Daniel Newman: Austin Russell, welcome The Six Five Summit. So excited to have you here.

Austin Russell: Thanks for having me.

Daniel Newman: It's always fun to chat. Sometimes we are able to do it here on video, and sometimes we randomly run into each other at F1 in Austin, but every time we've had the chance to have a conversation, I've always really enjoyed it. You've got a lot of thoughts on a lot of things, and I'm hoping I'm going to use this time to get some of them out there for all the listeners at our event this year. I want to talk to you-

Austin Russell: And we're going to run into each other at the F1 in Florida?

Daniel Newman: I'm not. I'm not, and I'm really disappointed about it. I overbooked myself. I'm going to be in Florida, but not for the F1. I do intend to do Vegas and I do intend to do Monaco this year, and I'll definitely see you in Austin, Mr. Austin.

Austin Russell: Exactly. Although we do get to be with the Mercedes team, and it's actually not too far from our offices, which are also in Florida there too, for the F1, which is kind of interesting, but-

Daniel Newman: Yeah. I'm-

Austin Russell: Obviously a little different than the passenger car stuff that we do, but it's a great company and a great team.

Daniel Newman: Actually, it wasn't but a few weeks ago I was at the Oracle lab outside Chicago, and they had a car that had been developed in partnership with a number of students. And by the way, right on the fin, Luminar. I'm not sure if you're familiar. The autonomous Indy car? So-

Austin Russell: Right, yeah. Exactly, exactly, so-

Daniel Newman: That was cool. That was super cool. I took a picture of it. I'm like, "I'm going to send that to Austin and his team," and then I never did. But that's what we do these days. We snap every moment and take a picture of it because day-to-day-to-day now, you need to capture every moment instead of living it, and then we never actually do the engaging stuff we intended to do with it, so you end up with 700,000 photos that you never look at again. That's what we do with technology.

But let's talk more about practical technology because that's why I brought you here. Look, the autonomous space is going crazy. The semiconductor companies in tech, I want to talk about the blending, but I just want to start out first is, you really had an idea from the onset about autonomy. That's the direction you're pushing. Not so much this iterative, but you're really pushing for that fully autonomous, the capabilities to get there. Let's talk about what comes first in terms of getting there. Geofence autonomous robotaxis or shuttles? Or are we going to see full autonomy in automotive passenger automobiles?

Austin Russell: Yeah. So, I mean, I think that the place that it's definitely going to be realized first is on the consumer vehicles, for passengers. And this is where the distinction is that for the robotaxi world inside of it as well, there's been obviously a lot of hype around that historically. The challenge is being able to have something that can have a system work end-to-end in these highly-complex urban environments to be able to remove the driver altogether, pick up a passenger at point A, drop it off at point B, is actually an extremely challenging problem and very difficult to scale as well.

So this is where, while we do and have worked with a lot of those companies, the focus that we've really had is working with traditional automakers to be able to see this technology realized into the real world at scale, to be able to already start seeing an application today, this decade, in terms of the use case. And the use cases they're generally seeing for consumer vehicles is for highway autonomy use cases, as well as next generation safety systems on vehicles. And this is where, like I said, there's on the order of 100 million vehicles shipped every year. It's nearly a four-trillion-a-year industry, so it makes all the difference to be able to directly address that, and now we're starting to work with the majority of major automakers to really make all this happen.

Daniel Newman: Yeah, I've definitely seen it, and by the way, experienced it. I still have very, very good memories of our time at CES and some of the demonstrations that we didn't run over that kid. By the way, for everybody out there, it was a dummy that we were able to experience at CES, where we were doing some comparisons of Luminar's technology with other autonomous driving technologies that are available on the market. I won't say. It could be a certain Austin-based company, not this Austin, Austin, Texas-based company that has a fairly large reputation. But seeing the difference in the technology was palpable for me. And again, it makes a lot of sense to me. You've got vision and you've got laser, and why would you not use all the types of radar, laser, vision... Use them all. To me, it's so logical, and I know price is a bit of a challenge, but you've worked a lot on that, and I want to hear more about that.

