

# Yitao Zhang, Design Engineer for Viridi E-Mobility, Shares His Experience in the Automobile Industry



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**Y**itao did his undergraduate study at the University of Toronto, Canada, where he majored in mechanical engineering. After his bachelor's degree, he strongly felt in need of interdisciplinary study of business and technology. The Master of Engineering Management Program at Duke became his first choice. He now works as a design engineer at Viridi E-Mobility Technology, a newly formed joint venture of Volvo and Geely dedicated to designing power train systems for hybrid vehicles.

“Hi, Yitao, this is Zihe. Thank you for taking the interview. Is now a good time to talk?”

“Sure, whenever you're ready.”

“Great! I appreciate it. I know you attended your company's annual party last night. How was it?”

“I had a lot of fun, thanks for asking.”

“I'm glad you enjoy your time at Viridi. Could you describe a typical day at your job as a design engineer?”

“Of course. The major part of my daily work concentrates on thermal management design of battery packs utilized by hybrid vehicles. To build a new-energy car, one of the most challenging tasks is battery design. One battery pack consists of thousands of small modules and parts, and it is extremely temperature-sensitive so we have to precisely control temperature, especially during charge and discharge. I run a lot of simulations of thermal and fluid dynamics using Cartia and FluEFD, trying to achieve efficient design. Our pilot production line will be tested in three months, so I also work with the production department using AutoCAD for layout planning.”

*Soft skills such as communication and multi-tasking truly matter. They help you see things in multiple dimensions.*

“Sounds intense. What skills do you think are the most valuable for this type of job?”

“There is no single skill that really dominates. First you have to be capable in terms of technical knowledge. In my job, for example, proficiency in mechanical engineering and related software is very important. But I also have to collaborate with electrical engineers and talk to suppliers. Soft skills such as communication and multi-tasking truly matter. They help you see things in multiple dimensions.”

“I believe many MEM students could relate to that. Are there any courses or electives that you found helpful for your role now? Would you like to give some advice to current students?”

“During my experience at Duke, core courses of MEM such as Marketing and Finance definitely helped me develop more business insight. With electives like Project Management I got the chance to present my work and my communication skills improved a lot. I took one elective from Economics called Intermediate Finance. It opened a door to the outside of technology and I learned about the financial market. It helped me understand my job in a different perspective such as the economic consequences of my work. My suggestion would be to explore new fields and broaden your horizon. Students can sit in classes outside of the MEM program. It really helps you see the bigger picture, especially when it comes to management.”

*I think it's not hard to get into an industry, but it is hard to find out whether it fits.*

“That’s a good point. What about those challenges? How did you actually deal with them?”

“One of my biggest challenges was lack of experience. I came straight out of school and it could be overwhelming sometimes with so many things to learn and so many experienced people with which to work. When designing a vehicle, every little part ties together and it gives a lot of pressure. I’m glad that my company holds weekly training for us. In the one-hour session, colleagues will give presentations of their previous work, update current tasks and more importantly share their experiences. It is a good way to know others more, and to gain a clearer idea of what and how other departments are working. A new technology in one realm could be the inspiration for another. That’s what I love about it.”

“It’s very thoughtful for a company to do that. Some current students are struggling with which industry to step into. What brought you to the automobile industry in the first place?”

“To be honest, I also struggled with it once. I have tried investment banking and passed CFA Level I. I think it’s not hard to get into an industry, but it is hard to find out whether it fits. I did a one-year internship with Automation Tooling Systems, Inc. in Canada where I learned about cycle times, GD&T, and JIT production and got exposed to supply chain management. I found the year extremely helpful in identifying my passion. So I would encourage you to try whatever you find interesting, even if it turns out not so satisfying. It could still serve as your next inspiration.”

“That’s very impressive. How do you think such an interest would guide your career path in the near future?”

“I do love what I am doing now, building a new-energy car for the next generation. I’m a hands-on person. In the future, I would like to get closer to the production line as a calibration engineer or process engineer. It’s not going to be easy as front engineers require years of experience and deep insight in the industry.”

“Wonderful, and I wish you all the best. It was great talking to you, thanks again for your valuable input. I’m sure it will help a lot of students.”

“No problem. Glad I could help. Don’t hesitate to contact me again if you have further questions.”

“I really appreciate it. Thank you and have a great day!” ■