

Automotive & Assembly Practice

Conversations in motion: Safe, autonomous driving for everyone

In an interview at the M30 Mobility Summit, Cepton's Hull Xu shares his views on the latest developments in mobility.



In the popular imagination, a common vision is self-driving cars,¹ which would enable passengers to watch movies or simply admire the scenery as their robotic vehicles whisk them to their destinations. However, according to Hull Xu, CFO of Cepton, a provider of light detection and ranging solutions (lidar), that is still a long way in the future. “Full autonomous driving may be a couple of decades away,” he says. “In the meantime, technologies supporting advanced driver assistance systems (ADAS) will improve people’s lives for the better.”

Xu expects that Cepton’s lidar will help OEMs bridge the gap between current technology and the cutting-edge capabilities needed² to create truly autonomous-driving environments. McKinsey’s Andreas Breiter spoke with Xu at the M30 Mobility Summit to discuss how Cepton is helping shape the future of mobility. An edited transcript of their conversation follows.

Andreas Breiter: Tell us what you do and why you do it?

Hull Xu: I’m the CFO of Cepton. I joined a little over a year and a half ago from investment banking, where I advised companies like Cepton. I saw an opportunity to really take Cepton to the next level and help it achieve its mission.

Andreas Breiter: What is the role of Cepton and the future of mobility, and why is it important?

Hull Xu: Cepton’s vision is to enable safe autonomy for everyone—and the operative words are “safe” and “everyone.” Cepton does this by providing lidar sensors, primarily to the automotive industry. We see that autonomy will change people’s lives. And the key to do that is to get certainty of perception for everyone.

Andreas Breiter: And how do you think the mobility sector will be disrupted by increasing levels of driver assistance systems and, finally, autonomous vehicles?

Hull Xu: The mobility sector has been around for a long time. And people have been operating in the same mode of transport for a long time. Anything we could do to alleviate the daily chore of driving and to reduce accidents will be helpful.

But we can’t get there in one shot. We are not going to have autonomous driving next year, so we have to get there little by little. Enabling ADAS is a way that we can get there. And Cepton providing lidar to allow cars to perceive the environment with certainty is a key factor in [guaranteeing] driver safety.

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¹ “Autonomous driving’s future: Convenient and connected,” McKinsey, January 6, 2023.

² Ondrej Burkacky, Johannes Deichmann, Michael Guggenheimer, and Martin Kellner, “Outlook on the automotive software and electronics market through 2030,” McKinsey, January 3, 2023.

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Andreas Breiter: And how was the lidar developed? What did we learn?

Hull Xu: The lidar technology has been around for a couple of decades, maybe more. In the past five years, it has been more about who has the right technology to enable the right application. And as we mentioned earlier, we think the application that's most relevant to people is ADAS.

What we think right now is that lidar is moving from a pure technology discussion to deployment. So whose technology product is going to be in vehicles that are mass produced? That is the competition we are in today.

Andreas Breiter: How do you think partnerships could accelerate autonomy?

Hull Xu: Partnerships are really important in this industry. Auto manufacturing has been around for decades, and safety is the number-one imperative. For a smaller company like Cepton, to get our technology into people's hands and into consumer's vehicles, we have to work with OEMs and tier-one partners. As a small company, we can't disrupt traditional automotive sourcing. So partnership is critically important.

Andreas Breiter: Where do you think the autonomous-vehicle sector is going in the short term and the longer term?

Hull Xu: Four or five years ago, we all thought autonomous vehicles were going to be running around in four or five years—which is now. In fact, we see one or two examples of very small-scale deployment. What has become clear to us is that ADAS is the next step toward realizing autonomy. Full autonomy is very challenging because it's not just about technology; it also involves policy, environmental issues, and consumer acceptance.

So these all take a while—maybe five to ten years, maybe longer. Our expectation is that full autonomy will maybe take a couple of decades. In the meantime, it will be ADAS that improves people's lives for commuting, and for delivery of goods. So it's a stepping stone for us to reach full autonomy.

Andreas Breiter: And what is a new development in future mobility you are really excited about?

Hull Xu: Two main themes. One is electrification. We are all very concerned about global warming. Energy is the more near-term development for new mobility. And then it's autonomy, which comes in different flavors. Even a little bit of improvement in people's lives would help in terms of safety and improving efficiency. So once we have the energy evolution figured out, which will take some time, ADAS and autonomy are right on its heels, and we are working on that right now.

Hull Xu is chief financial officer of Cepton. **Andreas Breiter** is a partner in McKinsey's Bay Area office.

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