But another thing, though, that I just think is so interesting is that, effectively, cars and computers, cars and chips, have become almost synonymous. And I think the pandemic brought this out, the supply chain has made it obvious to people. What do you think that all this has gone? Is it changing the relationships that automakers are having with compute and tech companies? How is this new sort of realization shifting the landscape?

Austin Russell: Yeah. I mean, I think it's definitely companies. There's really a requirement to be able to work much more closely with the automaker itself. And we helped pioneer this model by being one of the first new tech companies in probably a decade to be able to actually have a direct relationship with automakers, to be able to deliver to them and to be able to actually work hand-in-hand collaboratively towards the solution.

But I will say that for this, is that everything you say, I totally agree with in terms of the capabilities of what it takes to make this happen. Automakers have realized more and more just how meaningful this kind of sensing system and technology and other stuff can make in terms of the safety of the vehicle and the autonomous capabilities and everything that's there, so yeah. It's continuing to improve, continuing to iterate, and we're working closely with them to be able

to make that happen. It is a step function change in capability that's there versus the incremental approaches that they've had from a safety standpoint, and this is really what it takes to be able to make that difference and make that happen.

Daniel Newman: Yeah. It's significant, and I'm watching sort of the press drop. And it's you guys, of course, and several of your friends and competitors, allies, across the semiconductor space, a bunch of them are here at the summit, are announcing we've created this partnership with this OEM and this partnership. And you're starting to see this real regular cadence of announcements coming out from automakers in partnership with chip makers, often best-known for mobile phones or making laptop technologies, or gaming cards.

And by the way, this isn't new. It's not like this just happened, but it's starting to become really visible. And especially, I guess, for us, because we're in this market, but you guys have had a few announcements yourselves just recently. I saw Mercedes, Volvo, I think Nissan, a number of different announcements. Talk about that. Why are these different vendors picking to partner with Luminar? And like I said, how do you coexist in this greater sort of community of tech and automotive coming together? Because sometimes it's you guys, sometimes it's you and others. It's not any one semiconductor company taking all of the weight of the business on.

Austin Russell: Yeah. Yep. No. And when it comes to the overall landscape, I think it's fair to say that, yeah. There's no question there's been a lot of increased attention for this, when you take a look at the, as you said Mobileyes and all this other stuff heating up.

Auto tech is the cool new thing as well, when it comes down to it, to be able to have a new frontier to address, to be able to actually expand the business, because a lot of times people only reached... You can only do so much or reach certain heights without actually getting into this. There's a massive market from just an addressable market standpoint. And it's clearly as, as folks have said, and I think even just recently I was just hearing the NVIDIA CEO just from a semiconductor standpoint speak to this, that the market is as big or bigger than everything that we've had to date in the consumer side of things.

So it does make a huge difference. But that said, it's also one of those that getting these critical partnerships early on is also very important to be able to establish the working relationship. And this is one of those very high barrier to entry, but equivalently also very high barrier to exit type industries. And working with, as you mentioned, folks like the Volvos and Mercedes and Nissans of the world, makes all the difference towards that success.

So we've of course also made sure that we can work successfully with the key platform partners along the way too with this. And, yeah. It makes a difference, though. And then of course, there's that on the passenger vehicle side. We also have great work on the trucking side, for example, with Daimler Truck as a lead partner, as the largest producer of commercial vehicles and other... Key robotaxi partners like Pony.ai in China and others. But that said, I think the focus is really from a volume standpoint on the consumer vehicle side. And what we're able to drive forward with that, I think is going to make a totally transformational difference over this decade.

Daniel Newman: Yeah. And I think what I was kind of getting at, is there seems to be some different approaches too, Austin. Some companies are sort of monolithic. They've got this single-system approach and it's everything, ADAS and everything. Other companies are kind of taking more of a bit of a building block approach where they're looking at the infotainment, telematics, drive policy, ADAS systems, and they're kind of looking at them almost independently. Some of them are looking at multiple layers.

