In 2006 I started working at General Motors Research & Development center working on composite characterization and material modeling. I was also at Chrysler (now FCA) for a couple of years (2009 - 2011) working on transmission and driveline, focusing on issues related to fastening and joining.

Currently, I am at General Motors working in the Department of Body Systems and Exteriors as a CAE Engineer and Plastics, Composites & Foam specialist.

**My current roles:**

- Material Lead for Exteriors, I work on ATW (Advanced Technology Work) projects related to bumper, fascia and grille materials, mainly plastics and composites. I lead and guide a team of material engineers at GM's technical center India to characterize and develop material models that are needed for vehicle exteriors on future programs.
- Exterior CAE lead for mid-size SUV programs. In this role, I lead a group of CAE engineers to make sure the program meets all the regulatory and other in-house GM requirements at various stages of vehicle developments for all the exteriors, including bumpers, fascia, grilles and trim components.
- AVD CAE Engineer: Another important role of mine is to help the system architects in the AVD (Advanced Vehicle Development) team to perform FEA analysis during future vehicle architectural developments.

What lightweight materials/technologies do you see taking center stage and bringing the most value to the industry in the next 3-5 years?

Plastics and Composites are the lightweight materials that I think will be predominantly used in various structural and non-structural applications during the next few years to reduce mass and develop light weight vehicles in automotive industry. Though performance predictions and damage identifications is a challenge.

Could you give a brief overview of your background and current scope of work, and talk a bit about your background and your current role at GM?

I came to the USA in 2001 after my Bachelors in Mechanical Engineering from Bangalore University, India. I received my Masters in Mechanical Engineering (2003) focusing on Mechanical Behavior of Polymers and my Ph.D. was in Mechanical Engineering (2008), focused on Fastening and Joining of Composite Materials from Oakland University. During my initial years I worked as a research engineer at the Fastening and Joining Research Institute (FAJARI), the only facility of its kind in the world that is congressionally funded and approved dedicated to pursuing fundamental and applied research on fastening and joining.

At the next GALM US conference you will be presenting on the topic of Validation Of Material Models (VMM) For Crash Simulation of Automotive Carbon Fiber Composite Structures. Without revealing too much, could you share some of the key points you will cover within your presentation?

The objective of this VMM Project is to validate physics-based material models for crash simulation of primary load carrying automotive structures made of production-feasible carbon fiber composites. This will include the two Automotive Composites Consortium/USAMP-developed meso-scale models from the University of Michigan and Northwestern University, as well as existing composite material models in four major commercial FEA codes (LS-DYNA, RADIOSS, PAM-CRASH, ABAQUS).

The models will predict quasi-static and dynamic crash behavior of a vehicle front end sub-system made of carbon-fiber composites. The project goal is to validate the models for simulating crashes of a lightweight carbon-fiber composite front bumper and crush can (FBCC) system. In order to do this, we are determining the crash behavior of a reference steel FBCC; designing, building, and crash testing a composite FBCC predicted to have equivalent crash behavior and comparing the predictions with the physical crash tests. The crash performance of the composite FBCC should be equivalent to the steel FBCC under various crash-loading modes. The successful validation of these crash models will allow the use of lightweight carbon-fiber composites in automotive structures for significant mass savings.

And finally, what is your favorite car?

I am more of a truck guy, so my favorite vehicle is the Cadillac Escalade.