WELCOME TO AVCC2023

ABOUT

Welcome to AVCC2023, an AVCC event hosted by Arm, Ltd., September 26-28, 2023 in Cambridge, UK. This is your opportunity to witness the future – and also be an integral part of it. Meet with AVCC members, the AVCC Board, media and analysts, and colleagues in the auto tech industry.

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DRIVING THE FUTURE OF SOFTWARE-DEFINED VEHICLES

CAMBRIDGE, UK – 2023

Welcome to AVCC2023, an AVCC event hosted by Arm, Ltd. We are excited to have you join us. This is your opportunity to witness the future and be an integral part of it.

AVCC, a global autonomous vehicle (AV) consortium that specifies and benchmarks solutions for AV computing, is bringing together industry leaders, technologists, and mobility experts to reveal the future of Autonomous Vehicle technologies. The event also offers the chance to meet with AVCC members, the AVCC Board, media and analysts, and colleagues in the auto tech industry.

The event program is carefully curated to provide an unrivaled opportunity to learn firsthand the groundbreaking research, collaboration, and concepts shaping the future of automated and autonomous transportation. From cutting-edge compute platforms to state-of-the-art sensors to the latest machine-learning algorithms, it's your chance to connect with industry visionaries, engage in thought-provoking workshops and discussions, see tomorrow's technology firsthand, and build invaluable connections.
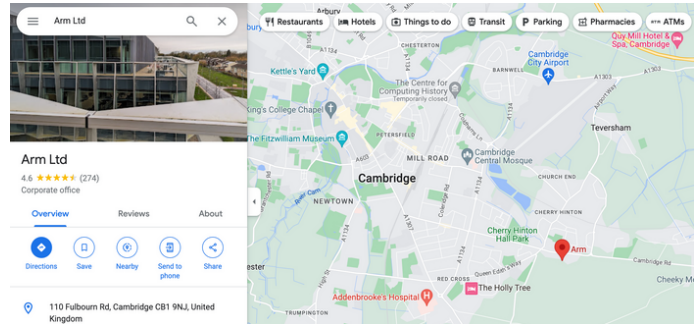
AVCC2023 will be held at Arm's headquarters in Cambridge, United Kingdom.

110 Fulbourn Rd, Cambridge, CB1 9NJ
Phone: +44 1223 400400

AVCC2023 will be in Arm's ABCD Building in the Client Lounge

<u>Click to see on map.</u>

Nestled in the heart of the UK's answer to Silicon Valley – 'Silicon Fen' – Cambridge is a deeply historic city: not just because of its iconic universities and striking architecture, but as the birthplace of Arm, too.

The company began life back in the 1990s with 13 people in a Cambridgeshire barn; Arm now has offices all over the city, employing around 3,000 people here. But the main campus is in Fulbourn, a village on the outskirts. Bordered by woods and fields, the campus is a modern space designed around a vast central, sociable atrium, built for the buzz of collaboration.

Arm is about 3 miles/5 km from downtown Cambridge and the Cambridge Train Station.

Parking

AVCC2023 guests can park on Arm campus without having to show ID or make any payment. We suggest using the parking lot directly across the Arm ABCD building. When you arrive at the main campus entrance, there will be a guard, but he will not stop any cars at that point. Please feel free to ask for directions to the parking lot near Arm ABCD – he will be aware of this event and guide you.

Transportation

Nearest Airports

- Stansted Airport (STN) – 45 minutes
- Luton Airport (LTN) – 1 hour
- London Heathrow (LHR) – 1.5 hours

Rail (Train) Options

We recommend you use National Rail as they have the most up-to-date information on many different rail companies – the site is here: https://www.nationalrail.co.uk/.

FROM STANSTED: There are direct trains from Stansted Airport (SSD) to Cambridge Station (CBG) at least once per hour, taking between 28-35 minutes. Tickets run £6-12.

FROM HEATHROW: Trains from Heathrow Airport to Cambridge Station (via London Liverpool Street) are also once per hour, with the entire journey taking around 2 hours.

If you are flying into Heathrow and want to head straight to Cambridge, there are multiple terminal rail station options – pick the one closest to you. We recommend buying a ticket from Heathrow Airport (HXX) to Cambridge Station (CBG). Most trains have 1-2 changes – we recommend taking a train that has only one change with a 15-minute +/- layover at London's Liverpool Street (LST) Station. These trains run approximately once per hour per station, with the entire journey taking around 2 hours. Tickets run £45-60.

From Heathrow Airport to Cambridge:
Depart: Heathrow Terminals (multiple options – HXX)
Change trains: London's Liverpool Street Station (LST) – 15 min +/- layover
Arrive: Cambridge Station (CBG)
Travel Time: 2 hours to 2.25 hours

Underground Option: An alternative is to take the Piccadilly Line (London Underground) from Heathrow to Kings Cross St Pancras (approx. 40 minutes), this is then only a minute or so walk to Kings Cross Station. Then, follow the directions from London's Kings Cross (KCX) below.

FROM LONDON: Begin at Kings Cross Station (KGX). Take the Cambridge Station (CBG) train (123 trains offered a day – trips take 50 mins to 90 minutes depending on number of stops and range from around £30-45 each way).

Airport Transfers

Voyager Executive Cars: Please contact Voyager by email – you will need to provide them with the following details: Full name, mobile number, email address, flight details (including terminal), and destination address. Voyager will provide a link via email for payment to be made followed by a confirmation of booking. You will receive further details including driver contact information 24 hours before the booking start date. Should you need to call, the number is: 01223 245450

Transfers within Cambridge

Rideshares & Taxis

There are many rideshare services (including Uber and Lyft) and taxi services in Cambridge, including:

Panther Taxis

If booking within the UK, call 01223 715715 and provide them with the following details:
Full name, mobile number, pick-up/drop-off address with date and time, as well as any additional information (e.g., luggage, extra space, etc.) Payment can be cash or card (not AMEX) If booking outside the UK, you can email Panther providing all of the above information with a minimum of 24 hours' notice.

Hotel Options

There are many wonderful places to stay in Cambridge. If you need a place to stay, Arm recommends the following:

<div align="center">

Clayton Hotel Cambridge
Hilton Cambridge City Centre
University Arms Hotel
Gonville Hotel
The Regent Aparthotel
The Varsity Hotel & Spa

</div>

Attire

Smart casual attire is recommended. Please look at the weather forecast for guidance on what outerwear will be needed.

