Chips Hub Europe

Building Collaborative ECS projects via the Eureka Cluster Xecs

N. Rohrbach
Xecs Director
AENEAS, Bruseels, Belgium

Abstract
The semiconductor industry and actors from the full Electronic Components and Systems value chain innovate, and evolve, by a simple creed: faster, greener, cheaper. And while it might seem complex and costly to introduce novel technologies at every step of production, it is easier and more affordable than you think to implement change and gain an immediate return on investment. Whether you need to manage fierce competition or cut innovation costs, funded international collaborations are your gateway to tackle complex technological challenges, address research opportunities , grow innovative partnerships to drive technological improvement and increase profitability.
Join our funding programme representative and experts and discover how funding and international industry collaborations including other actors can help your company to adopt next-generation innovations ahead of the global competition!

Biography
With an academic background in biology and immunology, Nadja Rohrbach spent several years as a scientific officer for a member of the German Federal Parliament. Subsequently she joined the DLR Project Management Agency, initially focusing on Eureka and network projects, before becoming head of the Eurostars group. Few years ago, Nadja was seconded by the German Federal Ministry of Education and Research to the Eureka secretariat in Brussels, where she was appointed central coordinator for the new Eureka Clusters Programme and worked with various bodies like public authorities and industry to draft the first Eureka Clusters Multi-Annual and Annual Operational Plans. One year ago, she started at AENEAS as Xecs Programme Director being in charge of the Clusters Penta and Euripides as well.

Smart Test Cells: Improving Efficiency and Convenience

F. Patschkowski
Principal Software Engineer
ITEC B.V., Nijmegen, The Netherlands

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.

Biography
Before migrating to the Netherlands, Felix Patschkowski graduated from the Technical University of Hamburg with a master's degree in computer science and engineering and started as an automation engineer at Nexperia's wafer fab in Hamburg. Being responsible for the automation of the wafer test department, he was exposed to ITEC's technology, especially the tester platforms, right from the beginning. On a business trip to Nijmegen, he fell for the city and technology. Soon after, he started working for ITEC to develop software for existing and new testers. Over time, he grew into the position of a software architect for the latest test platform under development – the MegaParset. Next to his career he is also active in Olympic saber fencing.

Digital Twin Technology Bridging the Chip Manufacturing Gap

R. Tomar
Managing Director
DigitalTwin Technology GmbH, Cologne, Germany

Abstract

Latest revolution in manufacturing industry led us to extreme usage of automation and AI. By adding digital twin technology olong side 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 desgin 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 organisation 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 digiat 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 desing and stays till the time of physical product life. Digital twin can be used for finite element analysis in much more collaborative way.

Biography

Rahul Tomar is a Co-Founder of DigitalTwin Technology GmbH, a SME based in Köln, Germany. He has 22 years of experince in various industry like construction, manufacturing and automotive. The concept of digital twin he starts working on since 2015 and started his own company in 2018 based in Germany. The basic idea follows with simulating real-world infrastructure into virtual world considering law of Physics by the help of data collected via multiple data sources.

Synthetic Data for Robotics: Opportunities and Challenges

M. Ivanovs
researcher
Institute of Electronics and Computer Science,
Riga, Latvia

ELEKTRONIKAS UN DATORZINĀTŅU INSTITŪTS
INSTITUTE OF ELECTRONICS AND COMPUTER SCIENCE

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.

Biography
Maksims Ivanovs is a researcher at the Institute of Electronic and Computer Science (EDI) at Riga, Latvia, and a PhD student and acting lecturer at the University of Latvia. He is working on the topic of generating synthetic data for training deep neural networks under the supervision of Dr. sc. ing. Roberts Kadiķis (EDI), and his academic interests are mostly related to deep learning and artificial intelligence in general as well as to the impact of these fields on society.