – March 2017

- I collaborated with the Design and Release engineer to design the cast aluminum frame making use of finite element analysis to evaluate stress and normal modes. I used *Motorcycle Dynamics* by Vittore Cossalter to learn what are the important structural characteristics for motorcycles.
- I mentored summer interns to teach them some of the tools and techniques used to develop mechanical designs.
- I worked with global suppliers to design and release scooter parts including brake systems and front wheel assembly. I was part of the team that evaluated potential brake system suppliers and worked closely with the selected supplier to develop a braking system that met the FMVSS requirements for motor-driven cycle braking performance.
- I assisted my manager in pulling together a durability test plan. I worked with personnel from Defiance Exova during static shake testing and with TRC personnel throughout the track durability testing to ensure that the test executions were successful.
- When the company needed someone to make sure our scooter met US FMVSS requirements they asked me to take on that additional role. I worked with product development to make sure the product met all of the requirements and worked with the COO to make sure the company had all the processes in place to be able to meet all of the record keeping and reporting requirements.
- The company has asked me to manage and distribute the workload for the CAD group and has ultimately asked me to be the manager of the members of the CAD group.

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FORD MOTOR COMPANY, Dearborn, Michigan

Ford Motor Company is an international automotive manufacturer.

Product Design Engineer — April 2002 – November 2012

- I spent six years working on durability CAE for the F-150 pickup box. I would perform standard durability analysis of new designs as well as trouble shoot issues found during testing of pre-production units. This would include determining what load could recreate the issue, developing a design change to address the issue and working with testing to prove the proposed design change improved the issue.
- I mentored a colleague who was a part of the Ford College Graduate (FCG) program. I gave him a project that involved evaluating several proposals for stiffening the Mustang body by using bracing behind the rear seat. Under my direction he took an existing Mustang body model and modified it using CAD files from the design and release engineer as guidance. The FCG then analyzed the normal modes and the static torsional stiffness of the improvements and presented the results to the D&R engineer for his overall evaluation of the proposals.
- I modified the Ford Focus body model to incorporate the batteries for the fully electric version and worked with the design and release engineer to ensure that the body was properly reinforced so the weight of the batteries did not cause durability issues.
- I also worked on the Mustang body, updating the model created by the India team to reflect the design intent (the CAD release was not totally synchronized when it was released) and evaluated its NVH performance and prepared the model for transfer to the vehicle NVH group.
- I left Ford to help develop and launch an electric scooter for Mahindra GenZe.

Metrics Specialist — January 2000 – April 2002

- I worked in a group that extracted data from computer logs to evaluate the performance of Ford's design data database systems (C3P) in order to spot issues and bottlenecks when they happened.
- I would generate database queries to pull data for use in BusinessObjects reports and present the data in logical groupings on the department's metrics website.
- Ultimately, we learned that we could not generate log keys with enough granularity to track individual file's movement through the various sub-processes of the file transfer due to a lack of access to low level software routines.
- I returned to Product Development to work on the F150 pickup box durability.

Research Engineer — July 1999 – December 2000

- I worked to optimize the engine mounting for the Ford Five Hundred and Freestyle (later called the Taurus and Taurus X) to minimize the engine noise and vibration that reached the cabin of the vehicles.
- I moved to the Ford C3P group to get more familiar with CAD data management.

VISTEON, Dearborn, Michigan

Visteon is a supplier that was spun off from Ford Motor Company.

Product Design Engineer — January 1998 – June 1999

- I worked in the Steering Systems Engineering group completing analysis of steering columns, steering gears and steering hydraulic pumps.
- Before leaving this group I found a suitable replacement for my position and developed and executed a training plan so the group would not suffer from my exit.
- I transferred to Ford's NVH CAE group to work on engine mounting design.

ALTAIR ENGINEERING, Allen Park, Michigan

Altair Engineering is an engineering consulting company and engineering analysis software company.