Weather

While this weather forecast is 10 days out, this will give you an idea of the temperature - please check a UK weather site online for updated information closer to your travel dates.

In Celsius:

Tue 26	21°/12°	Partly Cloudy	24%	SSW 13 mph
Wed 27	21°/11°	Few Showers	32%	SW 13 mph
Thu 28	20°/11°	AM Showers	37%	SSW 13 mph

In Fahrenheit:

Tue 26	69°/53°	Mostly Cloudy	24%	SSW 13 mph
Wed 27	69°/51°	Few Showers	32%	SW 13 mph
Thu 28	69°/52°	AM Showers	37%	SSW 13 mph

A Reminder: AVCC2023 will be in Arm's ABCD Building in the Client Suite

Registration

When you arrive at the Client Suite in Building ABCD, there will be two check-ins:

ARM: The first is with Arm. Several Arm representatives will greet you and help get you registered with contact info and an NDA for campus access (you will simply fill out a quick form on an iPad). They will then direct you to the conference check-in area.

AVCC: Then, an AVCC representative will check you in for the conference. We will distribute a bag with gifts, your badge, badge holder, and lanyards, and other materials that will grant you access to all the events and sessions for which you are registered. Members and those who RSVPed to the dinner will get additional entry coupons for use at those events.

Food & Networking Opportunities

Remember, the technical work and industry expert presentations are only part of the event – what happens in less formal settings is as important as the other work we do! Breakfasts, coffee breaks, lunches, dinners, cocktail receptions, and social events are all part of the program. You won't want to miss the opportunity to shake hands and get to know people better in a fun and inviting environment.

Each day of the conference, we will offer complimentary:

- Light breakfast fare
- Coffee/snack break mid-morning
- Lunch
- Coffee/snack break mid-afternoon

Check your schedule for details and location (in the Client Lounge)

We also have two networking events:

Tuesday, September 26 at 7:00 pm
Member Dinner & Networking Event
NOVI in Downtown Cambridge
Information will be given at registration for those who registered to attend the dinner. If you have any questions, please email event@avcc.org.

Wednesday, September 27 at 4:30 pm
Cocktail Reception & Networking Event
Immediately following our event program on Wednesday, we will host a reception for all attendees in the Client Suite. We will announce if it will be indoors or outdoors the day of, depending on the weather.

Spending a little bit more time in Cambridge? Download AVCC2023's Cambridge City Guide!

CLICK TO DOWNLOAD

Workshops & Breakout Technical Sessions

Every afternoon, AVCC's working groups are hosting a series of technical break-out sessions and speakers that will highlight the most pressing technical topics in their respective spaces. For the first time ever, we are opening the working group meetings up to the industry attendees who are interested in learning more about what happens "behind closed doors" as AVCC members collaborate to create industry reports and recommendations.

Are you interested in automotive:

- Cybersecurity
- Benchmarking
- Software Portability
- Total Cost of Ownership (TCO)
- Data Architecture

Then join us for technical deep dives and invited speakers. And, for the first time ever, the joint AVCC-MLCommons Automotive Benchmark Task Force will meet in-person to continue their important work on defining the non-differentiated building blocks for automated and autonomous driving.

See the schedule the follows to identify working group sessions of interest.

We would like to thank our host:

Our exclusive media sponsor:

And all our event sponsors and AVCC members:

Day 1: Tuesday, September 26, 2023

Time	Session	Speaker	Location
8:00 - 9:00	Registration & Breakfast Networking		Arm ABCD Entrance
9:00-10:00	**Opening Plenary** **AVCC Welcome & Roundtable**	Giuseppe Rosso, Board Chair, AVCC Stephen Miller, Technical Chair, AVCC	Lecture Theater
10:00-10:15	Coffee Break & Networking		Client Lounge
10:15-11:15	**Software Defined, Electrified and Automated Vehicles – What's the Impact on the Automotive Semiconductor Landscape?**	Ian Riches, VP – Global Automotive Practice, TechInsights	Lecture Theater
11:15-12:00	**Proposal for Developing Automotive Security AI Performance Profiles**	Dr. Jonathan Petit, Qualcomm	Lecture Theater
12:00-13:00	Lunch		Client Lounge

Time	Room #81	Room #82	Room #83
13:00 - 15:00	**ABTF - Welcome and Introduction**, Kasper Mecklenburg, AVCC Micro-Benchmarks Working Group Chair & Arm	**SWP - Welcome, Introduction & Status Updates**, Rajive Joshi, AVCC Software Portability Working Group Chair & RTI	**CS - Welcome, Introduction & Status Updates**, Andrew Jones, AVCC Cybersecurity Working Group Chair & Arm
	ABTF - Session #1	**SWP - Session #1: Data-Oriented Communication Architecture for Automated and Assisted Driving Systems**	**CS - Session #1: Machine Learning Quality Management Guidelines**, Miyake Kazumasa, SEI
	ABTF - Session #2	**SWP - Session #2: The DDS Software Databus Standard**	**CS - Session #2: Cybersecurity activities on site in DENSO**, Masahiro Goto, DENSO Corporation
		SWP - Session #3: Developing a Baseline Data Model	**CS - Session #3: ZT4SDV – Zero Trust for Software Defined Vehicles**, Robert Kaster, Robert Bosch LLC
			CS - Session #4: Alignment on Hardware Protected Security Environments, Francesca Forestieri & Richard Hayton, GlobalPlatform

Time	Session		Location
15:00-15:15	Coffee Break & Networking		Client Lounge

Time	Room #81	Room #82	Lecture Theater
15:15-16:00	**ABTF - Session #3**	**SWP - Session #4: Total Cost of Ownership (TCO) Overview & Status** Stephen Miller, AVCC Technical Chair & Robert Bosch LLC	**Members Collaborating** (45 mins) Masahiro Goto, AVCC Board Member & Denso Corporation
	ABTF - Session #4	**SWP - Session #5: TCO Example Model & Planning**	Elizabeth Kao, AVCC Board Member & Robert Bosch LLC John Kourentis, AVCC Board Member & Arm Dr. Stan Schneider, AVCC Board Member & RTI

