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## EU Digital Forum

### Horizon Europe ICOS (International Cooperation on Semiconductors): EU and Non-EU Strengths, Weaknesses, Dependencies, Opportunities for International Collaboration

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Director of Research  
CNRS-Grenoble INP-Sinano Institute, Grenoble,  
France



#### Body

This presentation will deal with the ICOS CSA project dedicated to International Cooperation On Semiconductors. International cooperation is key for speeding up technological innovation, reducing cost by avoiding duplicated research, boosting the resilience of the semiconductor value and supply chains, and is one of the objectives of the EU Chips Act. The objectives and first important ICOS results will be highlighted, including the analysis of the semiconductor economic and technological landscapes in Europe and leading semiconductor countries, the identification of areas for potential cooperation and the proposition of opportunities for bilateral or multilateral research collaborations, particularly in the areas of advanced functionalities and computing.

#### Biography

BALESTRA Francis, CNRS Research Director at CROMA, is Director Emeritus of the European SiNANO Institute and President of IEEE Electron Device Society France, and has been Director of several Research labs. He coordinated many European Projects (ICOS, NEREID, NANOFUNCTION, NANOSIL, etc.) that have represented unprecedented collaborations in Europe in the field of Nanoelectronics. He founded and organized many international Conferences, and has co-authored more than 500 publications. He is member of several European Scientific Councils, of the Advisory Committees of International Journals and of the IRDS (International Roadmap for Devices and Systems) International Roadmap Committee as representative of Europe.

References

## **HiCONNECTS Introduction**

K. Srivastava  
Senior Specialist, Communications  
SEMI Europe, Marketing and Communications,  
Berlin, Germany

### **Body**

Coming Soon

### **Biography**

Kartikey Srivastava is Senior Specialist - Communications at SEMI Europe. A member of SEMI Europe's team since 2023, his focus is on the Dissemination and Exploitation of Erasmus+ and Horizon Europe projects such as HiCONNECTS, ECDA and ECSA.

References

## Demonstration of High-Speed Silicon Photonics I/O for Co-Packaged Pilot Line

C.-J. Luo  
R&D Engineer  
IMEC, Silicon Photonics, Leuven, Belgium



### Body

The high-level objective of HiCONNECTS project is to support industrial challenges by developing heterogeneous integration technology solutions for energy-efficient and high-performance cloud and edge computing. HiCONNECTS pilot lines aim at developing advanced photonic integrated circuits, the tasks involve high-speed optical interconnect, co-packaged optics, and heterogeneous integration. In this presentation, we discuss the development of the pilot lines and show the challenges/breakthroughs.

### Biography

Cheng-Jih Luo is the R&D engineer of silicon photonics pathfinding at imec. His works focus on photonic component and micro-optical system design especially aim to advanced co-packaged optics for silicon photonics. He received Ph.D from National Chiao-Tung University Taiwan in 2019 and previously Cheng-Jih worked as deputy project manager at ITRI for host several technical projects regarding photonic systems.

References

## **Explainable Artificial Intelligence (XAI) for Autonomous Driving**

M. N. Yazar  
Research Programs Lead Engineer  
AVL, ISTANBUL, Turkey

### **Body**

In recent years, advancements in artificial intelligence, particularly in deep learning, have enabled the development of autonomous driving software systems that allow vehicles to perceive and interpret dynamic environments at a human-like level and make their own decisions. In the near future, with the widespread adoption of high-security and high-speed network systems, vehicles are expected to gain the ability to communicate with each other and their surroundings. This will transform vehicles into collaborative systems that provide safer and more economical driving experiences. The AI-based systems used in autonomous driving software are expected to be explainable, transparent, reliable, and compliant with standards. This study presents a five-layer autonomous driving software architecture that shows morphological and functional similarities to the V-model software architecture. The aim is to ensure that this software architecture meets the aforementioned requirements within the automotive industry. Additionally, the role of explainable artificial intelligence (xAI) and deep learning methods, developed in recent years, within the relevant layers of the autonomous driving software architecture and their relationships with other layers are presented in detail.

### **Biography**

Musa Nurullah Yazar began his career at AVL Türkiye as an Autonomous Driving Engineer and is currently serving as the Research Programs Lead Engineer. He earned his PhD in Control and Automation Engineering from Istanbul Technical University in 2018.

Musa's professional experience is diverse. He co-founded a startup company called OnitSistem, where they developed a smart research guide software that provides a collaborative workspace for researchers. He also served as an Assistant Professor at the Department of Electronics Engineering at the National Defense University, where his research focused on the dynamical modeling and simulation of robotic systems, particularly unmanned aerial vehicles.

In his current role at AVL Türkiye, Musa coordinates autonomous driving research projects and supports R&D project proposals aimed at developing novel methods for ADAS and autonomous driving functions.

References