

Dissemination Factsheet SEMICON Europa 2022

About SEMICON Europa 2022

SEMICON Europa is the annual premier event for the global electronics industry in Europe. The event covers advancements in technologies and services for electronics design and manufacturing, featuring innovations from across the electronics value chain, from electronic design automation to device fabrication (wafer processing) to final manufacturing (assembly, packaging, and test). SEMICON Europa addresses emerging markets and technologies, including MEMS and flexible electronics, and a wide range of products, including power electronics, sensors, organic electronics, imaging devices, bioelectronics, automotive, and other exciting new technologies.

SEMICON Europa 2022 with more than 100 000+ visitors and 300+ exhibitors attracts a wide array of audiences from key segments and sectors of the European micro-electronics and affiliated industries. More than 80% of SEMICON Europa visitors are involved in R&D of innovative technologies, enacting change and address industry shaping trends in key digital technologies such as artificial intelligence, cybersecurity, high performance computing, robotics and much more. SEMICON EUROPA 2022 offered exhibitors and attendees the opportunity to engage and network with over 5 000 industry experts, professionals and industry leaders advancing innovation and resilience of Europe's manufacturing industry.



Figure 1: SEMICON Europa show floor and exhibits



Figure 2: SEMICON Europa Executive Forum



IMOCO4.E Dissemination and Exploitation at SEMICON Europa 2022

As key European innovation project, the IMOCO4.E consortium was welcomed at SEMICON Europa 2022 to share its achievements and participate in discussions around the future of Industry 4.0 manufacturing and workforce development. The dissemination of the project was conducted among highly influential audiences from every segment of the global microelectronics industry, including C-level executives, leading manufacturers, key technology stakeholders and purchasers. By focusing on the core objective of engaging businesses and professional as potential future beneficiaries of IMOCO4.E delivered innovation, the possibility to engage the consortium representatives and project in a direct way proved to be an excellent way to connect with potential stakeholders and collect insight on potential applications of IMOCO4.E achievements across industries.

To disseminate and exploit knowledge and project achievements efficiently throughout the entire duration of the event, the IMOCO4.E project was featured as premier collaborative initiative in 2 sessions, each with distinguished high impact topics shaping Europe’s industrial ecosystem:

1. ‘Turning the Tide on Europe’s Talent Shortage’ – Panel Discussion session

As part of the effort to highlight the critical role of IMOCO4.E and other EU-funded projects in the re-skilling and up-skilling of future professionals in the microelectronics industry, SEMI Europe hosted as part of the ‘Future of Work’ day at SEMICON Europa a dedicated panel discussion, gathering experts and project representatives from across Europe.

Titled ‘Turning the Tide on Europe’s Talent Shortage’ the panel discussion was hosted and moderated by IMOCO4.E SEMI Europe representative: Christopher Frieling, Director -Advocacy and Public Policy. Alongside experts from industry such as Françoise Chombar, Chairwoman, Melexis; Martin Stöckl, Senior Vice President / Global Head of HR People and Organization Effectiveness, Infineon Technologies AG and Clara Haubenwallner, Student Assistant, Graz University of Technology, EU-funded projects such as METIS and ECoVEM project were represented in the discussions.

This panel discussion has explored how inclusive leadership is essential to building a diverse and sustainable workforce and to overcoming critical industry challenges like global talent shortage, chip shortage, and lack of diversity. The session took a deep dive into internal organizational strategies and initiatives for more diverse and inclusive work environments, where talent can thrive and has access to innovative and timely up-skilling opportunities.



Figure 3: Christopher Frieling (SEMI Europe) representing IMOCO4.E in critical workforce development discussions



2. Chips Hub Europe and Collaboration in Action – session

With the aim to share project’s innovation goals and vision on the future of resilient Industry 4.0 manufacturing in Europe, the project session highlighted alongside EU-funding opportunities the objectives of IMOCO4.E and the expected impact of the project on the European economy and leadership in key industrial technologies. Emphasizing key concepts of the project, the session speakers captivated the audience’s attention by focusing on the project’s key concepts, recent developments, and future trajectories. The highly technical topics were presented by the project consortium speaker to more than 70 attending experts from industry and academia in a manner understandable to technical and non-technical audiences alike. In particular our session speakers enabled attending audiences critical insights into the following topics:

Smart Test Cells: Improving Efficiency and Convenience
 Felix Patschkowski, Principal Software Engineer, ITEC B.V.

Presentation Abstract

While testing is the quality gate assuring that only good products go to the customer it does not improve the product and thus must be as efficient as possible. Test setups (Test Cell) comprise more and more equipment types (wafer probers, final test handlers, laser markers, vision inspection systems, automatic reel changers, AMHS’, testers, ...). Typically testers have the longest lifetime in the test cell, especially if they are not the bottleneck equipment that slow the overall setup down. ITEC will showcase how a test cell can be automated and integrated when the tester becomes the master equipment including wafer map handling and post processing like DPAT and Maverick Wafer Handling in order to increase the output.