Time	Session	Location
16:00 - 17:00	**Planning for the Future: An open discussion on the future of AV, working group areas of focus, and more**	Lecture Theater
18:00	Chartered Bus Coach to Town	Entrance to Arm ABCD
19:00	Member Dinner	NOVI Kitchen & Bar

Day 2: Wednesday, September 27, 2023

Time			
8:00 - 9:00	Registration & Breakfast Networking		Arm ABCD Entrance
9:00-10:00	**KEYNOTE: Four Wheels and a Billion Lines of Code** Suraj Gajendra, Arm		Lecture Theater
10:00-10:15	Coffee Break & Networking		Client Lounge
10:15-11:15	**Europe's Semiconductor Ecosystem in a $1 Trillion Era by 2030** Laith Altimime, SEMI Europe		Lecture Theater
11:15-12:00	**Fear the Future – The way forward into the complexities of AV development and validation.** David Fritz, Siemens		Lecture Theater
12:00-13:00	Lunch		Client Lounge

Time	Lecture Theater	Room #81	Room #82
13:00 - 14:00	**Electrostatic discharges and the advanced chip/chiplet bonding technologies,** Dr. Marko Simičić, imec	**ABTF - Session #5: AI/ML Automative Power Measurements,** Nicholai Behmann, Siemens	
14:00 - 15:00	**Digital Twin-based Simulation and Synthetic Data in Automotive Applications,** Shay Rootman, Cognata		
15:00-15:15	Coffee Break & Networking		Client Lounge

Time	Lecture Theater	Room #81	Room #82
15:15-16:00	**Preaching to the Choir: Reinforcing the Case of Collaboration and Standards in the Autonomous Automotive Industry,** Selika Josiah Talbott, AVCC	**ABTF - Session #6: MVP Summaries,** Kasper Mecklenberg, AVCC MicroBenchmarks Working Group Chair & Arm **ABTF - Demonstrations**	**SWP - Session #7: Transition to Data Oriented,** Rajive Joshi **SWP - Session #8: AVCC Ecosystem Discussion** **SWP - Session #9: AVCC Ecosystem Discussion Continued,** Paul Hughes
16:00 - 16:45	**AV Policy Discussion,** Jeff Farrah, JD, AVIA		

Time			
16:45 - 18:00	Cocktail Reception		Patio
18:00	Chartered Bus Coach to Town		Entrance to Arm ABCD

Day 3: Thursday, September 28, 2023

Time	Session	Speaker	Location
8:00 - 9:00	Registration & Breakfast Networking		Arm ABCD Entrance
9:00-10:00	**KEYNOTE: Learning from the Past to Making AVs a Reality in the Present: No shortcuts, No dead-ends.**	Seval Oz, OzAdvisors, LLC	Lecture Theater
10:00-10:15	Coffee Break & Networking		Client Lounge
10:15-11:15	**Optimized Development of ML Workloads Into Heterogenous Hardware Accelerators**	Andreas Herp, Mercedes-Benz AG Prof. Dr. Daniel Mueller-Gritschneder, Tech University of Munich Prof. Dr. Oliver Bringmann, University of Tubigen	Lecture Theater
11:15-12:00	**Driving ML Forward in Automotive**	David Kanter, MLCommons	Lecture Theater
12:00-13:00	Lunch		Client Lounge
13:00 - 14:00	**Foundation Models and Democratization of AI**	Dr. Zico Kolter, Carnegie Mellon University	Lecture Theater
14:00 - 15:00	**Universal Chiplet Interconnect Express (UCIe): An Open Standard for Constructing SoCs**	Dr. Debendra Das Sharma, Intel	Lecture Theater
15:00-15:15	Coffee Break & Networking		Client Lounge

	Lecture Theater		Room #81
15:15 - 16:15	**ECOSYSTEM ROUNDTABLE: Teamwork Makes the Dream Work**	Paul Boyes, COVESA Christian John, Autoware Foundation David Kanter, MLCommons Michael Plagge, Eclipse Foundation Giuseppe Rosso, AVCC Matt Spencer, SOAFEE Moderated by Doug Newcomb, AVCC	**ABTF - Session #7: Future of Automotive Benchmarking (AVCC and MLC CM)**
16:15 - 17:00	**Closing Plenary**	Armando Pereira, AVCC President Giuseppe Rosso, AVCC Board Chair	Lecture Theater

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CAMBRIDGE, UK — 2023

KEYNOTES

FOUR WHEELS AND A BILLION LINES OF CODE - ENABLING FUTURE AUTONOMOUS DRIVING KEYNOTE

Suraj Gajendra, VP of Automotive Products, Software and Solutions, Arm

Wednesday, September 27

The automotive industry is undergoing one of the most significant technological revolutions in human history, the largest element of which is the removal of the human driver! Only achievable by using radically different hardware architectures, combined with the power of software – we must work together as an industry to enable this critical transformation. This is the world of the software-defined vehicle where functional safety and accurate, real-time data processing must be hygienic. In his keynote, Suraj will discuss the comprehensive approach required to deliver these vehicles of the future and the investments required in hardware, software, and industry collaborations to make this vision a reality.

MAKING AVS A REALITY PAST TO PRESENT: NO SHORTCUTS, NO DEAD-ENDS KEYNOTE

Seval Oz, Founder, OzAdvisors, LLC

Thursday, September 28

It's been nearly 13 years since the New York Times first broke its "Google Cars Drive Themselves in Traffic" story in October 2010. Since then, more than a decade of research and billions of dollars have been devoted to Autonomous Vehicle technology—and at times it can feel like fully self-driving cars are always on the cusp of reality. Here's a look at where we've been and, more importantly, where we are headed: a world in which Automated Vehicle technology and its immense benefits are the norm. From collaborating on technology to infrastructure, here is what industry stakeholders need to do to make fully self-driving cars a reality.

PANELS

MEMBERS COLLABORATING   ROUNDTABLE

Panelists:
- **Masahiro Goto, AVCC Board Member & Denso Corporation**
- **Elizabeth Kao, AVCC Board Member & Robert Bosch LLC**
- **John Kourentis, AVCC Board Member & Arm**
- **Dr. Stan Schneider, AVCC Board Member & RTI**

Moderator: Doug Newcomb, AVCC

Tuesday, September 26

In this session, AVCC Board Members share their experience as members of the consortium and discuss how an ecosystem of collaboration can benefit the AV industry.