Because of course, Luminar is going all-in on LIDAR. I mean, that's the technology that you're buying in on. And in fact, I think you've actually pretty much publicly stated you think Elon Musk is just straight up getting it wrong. And so I can't help but want to ask that question, because again, I can definitely get more views by bringing this up, but no. In all seriousness, it's a real probable question of interest. Because there are the Tesla folks out there that will absolutely defend it to its death. They're almost like the Apple cult, right? The people that you can never convince them, no matter what. You could have a PC that can turn into a jet plane and they'd be like, "No, need a Mac. I prefer my Mac." You know what I mean?

And I think there's a little bit of that kind of cult of Tesla that's coming out. But I think as some of these companies you're working with, I definitely believe companies like VW and BMW, with what they're building, are going to build very competitive. And then of course you've got the next generations, the Lucids, and some of these companies that are building some pretty cool intelligent vehicles. But Tesla's saying no. No LIDAR. We don't think it's necessary. From what I've experienced in my demo, I have a hard time agreeing with that. There's a few cars that have smashed into some things that also seem to disagree with that. Why are you so passionate that they can't get it right without LIDAR?

Austin Russell: Yeah. I mean, I think it's really just a question of what you're trying to build. And I would say that there's nothing fundamentally wrong with not using the LIDAR. People have been doing this for the better part of a decade with the... There's great companies like Mobileye out there, for example, that supply these camera-based systems there. And effectively what Tesla did, is they ended up replicating a version of what they had previously with Mobileye and continuing to advance that with better assisted driving systems and technologies. The fundamental distinction here, though, is less about what the capability is. It's more just about the marketing side of things, of calling a basic Level 2-assisted driving system, full self-driving. I think that's the part that really rubs everyone in the industry the wrong way, just because it's not true.

But apart from that, the reality is that it's great to have that base level of capability, and you don't need LIDAR to do that, just for the sake of clarity. But obviously, the game has completely changed, and in part, because of us as well, of what... We've really driven it. It's not a $75,000 spinning bucket on a roof anymore, when it comes down to when they originally made a decision to just implement a camera-based system that was there. The whole point is that this is something that you can actually have in your car for $1000 or $500 or something to that effect, that they could actually dramatically improve the safety of the vehicle and actually be able to enable you to achieve autonomy. And considering that folks like that are charging, what? $12,000 now for these feature sets. I think if it actually makes it achievable and increases the safety 10X, it seems to make a lot of sense.

So now the reality is, of course, is that the focus for us is really on the higher-volume or mainstream auto makers that are there, that are established. We get paid the same amount, honestly, regardless of whatever the engine type is of the vehicle that's there, so having that be established is great, and that's why we're working with the majority of the major auto makers. So like I said, it's all about the level of capability, it's all about what you want, and the whole point of why all these auto makers are so excited to use Luminar, is to take the capabilities to the next level.

And that's where people are leapfrogging Tesla at this point. You take a look at the Volvos and the Mercedes and other folks, or even Nissans of this world, and Tesla's ultimately going to have to find a way to be able to catch up and to be able to get to that next level of safety for the vehicles. And that's what we showed. I mean, it wasn't just about that. It's not a Tesla problem. It's an industry problem, of the existing challenges that are there with the safety of vehicles. Vehicles still get in accidents all the time. It's the number-one cause of death between ages one and 44 in many places.

And this is the whole problem that's directly solvable by this, and yet we haven't seen any significant improvements in vehicle fatalities and other major iterations. Their step function's the better part of a couple of decades, and this is the time to change that. We've heard the term, like Volvo calling it the 21st-century seatbelt, and that's what it's all about now.

