Describe your overall duties/responsibilities as an Applied R&D Engineer:

I support the Global Materials Science function with regards to compound development. Additionally, I support specifics of the Medium Radial Truck, Off the Road and Bias Truck tires by aiding in the industrialization of new compounds or adding fine tuning to existing compounds. New compound development is focused on improved tire performance with the newest material technologies while fine tuning compounds can range from improving processing within the plant or bringing the compound back into physical property specifications. I work with eleven tire plants across the globe from Topeka, Kansas, to Americana, Brazil, to Ballabgarh, India, all of which are unique.

Explain the skills/abilities that are required for being successful in your role:

Rubber and polymer chemistry are essentially organic chemistry so a good foundation from organic chemistry is needed to understand the mechanisms of chemical reactions within a tire compound. A background with certain materials such as polymers, carbon black, silica, oils, organic molecules with sulfur groups and resins are important for applying rubber technologies. Other important skills include knowledge in applying Rheology, fluid mechanics, mass transfer and reaction kinetics. Besides all of the technical knowledge, a person must be able to communicate their work to be successful. In a technical release, the Materials Engineer will have gate meetings to explain their data and prove that the compound is ready for the plant and eventually ready for customers.

What advice would you give to students who are considering majoring in Chemical Engineering?

Get involved in a technical student organization on campus and/or undergraduate research. I joined the Chemical Engineering Car Project Team my freshman year of college where I was able to work on hands-on projects, experience time in leadership roles, and experience both the challenges and triumphs of working on a team. Additionally be in a state of perpetual learning. Build on these classroom subjects as you begin to apply them in a career as learning should not end when college does. Lastly, find that group of friends within your classes. These friends will all share common experiences and they will be there for you, always. Take time for the great memories that you will make with them.