PLANNING FOR THE FUTURE   ROUNDTABLE

Panelists:
- **AVCC Members**
- **AVCC Working Group Chairs**
- **AVCC Executive Team**

Moderator: Doug Newcomb, AVCC

AVCC.ORG

Tuesday, September 26

This session is an open discussion between AVCC Board Members on the future of Automated and Autonomous technologies, working group areas of focus, and more.

PANELS

OPTIMIZED DEPLOYMENT OF ML WORKLOADS ONTO HETEROGENEOUS HARDWARE ACCELERATORS

PANEL

Panelists:
Andreas Herp, Mercedes-Benz / Daimler AG
Prof. Dr. Daniel Mueller-Gritschneder, Tech University of Munich
Prof. Dr. Oliver Bringmann, University of Tubigen

Thursday, September 28

The very dynamic development in machine learning and AI implies an equally dynamic development of embedded AI hardware platforms capable of running multiple ML workloads with minimized energy and resource requirements. The development of new AI features for autonomous driving is based on deep neural networks, which are first designed and trained by AI experts, and then optimized for an embedded target architecture in a lengthy, manually supported implementation process. The use of different HW architectures in always requires extensive customization of AI applications and often ties heavily to vendor-specific tool chains. There is an urgent need to break this HW dependency by providing an open reference approach to deploying AI applications. This will enable flexible deployment of AI applications onto new HW platforms. In addition, it is necessary to provide a HW/SW co-design approach for new customized, energy-efficient AI accelerator platforms that allow providing dedicated implementation paths for near-sensor and central processing of a network of AI functions. This talk will discuss optimized deployment and HW/SW codesign of ML workloads on commercial-off-the shelf and custom accelerator architectures that allow for easy retargeting to different hardware platforms depending on regional market constraints. There are three areas of focus for this panel:

- Current trends in software in automotive and the need for retargeting AI applications
- AI system hardware-software co-optimization and deployment
- Bringing functional safety into multiple objective optimization strategies.

PANELS

TEAMWORK MAKES THE DREAM WORK: ECOSYSTEM ROUNDTABLE DISCUSSION

ROUNDTABLE

Panelists:
- **Paul Boyes, COVESA**
- **Christian John, Autoware Foundation**
- **David Kanter, MLCommons**
- **Michael Plagge, Eclipse Foundation**
- **Giuseppe Rosso, AVCC**
- **Matt Spencer, SOAFEE**

Moderator: Doug Newcomb, Newcomm/AVCC

Thursday, September 28

Ecosystem Roundtable DiscussionAutonomous and automated vehicles rely on a wide array of technologies – onboard and edge computing, software, sensors, AI, machine learning and more. Various consortia are helping overcome the complex challenges of AVs by developing common technical building blocks the industry can coalesce around to standardized development and reduce time to market, power and costs while also allowing for competitive differentiation among their member companies. This session covers how the top consortia are working together to make AVs a reality for the industry and for consumers.

SESSIONS

SOFTWARE-DEFINED, ELECTRIFIED AND AUTOMATED VEHICLES – WHAT'S THE IMPACT ON THE AUTOMOTIVE SEMICONDUCTOR LANDSCAPE?

Ian Riches, VP – Global Automotive Practice, TechInsights

Tuesday, September 26

This session will outline the key factors that are impacting growth in the automotive semiconductor market, including electrification, automation, and the software-defined vehicle. The outlook for all of these technologies will be explored, as well as the opportunities within the semiconductor market.

PROPOSAL FOR DEVELOPING AUTOMOTIVE SECURITY AI PERFORMANCE PROFILES

Dr. Jonathan Petit, Director of Engineering, Qualcomm

Tuesday, September 26

This session will address the idea of developing AI benchmarks and datasets to test the security of AI components used in automotive. Indeed, AI is a critical component for automated driving, especially in perception tasks. In addition to the MLCommons/AVCC Automotive Benchmark Task Force, I believe cybersecurity needs to be assessed and a common benchmark will help raise the bar. Moreover, cybersecurity is one of the main topics for the EU AI Act and its standardization request. Therefore, this initiative can also help drive standardization and regulation. That being said, there are a lot of potential directions we could go, hence, I need your feedback to identify priority areas.

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SESSIONS

EUROPE'S SEMICONDUCTOR ECOSYSTEM IN A 1 $ TRILLION ERA BY 2030

Laith Altimime, President, SEMI Europe

Wednesday, September 27

This presentation will highlight the impact the microelectronics industry has on nearly every aspect of our lives, and its critical importance for advancements in the smart mobility sector and sustainable development, in particular the path to net zero.
The resilience of Europe's Semiconductor sector in the face of the many challenges will be also discussed, including the European Chips Act, sustainability, talent and the growth of manufacturing capacity.

FEAR THE FUTURE – THE WAY FORWARD INTO THE COMPLEXITIES OF AV DEVELOPMENT AND VALIDATION

David Fritz, VP Hybrid and Virtual Systems, Automotive, Siemens

Wednesday, September 27

Fear the Future is a 2015 science fiction novel by Stephen Moss. It is a story of an AI that encircles the Earth with peaceful intent and an essential mission. The machine was itself created by an AI because its complexity was beyond the abilities of humanity to solve. As is often the case, science fiction points the way to the future. Many attempts at applying traditional engineering methods to solving the complex challenges of level 4 and 5 AVs have failed for a myriad of reasons. Even our most advanced endeavors have not born promised fruit. Could it be that AI will be used to design and validate the ultimate AV solution? You may fear the future, but just such a future is nearly upon us.

ELECTROSTATIC DISCHARGES AND THE ADVANCED CHIP/CHIPLET BONDING TECHNOLOGIES

Dr. Marko Simičić, R&D Engineer, imec

Wednesday, September 27

The 2.5D and 3D advanced chip/chiplet bonding technologies are becoming more and more common. They give us the benefit of faster data transmission rates between two or more chips or chiplets, and therefore enable more efficient integrated circuit systems. However, no matter how good the promise of improved performance sounds, it is irrelevant if the new technology cannot meet the required reliability targets. Electrostatic discharges during bonding are an important reliability aspect. This talk will present the latest knowledge we have about the impact of electrostatic discharges on advanced bonding, and consequently, on chip design.