Structural Engineer — July 1996 – January 1998

- At Altair I performed analysis to support the investigation of creating a low-cost convertible. Eventually, the study vehicle was released as the Ford Thunderbird (but was not low cost). I also performed head impact studies using LS-DYNA and developed plastic trim proposals for the A-Pillar to reduce injuries for a Kia minivan that was in development.
- I left Altair to work on steering systems CAE at Visteon.

Mechanical Engineer — December 1994 – July 1996

(All duties performed onsite at Ford Motor Company):

- I performed vibration and acoustic analysis using NASTRAN and Motran for commercial truck applications.

- I calculated natural frequencies and cab stiffness values using finite element models in NASTRAN using regular and superelement methods for the PHN131 vehicle program.
- I went in-house at Altair when Ford was working to even out their contractor pay rates.

NOISE CANCELLATION TECHNOLOGIES, Linthicum, Maryland

Noise Cancellation Technologies was a company working on active noise cancellation.

Technology Leader, Development Tools,
Research & Advanced Development June 1994 - November 1994

- I developed software tools for studying noise control using MATLAB and the C programming language. One tool I developed allowed the user to select parameters for an active control Application Specific Integrated Circuit (ASIC) that was designed by NCT and simulate how the system would react to the control algorithms. The simulation allowed the user to supply their own transfer functions for the systems involved or use a standard set included with the tool.
- I left NCT after a large layoff because my wife wanted to move closer to home.

Senior Engineer, Applications Research Group November 1990 - June 1994

- I worked on advanced research projects for possible new products including using a Helmholtz resonator to cancel the noise from a blower. For the blower noise project I had to conduct research on the theory of Helmholtz resonators and develop the equation for the relationship between all of the parameters of the resonator to the pressure level outside the blower (the error signal). I then had to program this equation into the stepper motor control software so it would adjust the volume of the resonator to minimize the error signal.
- I also automated labor-intensive data analysis tasks using MATLAB. One such task was to support two engineers who were going to Japan to measure the properties of noise cancelling headsets that were being manufactured for us. They needed to measure the performance of 100 sets of headphones, both left and right ears. After learning the parameters they wanted to determine I wrote a MATLAB script that would take the data they collected and processed it to produce one page for each headset. The page would show the performance for both earpieces and annotate the maximum noise cancellation and the overshoot that occurred at low frequency. They were able to take the data at the plant, return to the hotel room and start the script, go to dinner and return to find the 100 plots waiting on the printer. This saved them hours of time analyzing and plotting the data manually.

DAVID TAYLOR RESEARCH CENTER, DEPARTMENT OF THE NAVY, Bethesda, Maryland

DTRC is a Navy research lab, now part of NSWC.

Mechanical Engineer, Hull Structures Acoustics Section July 1985 - November 1990

- I used NASTRAN to predict vibration and sound radiation levels of Naval submarines. The submarine model was comprised of one-dimensional elements to model the propulsion equipment, hull and drive shaft. Later models used a beam element to represent the propeller.
- I planned and conducted experiments to evaluate possible passive noise control schemes for a new submarine sonar concept. I spent a couple of summers in northern Idaho performing one-fifth scale model submarine testing. I managed the 288 data acquisition channels in four different groupings to collect all of the data needed to evaluate program goals.
- I was also the section IT manager. I was responsible for maintaining a MicroVax computer (we used NASTRAN CAE software and DISSPLA graphing subroutines) and a network of 12 Macintoshes.

Education

Completed a week long class in Swift programming and iOS development, October 2016
The Big Nerd Ranch, California

Certificate in Information Assurance (Data Security), June 2008
Washtenaw Community College, Ann Arbor, Michigan

Master of Science in Mechanical Engineering, May 1992
Thesis title: Effects of Observing Uncontrolled Degrees of Freedom on Active Vibration Isolation
University of Maryland, College Park, Maryland

Bachelor of Science in Mechanical Engineering with a CAD/CAM option, June 1985
Michigan State University, East Lansing, Michigan