Digital Twin Technology Bridging the Chip Manufacturing Gap
 Rahul Tomar, Managing Director, DigitalTwin Technology GmbH

Presentation Abstract

Latest revolution in manufacturing industry led us to extreme usage of automation and AI. By adding digital twin technology alongside with them we can speed up the chip design and manufacturing process which eventually help us much faster in bridging the gap between demand and supply. AI is already playing key role in process control and process modeling in any field of engineering simulation, there is still huge opportunity of disruption through the delivery of significant improvements in yield, quality and throughput. This is the gap that can be filled by digital twins modeling, proving invaluable to the chip fabrication process, contributing to a more streamlined design and production process on the same time reducing dependence on physical prototyping. Digital twin did help designers to develop a semiconductor without running into too many time-consuming roadblocks that disrupt production schedules. Streamlining the design process in this manner led to be very productive for an organization especially when the items in question are in demand and in short supply. The lower reliance on physical prototyping cuts costs and accelerate decision-making. Within the online collaborative environment of digital twin software led designers to get feedback quickly to act on it. Digital twins can show a chip's estimated power and performance metrics, helping designers understand what's working well and where improvements should occur. It is still not so common to use digital twin technology within semiconductor industry, one of the reason is the definition of digital twin among various players of the industry. Some consider digital twin only exists after the product is physically available, some consider it as only a 3D modeling. Digital twin is way beyond this. The life cycle of digital twin starts with the design and stays till the time of physical product life. Digital twin can be used for finite element analysis in much more collaborative way.

Synthetic Data for Robotics: Opportunities and Challenges
 Maksims Ivanovs, researcher, Institute of Electronics and Computer Science

Presentation Abstract

To successfully operate in a real-world environment, robotic systems need to demonstrate high speed, precision, adaptability, and interoperability. Machine-learning based perception modules of robotic systems require a lot of



training data, as state-of-the-art deep learning techniques are well-known as particularly data-hungry. Moreover, the training data should ideally come from a broad distribution to cover corner cases as well as be adaptable to new deployment scenarios. As collecting and labelling real-world data is time- and effort-consuming, the use of synthetic data in robotics has gained increasing attention, as this promising and rapidly developing approach allows to generate large amounts of the data and apply modifications to them as needed. The main challenge to the wide-scale application of synthetic data in robotics is the gap between the simulation and the real world, which often results in the decrease in the precision of the systems trained solely on the synthetic data. One of the ways to bridge this gap is to transfer the style from the real-world data, which are realistic in appearance yet limited in number, to the less-realistic but plentiful synthetic data. In our recent study, we demonstrated how that can be accomplished by means of particular deep neural networks, Generative Adversarial Networks (GAN); as a result, we achieved an improvement of object detection on a bin-picking task, one of the major tasks in industrial robotics.

Subsequently the after-session opportunity to ‘meet the expert’ promoted an open discussion and encouraged exchange of views on Europe’s technological future and the IMOCO4.E innovation potential. By focusing on the core objective of engaging businesses and professional as potential future beneficiaries of IMOCO4.E delivered innovation, the possibility to engage the session speaker proved to be an excellent way to connect with potential stakeholders and collect insight on innovations competing with IMOCO4.E



Figure 4: IMOCO4.E Chips Hub Europe and Collaboration in Action - session opening by Laith Altimime, President, SEMI Europe, IMOCO4.E session speakers and attending audiences at TechArena)

EU Digital Future Forum Panel Dissemination and Exploitation

In addition, the IMOCO4.E project was highlighted as part of the EU Digital Future Forum, a platform of SEMI Europe focused on the dissemination and exploitation of EU-funded projects and other industry collaborations. As part of the platform, the EU Digital Future panel featured key IMOCO4.E consortium members as well as critical information about the project and the project video, giving SEMICON Europa attendees the opportunity to familiarize themselves with key concepts and objectives of the project at any point of the event.



Figure 5: IMOCO4.E dissemination at the EU Digital Future Forum (hosted by SEMICON Europa TechArena in 2022)

Conclusion

In conclusion, SEMICON Europa as a flagship event of SEMI Europe provided an excellent foreground for dissemination and promotion of the IMOCO4.E project among experts from across the semiconductor, automotive and healthcare industry. Through the dedicated IMOCO4.E session and promotion of dissemination materials, potential stakeholders were encouraged to engage the project and its consortium at an early stage, with the aim to build and sustain the interest of European innovation community in the project.