SESSIONS

PREACHING TO THE CHOIR - REINFORCING THE CASE FOR COLLABORATION AND STANDARDS IN THE AUTONOMOUS AUTOMOTIVE INDUSTRY

Selika Josiah Talbott – Founder & CEO, Autonomous Vehicle Consulting

Wednesday, September 27

This session will be a discussion on benchmarking, customer awareness and trustworthiness, a unified battle against cybersecurity, and the financial benefits of autonomous movement while still allowing for uniqueness within each individual company.

PUBLIC POLICY OPPORTUNITIES CHALLENGES FACING THE AUTONOMOUS VEHICLE INDUSTRY

Jeff Farrah, JD, Autonomous Vehicle Industry Association (AVIA)

Wednesday, September 27

This presentation will focus on public policy opportunities and challenges facing developers and manufacturers of autonomous vehicle technology. The presentation will describe Federal and State public policy initiatives that impact the AV industry.

FOUNDATION MODELS AND DEMOCRATIZATION OF AI

Dr. Zico Kolter, Associate Professor, Carnegie Mellon University and Chief Scientist of AI Research, Bosch US

Thursday, September 28

The field of AI is undergoing a revolution: we are moving from individual AI models that are trained for specific tasks to large, general-purpose models (ChatGPT being one of the most widely known instances) that can be applied to many different tasks. This move can have a substantial impact on the automotive domain as well, with the possibility of substantially improved robustness and handling of "edge case" scenarios. This session will highlight the underlying changes in AI that are causing this change and emphasize some of the implications and potential use cases in the automotive sector.

SESSIONS

UNIVERSAL CHIPLET INTERCONNECT EXPRESS (UCIE)TM: AN OPEN STANDARD FOR CONSTRUCTING SOCS

Dr. Debendra Das Sharma, Senior Fellow, Intel

Thursday, September 28

High-performance workloads demand on-package integration of heterogeneous processing units, on-package memory, and communication infrastructure to meet the demands of the emerging compute landscape, including the automotive segment. UCIe is an open industry standard with a fully specified stack that comprehends plug-and-play interoperability of chiplets on a package. In this talk, we will discuss the usages and key metrics associated with different technology choices and UCIe's relevance in the automotive segment. We will also delve into the different layers as well as the software model along with the compliance and interoperability mechanisms.

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TECHNICAL BREAKOUTS

SOFTWARE PORTABILITY WORKING GROUP: STATUS AND OVERVIEW   WORKING GROUP

Rajive Joshi, Chair of the Software Portability Working Group, AVCC

Tuesday, September 26

Welcome to the Software Portability Working Group. We will introduce the working group goals, provide an overview of the two active work streams: Data Architecture, and Total Cost of Ownership (TCO); and summarize the deliverables completed, in progress, and being planned.

SWP - SESSION #1: DATA-ORIENTED COMMUNICATION ARCHITECTURE FOR AUTOMATED AND ASSISTED DRIVING SYSTEMS   WORKING GROUP

Rajive Joshi, Chair of the Software Portability Working Group, AVCC

Tuesday, September 26

AVCC just released a new technical report to help simplify and accelerate the development of software–defined vehicles via a common communication data architecture. We will go over the technical recommendations and explain how a common communication data model and connectivity framework standard enable an ecosystem of independently developed reusable interoperable software components to streamline vehicle software development, reduce software system integration risk, cut costs, and shorten timelines.

SWP - SESSION #2 THE DDS SOFTWARE DATABUS STANDARD   WORKING GROUP

Rajive Joshi, Chair of the Software Portability Working Group, AVCC

Tuesday, September 26

Software system communication data architecture comprises of a data model which specifies the semantics of data exchange, and connectivity framework which must enforce the data model and provide the actual communication. We will describe the Data Distribution Service (DDS) software databus standard, that provides a standardized vernacular for describing semantically rich data models. DDS implementations directly enforce the data models, thus providing a cohesive semantic protocol stack that understands the system level data exchanges and provides semantic interoperability between communicating software components. DDS is the common connectivity framework supported by popular open source, commercial, and in-house automtotive application development platforms, tools, and compute platforms.

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TECHNICAL BREAKOUTS

SWP - SESSION #3: DEVELOPING A COMMON EXTENSIBLE BASELINE DATA MODEL   WORKING GROUP

Rajive Joshi, Chair of the Software Portability Working Group, AVCC

Tuesday, September 26

We will use the AVCC Conceptual System Architecture to guide, plan, and prioritize the use cases for developing a common communication data model using the DDS vernacular.

SWP - SESSION #4: TOTAL COST OF OWNERSHIP OVERVIEW AND STATUS   WORKING GROUP

Dr. Stephen Miller, Chair of the Technical Committee, AVCC

Tuesday, September 26

The problem of Total Cost of Ownership (TCO) for software portability will be defined and challenge areas will be described. We will review the current work to date in AVCC for TCO.

SWP - SESSION #5: TOTAL COST OF OWNERSHIP EXAMPLE MODEL & PLANNING   WORKING GROUP

Dr. Stephen Miller, Chair of the Technical Committee, AVCC

Tuesday, September 26

In this working session we will discuss the current TCO model being developed in AVCC and actively work on improving and extending the model.

TECHNICAL BREAKOUTS

SWP - SESSION #6: TOTAL COST OF OWNERSHIP NEXT STEPS

WORKING GROUP

Dr. Stephen Miller, Chair of the Technical Committee, AVCC

Tuesday, September 26

Future topic areas for AVCC to address will be presented with active discussion regarding potential topics and focus areas. This will include chiplets, functional safety, system-level benchmarking, and others. We invite participants to bring their interest areas and feedback.

SWP - SESSION #7: TRANSITION TO DATA-ORIENTED ARCHITECTURE USING DDS **WORKING GROUP**

Rajive Joshi, Chair of the Software Portability Working Group, AVCC

Wednesday, September 27

We will discuss challenges, patterns, and practices to incrementally transition to a data-oriented archictecture using DDS for new development, and how to integrate data-oriented software components into existing system architectures.