Daniel Newman: Yeah. Well, if I can add though, to me, it seems like there is a responsibility of automakers and policymakers to enforce. We've always lagged in this stuff. It's kind of that old, "I didn't wear a seatbelt when I was a kid. They weren't required, so I'm not going to wear one now." People have used it with the whole mask debate and the whole idea of kind of, "Well, when you get new information that makes something clearly a better way to care for people in human life..." I mean, think of all the, not to get too political, but all the human life debates we have, period. And it's like, "What about saving 15-year-olds and 30-year-olds and 45-year-olds from dying by adding a level of intelligence that's available now off the shelf that could avoid accidents proactively?"

So not to get too on my high horse here, but to me, it's almost crazy that the legal and policy lags so much when there's technology that is available right now. So I can understand that you don't want to subsidize my gaming habit, or you don't want to subsidize the fact that I might want a new iPhone every six months, but what about forcing or enforcing or creating policies that said, "Hey, there is better technology that could keep more-"

Austin Russell: Absolutely. Yeah, 100%.

Daniel Newman: Do it.

Austin Russell: Exactly. Yeah. And as you said, not to politicize it, but if you actually make that comparison. You take a look at the amount of fatalities that happened from the global pandemic and COVID and everything in 2020, and it's actually... I think when they add it up, you end up actually having more global vehicle deaths that are related to car accidents than there are from that. So it's the

same, I mean, the same kind of magnitude of problem. But the thing is, it's just it's become an accepted part of reality that's just the way it is, and there's not much you can do. It's just a fact of life. And it happens every single year, so this is the crazy part.

So it's totally solvable. And here's the thing, is that it's a fundamental step function and capability that will ultimately also be driven by regulation as well. I mean, it's going to be driven, of course, by consumer and OEM interest in terms of having much safer vehicles and having autonomous capabilities. But obviously from a regulatory standpoint, for next generation safety standards and everything, it's going to be important. So I mean, it's coming for everyone, ultimately. Even if you don't like the concept of a seatbelt, it'll be there at the end of the day in your car, and I think that's important, and the kind of principle for this. The reality is, of course, it can make a huge difference, and obviously, the relative value is immense.

Daniel Newman: Having experienced the difference, it's legitimate and it's visible and it's clear. But like I said, I do think it's going to have to be somewhat driven by policy, which unfortunately does tend to lag. And so often it's unfortunate because it could be making a real difference in this moment, probably in the time that we've spent having this conversation, probably it could save a life right now.

And like I said, I'm, I'm going to get off my bandwagon for a minute here and just say this advancement's really important. It's very interesting. Appreciate the innovation, the fact that you're sticking to it. Congratulations on the new partnerships that have been announced. I'm hoping that you guys, alongside many of the companies here at this event that are involved in taking the automotive industry forward in partnership, I hope you solve the problems. I hope you bring it to the world at scale, and I hope that people realize that it's a small price to pay to protect lives, and of course, make our roads safer. And by the way, get us places faster because all those things are interdependent. So Austin Russell, thanks so much for joining us at The Six Five Summit. Enlightening conversation has always. We never play it safe, do we?

Austin Russell: No, we don't. And one last thing, by the way, when we say a small price to pay, that price will actually go... Actually, when you take a look at a total cost of ownership perspective for all of this, when you take it from an insurance standpoint, because it turns out accidents are expensive. Better safety saves actually a lot of money, if it has a material impact there. So even an incremental impact in vehicle accidents reduces the total cost of ownership to a point of where the technology ends up paying for itself multiple times over. So there's really a strong business case in every aspect of being able to have this.

I actually don't even think it's going to take the regulators to push this. It's really going to be driven by the consumer, by the automakers, by everything, to be able to make a difference here. And then ultimately, it'll be, I think, a requirement in the consumer's mind, regardless of the timeline it becomes a legal requirement. But, no. It's a good perspective. But, no. This has been fun, and thanks for hosting and everything. It's great to catch up.

Daniel Newman: Austin Russell says data and logic will prevail. We shall see. But thanks for joining me at The Six Five Summit this year. Austin, can't wait to chat again soon. See you later.

Austin Russell: Sounds good. Thank you. Have a good one.