

Intel Autonomous Driving Workshop

Experience the Data Driven Journey

May 3, 2017 — The single most important factor driving our autonomous future is data – how best to process it, understand it, manage it, move it, share it, store it and learn from it. This challenge will be explored from car-to-cloud in this immersive, educational and hands-on autonomous driving workshop set inside Intel's newest “garage lab” in the heart of Silicon Valley.

The interactive event offers a mix of informal tech talks and demonstrations – all delivered inside the garage by Intel partners and senior Intel executives from across the company with expertise spanning compute, software, network, AI and data center.

Aimed at greasing the intellectual wheels and simultaneously answering and raising new questions, the workshop offers plenty of opportunity to interact with executives in real time. For a full list of executives who will be attending the session and their areas of expertise, see the biographies section.

At the end of the day, visitors will walk away understanding why Intel – in collaboration with partners such as BMW*, Delphi*, Ericsson*, HERE* and Mobileye* – is the only technology company that can address the autonomous driving data challenge in its entirety.

Technology ‘Chalk Talk’ Track

Each of the 15-minute “Chalk Talk” sessions will run sequentially, and every talk will be hosted twice, allowing attendees to build their own agenda. They will all be hosted on the garage floor and have been programmed to provide opportunity for Q&A.

Flexibility Key to Unlocking the Data-Driven Journey

Presenter: Jack Weast, principal engineer and chief architect of Autonomous Driving Solutions, Intel

Where: Car Zone inside the Autonomous Garage

When: 1:00 p.m. and 2:15 p.m.

The game of golf offers a helpful analogy for understanding the complexity of the computing environment inside an autonomous car. For the casual observer, one golf club looks pretty much like another. But on closer inspection, it's clear that each club has a special purpose – some to maximize distance, others loft. Context matters too, as a club designed to hit a ball a long way is useless on a green. During each round, individual preferences also come into play, as each golfer has his or her own strategies and style, and playing an entire course requires complex thinking about which club to use in which situation.

The same holds true for building an autonomous car. Debunking the myth that “one compute” is all you need, this session will show why a flexible and scalable right-tool-for-the-job approach is the better way to deliver the autonomous future. From a brief introduction to the anatomy of an autonomous car to a breakdown of the different artificial intelligence workload requirements, you'll walk away understanding Intel's unique approach to the autonomous car “brain” and know why Intel's systemwide

“tool box” of solutions will ensure flexibility for the road ahead and accelerate the industry into the autonomous future.

The Art of the “Secret Sauce” in the Autonomous Mix?

Presenter: Glen de Vos, chief technology officer, Delphi

Where: Car Zone inside the Autonomous Garage

When: 1:45 p.m.

Delphi is the only company to have driven autonomously from coast-to-coast; how did they get a vehicle to near-platform readiness before anyone else? Here's your opportunity to find out. They will share the journey, starting from foundational science to production readiness. Learn why Delphi chose Intel to provide the processing power needed for the decision-making and rules-based software algorithms. Come away understanding the engineering challenge of rebuilding the car so it can drive itself. From the sensor suite of radar, cameras and LIDAR to localization to planning, controls and actuation, the role of high-definition maps and the potential of AI, this is the 15-minute CliffsNotes on how to build an automated car.

The DNA of Data: Driving the Digital Transformation in the Data Center

Presenter: Jason Waxman, corporate vice president and general manager, Data Center Solutions, Intel

Where: Cloud Zone inside the Autonomous Garage

When: 2:00 p.m. and 3:00 p.m.

Data produced by autonomous vehicles is immense, in the order of 4 terabytes per day. This pending massive wave of data requires new thinking and data center technology solutions that will change the way auto data is shared and shape the industry. Intel is investing aggressively to drive breakthroughs to solve how to ingest and store data, train cars and connect services.

This session will explain why massive capital expenditure is required for R&D in the data center specific to autonomous driving, the role of the data center and how Intel adds value. Learn why the company's systemwide portfolio of technologies spanning car to cloud will afford the many disparate systems and capabilities to work seamlessly together to deliver an intelligent platform delivering safety, industry, community and environmental benefits.

Teaching Software to Drive a Million-Mile Challenge

Presenter: Jeff McVeigh, vice president in the Software and Service Group and general manager of Visual Computing Products, Intel

Where: Cloud Zone inside the Autonomous Garage

When: 1:30 p.m. and 2:45 p.m.

If you have ever experienced the “thrill” of teaching a teenager to drive, you are familiar with the roller coaster ride of marrying driving technique with the responsibility and ethics of driving. Presenter Jeff McVeigh uses this hair-raising analogy to illustrate the software complexities required when teaching a computer to drive – a computer that innately doesn't even know what a lane, a door or a child is.

Driver's education specialists say that it typically takes 100 hours of hands-on experience for a person to be proficient enough to pass the DMV test. To create a fully autonomous vehicle, the common knowledge is that we need more than 1 million miles of driving data, and these driving lessons are

conducted in the data center not on the road. This session will dive into the Intel® GO™ Automotive Software Development Kit and its systematic approach to teaching autonomous vehicles to drive. The platform demo coupled with the talk will demonstrate how the platform ties together fleet data management, artificial intelligence and in-vehicle optimization across CPU and FPGA and accelerators without creating vendor lock-in.

When Cars Can Talk: Readyng the Network for 5G and the Autonomous Driving Era

Presenters: Rob Topol, general manager 5G Business & Technology and Lynn Comp senior director of CoSP Business Acceleration, Network Platforms Group, Intel

Where: Connectivity Zone inside the Autonomous Garage

When: 1:15 p.m. and 2:30 p.m.

There's a sea change in technology happening all around us with a massive surge of more than 50 billion devices expected to come online over the next few years. With billions of devices added to the networks, how will we ensure a secure, high-mobility connection for cars? This is not simply the evolution to another "G," but will demand fundamental changes and systemwide thinking that must span from the cloud, to the network to devices and back again. While the industry is delivering early functionality on today's technology, Intel believes true autonomy will require building a smarter and more efficient wireless interface, which is the promise of 5G. When we talk about entire factories, cars and indeed hospitals thinking for themselves and relying on split-second connectivity, the critical difference is "autonomy." There is no room for error.

Intel is the only player that powers every segment of the smart and connected world, from cloud-network-device. Understanding the critical touch points on the connectivity journey allows us the advantage of being able to architect a systemwide solution. The session will provide a 5G 101 overview to ground the discussion before leaping into the technological capabilities required to deliver V2X capabilities. You'll hear how Intel drives the agility and intelligence of the cloud throughout the network using transformative network technologies from software defined network, mobile edge compute and network slicing. Broadband use cases, including anytime transmission of HD maps, real-time events, location and environmental data, as well as passenger work and entertainment needs will also be explored. The session will finish by summarizing and indeed demonstrating why Intel is at the forefront of this revolution, in collaboration with the technology ecosystem. Tackling major implementation hurdles, Intel will demo the world's only 5G-ready test platform for the auto industry that allows car manufacturers to test and develop models for AD 5G connectivity to establish early interoperability.

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