SWP - SESSION #8: AVCC ECOSYSTEM DISCUSSION

WORKING GROUP

Rajive Joshi, Chair of the Software Portability Working Group, AVCC

Wednesday, September 27

We will discuss the "practical how-to" aspects for advancing the common communication data model ecosystem, with selected use cases as the focal points.

TECHNICAL BREAKOUTS

SWP - SESSION #9: AVCC ECOSYSTEM DISCUSSION CONTINUED   WORKING GROUP

Paul Hughes, Computer Architecture, Ecosystems and Standards for Automotive, Arm

Wednesday, September 27

Recap of AVCC ecosystem strategy. Set up a conversation about the way in which Data Models can play a part in the AVCC Ecosystem.

Laith Altimime, President, SEMI Europe

Altimime has more than 30 years of international experience in the semiconductor industry. He is responsible for establishing industry standards, advocacy, community development, expositions, and programs. He provides support and services to SEMI members worldwide that have supply chain interests in Europe. He manages and nurtures relationships with SEMI members in the region and globally as well as with local associations and constituents in industry, government, and academia. Before joining SEMI in 2015, Altimime held senior leadership positions at NEC, KLA-Tencor, Infineon, Qimonda, and imec.

SESSION: Wednesday, Sept 27 at 10:15 am

Paul Boyes, Community Director, COVESA

Paul Boyes is a software product and solutions leader with a remarkable history of driving and delivering innovative initiatives. With a proven track record as a trusted technical partner, Paul excels in uniting and inspiring teams towards shared success. His extensive experience in the tech industry has made him a visionary in the field, consistently pushing boundaries and fostering a culture of collaboration. Paul's leadership style is marked by a rare blend of strategic thinking and hands-on expertise, ensuring that every project under his guidance not only meets its goals but exceeds expectations. He is a driving force in the world of software solutions, creating lasting impacts through innovation and teamwork.

PANELIST: Thursday, Sept 28 at 3:15 pm: Ecosystem Roundtable

Prof. Oliver Bringmann, Head of the Department of Computer Science, University of Tübingen

Bringmann is an esteemed researcher and leader in embedded systems. With a Ph.D. in computer science from the University of Tübingen, he has a strong background in electronic design automation, embedded system design, and hardware-enhanced security. His research focus includes distributed embedded systems, systems-on-chip, and their applications in automotive, avionics, IoT, and medical domains. Bringmann is dedicated to developing robust hardware/software architectures for machine-learning applications on embedded devices, ensuring efficient stress tests and secure, autonomous systems.

PANELIST: Thursday, September 28 at 10:15 am: Optimized Deployment of ML Workloads Into Heterogeneous Hardware Accelerators

Jeff Farrah, Executive Director, Autonomous Vehicle Industry Association (AVIA)

Farrah is a visionary leader, with a fervent belief in the potential of AVs, he is dedicated to creating a safer world, tackling supply chain hurdles, and expanding mobility for countless Americans in need. As a seasoned public policy and legal professional, Farrah's wealth of experience in trade association operations enables him to navigate complex challenges with finesse. His passion for the transformative power of autonomous vehicles drives him to shape a future where innovation thrives and societal benefits flourish.

SESSION: Wednesday, September 27 at 4:00 pm

Suraj Gajendra, VP of Automotive Products, Software, and Solutions, Arm

Gajendra leads a comprehensive Automotive Strategy bringing together Arm's IP Products and Software Ecosystem initiatives delivering best-in-class solutions to the rapidly growing automotive industry. Prior to this position, Gajendra led the Technology Strategy Team for Automotive and IoT LoB until 2022 and has an extensive background within the tech industry. He rejoined Arm in May 2023 as the VP of Automotive Products, Software and Solutions.

KEYNOTE: Wednesday, Sept 27 at 9 am: Four Wheels and a Billion Lines of Code - Enabling Future Autonomous Driving

David Fritz, VP Hybrid and Virtual Systems, Automotive, Siemens

A Semiconductor industry expert with over 25 years of experience currently serving as the Vice President of Hybrid and Virtual Systems at Siemens EDA, spearheading the global autonomous IC and validation initiative. David has held senior technical roles at NVidia, Qualcomm, Texas Instruments, and others, and brings Silicon Valley innovation to Siemens EDA, applying transformative technologies to autonomous and connected vehicles. His expertise spans software and hardware development, consensus building, and client-focused representation.

SESSION: Wednesday, Sept 27 at 11:15 am: Fear the Future – The way forward into the complexities of AV development and validation.

Andreas Herp, Agile Compute Platform Development - Work Package Leader, Mercedes-Benz, Daimler AG
(With expertise in AI and automotive technology, he drives innovation in self-driving technology. Herp has played a key role in developing advanced sensors, perception systems, and control algorithms, ensuring safety and performance standards are met. As a skilled leader, he inspires cross-functional teams and fosters collaboration. Herp actively contributes to the autonomous driving community through conferences and seminars.

PANELIST: Thursday, September 28 at 10:15 am: Optimized Deployment of ML Workloads Into Heterogeneous Hardware Accelerators

Paul Hughes, Computer architecture, ecosystems and standards for Automotive, Arm
Paul Hughes is Lead System Architect and Fellow in the Architecture and Technology Group at Arm, where he focuses on the role of standards and ecosystems in meeting the challenging demands of Software Defined Vehicles. Paul joined Arm in 2001 and his previous roles have included SoC and CPU architecture and development. Paul earned a MEng (Hons) from the University of Manchester in the UK.

WORKING GROUP SESSIONS: Software Portability

Christian John (CJ), Chair, Strategic Planning Committee, Autoware Foundation
CJ serves as the Chair of the Strategic Planning Committee of the Autoware Foundation, an ecosystem of 60+ companies engaged in the advancement of the Autoware OSS project. In addition, CJ is the Chair of the Autonomy Work Group of the MIH Alliance, which develops technical specifications for the MIH open and agnostic EV platform. CJ is also President at Tier IV, a deep-tech startup based in Japan that is dedicated to sharing technology for safe intelligent vehicles that will benefit all of society. Tier IV has led the development of Autoware, the world's first open-source software for autonomous driving, and applied Autoware in applications of last-mile driverless mobility and logistics. CJ is responsible for business operations, including partner and customer engagements to evolve Autoware and provide turn-key solutions for commercialization of Autoware-based autonomous vehicles.
PANELIST: Thursday, Sept 28 at 3:15 pm: Ecosystem Roundtable

Andrew Jones, Chair of the Cybersecurity Working Group, AVCC
Andrew Jones is a System Architect at Arm with a wealth of technical management experience and Chair of AVCC's Cybersecurity Working Group. He is a prolific paper writer renowned for his contributions to cybersecurity, on-chip interconnect, memory hierarchy design, low-power specification, and use-case optimization within the field of computer science. With a Ph.D. in Computer Science, Andrew is also a proficient embedded software designer, skilled in C/C++. His passions lie in the domains of cybersecurity, networking, and Processor architecture innovations.
WORKING GROUP SESSIONS: Cybersecurity

Rajive Joshi, Chair of the Software Portability Working Group, AVCC
Dr. Rajive Joshi is System Architect and Principal Solution Architect at Real-Time Innovations (RTI) and Chair of the Software Portability Working Group at AVCC. His expertise includes autonomous systems, software system architecture, distributed real-time embedded systems, robotics, sensor data fusion, software development, and project leadership. He is the lead author of the Industrial Internet Connectivity Framework (IICF) for which he won the IIC's Individual Contributor Award. He earned a Ph.D. in Computer and Systems Engineering from Rensselaer Polytechnic Institute in Troy, New York, for which he won the best thesis award, and also the IEEE best paper award on multisensor fusion.
WORKING GROUP SESSIONS: Software Portability

David Kanter, Founder, Board Member, and the Executive Director of MLCommons®
Kanter helps lead the MLPerf™ benchmarks and other initiatives. He has 16+ years of experience in semiconductors, computing, and machine learning. He founded a microprocessor and compiler startup, was an early employee at Aster Data Systems, and has consulted for industry leaders such as Intel, Nvidia, KLA, Applied Materials, Qualcomm, Microsoft, and many others. Kanter holds a Bachelor of Science degree with honors in Mathematics with a specialization in Computer Science, and a Bachelor of Arts with honors in Economics from the University of Chicago.

SESSION: Thursday, Sept 28 at 11:15 am and PANELIST: Thursday, Sept 28 at 3:15 pm: Ecosystem Roundtable

Kasper Mecklenburg, Chair of the Micro-Benchmarks Working Group, AVCC
Kasper Mecklenburg is a Principal Performance Analysis Engineer at Arm working with the software-defined vehicle (SDV) ecosystem through initiatives such as SOAFEE and Autoware Open AD Kit. Kasper is a seasoned professional in the fields of software and hardware interaction, algorithms and actual implementation, analysis of time domain and frequency domain, and limits and possibilities in analog and digital technologies. He is also Co-Chair of AVCC and MLCommons' Automotive Benchmark Task Force.
WORKING GROUP SESSIONS: ABTF

Dr. Zico Kolter, Associate Professor, Carnegie Mellon University and Chief Scientist of AI Research, Bosch US
Zico Kolter is the chief scientist of AI research for the Bosch Center for Artificial Intelligence and an Associate Professor in the Computer Science Department at Carnegie Mellon University. His work spans the intersection of machine learning and optimization, with a large focus on developing more robust and rigorous methods in deep learning. In addition, he has worked in a number of application areas, highlighted by work on sustainability and smart energy systems. He is a recipient of the DARPA Young Faculty Award, a Sloan Fellowship, and best paper awards at NeurIPS, ICML (honorable mention), IJCAI, KDD, and PESGM.
SESSION: Thursday, Sept 28 at 1:00 pm: Foundation Models and Democratization of AI

Daniel Mueller-Gritschneder, Research Group Leader, Technical University of Munich
With an unwavering passion for innovation and at the forefront of technology, Mueller-Gritschneder's research encompasses Electronic System Level Design Methods, especially TinyML for unlocking the potential of running neural network inference on low-power micro-controllers as well as Embedded Software Development, harnessing software's power to optimize embedded systems. Notably, he has contributed to the Design of Safety-critical Systems, championing Functional Safety practices that ensure robustness and dependability. In Virtual Prototyping of Embedded Systems, he accelerates development cycles by supporting the "shift left" principle by exploring early performance evaluation methods.
PANELIST: Thursday, September 28 at 10:15 am: Optimized Deployment of ML Workloads Into Heterogeneous Hardware Accelerators

Doug Newcomb, Automotive Tech Expert/Journalist
Newcomb is a recognized expert on the subject of car technology within the auto industry and among the automotive and general media, as well as a frequent speaker at automotive and consumer electronics industry events. Newcomb has served as editor and writer for leading consumer outlets such as Edmunds.com, MotorTrend, Road & Track, Popular Mechanics, Wired, MSN Autos, and many others. In 2013 Newcomb co-founded C3 Group to produce events in New York, San Francisco, Washington, D.C., and at SXSW in Austin to bring together thought leaders from automotive, technology, policy, and media. C3 Group was acquired by Wards Intelligence/Informa in 2018. He is AVCC's Brand Ambassador and currently heads Newcomm LLC which provides content and consulting to a variety of automotive, media, and technology companies.
MASTER OF CEREMONIES & PANEL MODERATOR

Seval Oz, Founder, OzAdvisors, LLC
Seval Oz, a trailblazer in autonomous vehicle tech for over a decade, is an Executive Advisor to automotive industry leaders and investment funds. She's a global business and marketing leader in TaaS, autonomous vehicle tech, and intelligent transportation systems, and holds 10 patents in vehicular tech software. As CEO of Aurima.ai, she pioneered multi-sensor AI for autonomous vehicles. As CEO of Continental AG's Intelligent Transportation System division, she led a cloud computing architecture project, driving mobility services and digitalization. She also contributed to Google[x]'s Self-Driving Cars Program. Seval is a Women in Technology Award recipient and a frequent speaker on women's leadership in technology.
KEYNOTE: Thursday, Sept 28 at 9 am

Dr. Jonathan Petit, Director of Engineering, Qualcomm, Inc.
Petit is a seasoned professional with a dedicated focus on advancing research in connected automated vehicle and artificial intelligence security, he ensures cutting-edge security and privacy controls. Collaborating closely with Product Management, Standard teams, and other R&D teams, Petit drives innovation and fosters synergistic efforts. His unwavering commitment to enhancing security in the automotive industry paves the way for a safer and more connected future on the roads.

SESSION: Tuesday, Sept 26 at 11:15 am: Proposal for Developing Automotive Security AI Performance Profiles

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Michael Plagge, VP of Ecosystem Development, Eclipse Foundation

Shay is a skilled and driven executive with expertise in business development, sales, and marketing. With 20 years of experience in various corporate and startup settings, Shay has successfully combined product management and business development to forge partnerships, expand businesses, and develop marketing strategies. Shay has a BA in economics and an MBA in finance and has previously held senior roles at companies such as eBay, MyChic, and iOnTerra.

PANELIST: Thursday, Sept 28 at 3:15 pm: Ecosystem Roundtable

Ian Riches, VP - Global Automotive Practice, TechInsights

Ian Riches is VP of the Global Automotive Practice at TechInsights. He heads research teams that provide insights on a wide range of B2B and B2C automotive topics, centered on the key megatrends of connected, automated, shared and electrified vehicles, as well as the software-defined car. His direct areas of research include high-growth areas such as hybrid and electric vehicles, advanced driver assistance systems and autonomous vehicles, as well as the networks and links that underpin them. With over twenty-seven years of analyst experience, he is one of the foremost industry analysts in the automotive electronics sector.

SESSION: Tuesday, Sept 26 at 10:15 am: Software Defined, Electrified and Automated Vehicles - What's the Impact on the Automotive Semiconductor Landscape?

Shay Rootman, VP, Business Development and Marketing, Cognata

Shay Rootman is the Vice President of Business Development and Marketing at Cognata, from Tel Aviv, Israel. With a background in computer science and a passion for innovation, Shay has carved an impressive path in the tech industry. As the founder of several successful startups, he's demonstrated a keen ability to blend technical expertise with business acumen. With a track record of turning ideas into tangible products, Shay's work has consistently pushed boundaries. A visionary leader, he's adept at fostering collaborative environments that inspire creativity. Shay's commitment to driving technological advancements and his strategic mindset continue to shape the industry in meaningful ways.

SESSION: Wednesday, Sept 27 at 2 pm: Digital Twin-based Simulation and Synthetic Data in Automotive Applications

Giuseppe Rosso, Chair of AVCC

A seasoned professional with a remarkable journey in automotive electronics and product development. With a strong academic foundation and extensive experience, Giuseppe has navigated the intricacies of global markets. His roles in prominent technological institutions underscore his strategic prowess in management and investment analysis. His commitment to data-driven insights and innovation fuels his impact in the automotive sector. Through his multifaceted expertise, Giuseppe continues to shape prudent product strategies and contribute significantly to the industry's evolution.

PANELIST: Thursday, Sept 28 at 3:15 pm: Ecosystem Roundtable

Dr. Marko Simičić, R&D Engineer, imec

Simičić received the B.Sc. and M.Sc. in electrical engineering and information technology from the University of Zagreb, Croatia, in 2010 and 2012 respectively. He obtained a PhD degree from the department of electrical engineering ESAT, KU Leuven, Belgium in 2018. In 2017 he joined the ESD team in imec, Belgium. He is a certified ESD control program manager since 2022. He has authored or co-authored more than 35 papers in international journals and conference proceedings. His current research area is rather wide and includes ESD device and circuit design in advanced semiconductor and 3D/2.5D stacking technologies, novel ESD testing and in-depth ESD control process assessment.

SESSION: Wednesday, Sept 27 at 1 pm: Electrostatic Discharges and the Advanced Chip/Chiplet Bonding Technologies

Dr. Debendra Das Sharma, Senior Fellow, Intel Corporation

A leading industry expert in interconnects, he has driven PCI-Express, CXL, and UCIe across the industry. He is a member of the Board of Directors of PCI-SIG, co-leads the CXL Board Technical Task Force, and chair of UCIe consortium. He holds 175 US patents and 450+ patents world-wide. He has been awarded the Distinguished Alumnus Award from Indian Institute of Technology, Kharagpur in 2019, the IEEE Region6 Outstanding Engineer Award in 2021, PCI-SIG Lifetime Contribution Award, and the IEEE Circuits and Systems Industrial Pioneer Award in 2022.

SESSION: Thursday, Sept 28 at 2:00 pm: Universal Chiplet Interconnect Express (UCIe): An open standard for constructing SoCs

DRIVING THE FUTURE OF SOFTWARE-DEFINED VEHICLES

CAMBRIDGE, UK – 2023

Matt Spencer, Chair of Technical Steering Committee, SOAFEE

As Technical Director in Arm's Automotive Business Line, Matt has been working with the Automotive Software Ecosystem to launch SOAFEE, a Special Interest Group that aims to embrace current standards, best practices, and methodologies from cloud-based software workflows and adapt them for deployment in FuSa and real-time environments such as Automotive. Matt is the current chair of the SOAFEE Technical Steering Committee and is passionate about solving the complexities of the Software Defined Vehicle through the adoption of standards and industry collaboration.

PANELIST: Thursday, Sept 28 at 3:15 pm: Ecosystem Roundtable

Selika Josiah Talbott, Autonomous Vehicle Consulting

Talbott is an innovative strategist, transportation executive, and motivational speaker. She is the Founder of Autonomous Vehicle Consulting and is currently researching and educating on autonomous vehicle policy, and its impacts on governments, OEMs, and stakeholder communities. Talbott formerly served as the co-chair for the FMCSA (Federal Motor Carrier Safety Administration) Automated Working Group and serves on the AAMVA (American Association of Motor Vehicle Administrators) Automated Vehicle Work Group. She currently serves as AVCC's Director of Special Projects and is passionate about equitable transportation models that provide mobility and freedom of movement for all.

SESSION: Wednesday, Sept 27 at 3:15 pm: Preaching to the Choir: Reinforcing the Case for Collaboration and Standards in the Autonomous Automotive Industry

Speakers, Sessions and Schedule are subject to change - for the most up-to-date information, please visit:
https://avcc.org/avcc2023

DRIVING THE FUTURE OF SOFTWARE-DEFINED VEHICLES

If you have any questions, please contact us at
info@avcc.org

Thank you for joining us at AVCC2023

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