

Augmented Reality & Artificial Intelligence

Industrial Shop-Floor Experiences



Ref. The Atlantic

The seminar will be held at:

Novo Nordisk A/S

Smørmosevej 17-19
2880 Bagsværd
Denmark

The seminar has been prepared in cooperation with the following companies and organizations



The growing importance of connectivity in automation

Complex tasks on Factory Shop Floor such as assembly and maintenance were simplified by inserting additional information into the field of view. For example, labels were displayed on parts of a system to clarify operating instructions for a mechanic performing maintenance on a system. Assembly lines benefited from the usage of Augmented Reality (AR). In addition to some Companies like Danfoss, Beumer Group and Tetra Pak have incorporating this technology into assembly lines for monitoring process improvements. Big machines are difficult to maintain because of the multiple layers or structures they have. It is possible to obtain Quality checks that are faster, and Augmented Reality is also helpful for on-the-job training of new employees. Tetra Pak have incorporated Augmented Reality to their maintenance team, that permitted them to look through the machine as if it was with x-ray, pointing them to the problem right away.

This seminar will try to present the potential of using Augmented Reality at the industrial shop-floor with the aim of improving the capability of the shop-floor operators. At the seminar, a prototype system for augmented reality will be demonstrated. The usage of Augmented Reality system is presented and evaluated through different manufacturing companies' experiences.

Manufacturing companies of today face a global and rapidly changing market. To stay competitive, is of critical importance for companies to continuously improve their shop-floor activities. A powerful tool in the future is Augmented Reality to improve shop-floor performance by enhance the capability of its operators. In their daily work, shop-floor operators constantly face complex and uncertain situations due to unpredictable events and uncontrollable variations, such as machine breakdowns, fluctuating product demand, re-prioritizations, etc. There is a need of finding new methods and tools that increase productivity and quality by supporting the operators in making the right decisions and optimally operating the shop-floor.

This seminar will try to illustrate different studies of improving the capability of shop-floor operators by using augmented reality. With augmented reality and artificial information about the environment and its objects gives the possibility to overlay the real world in order to enhance the operator's perception of reality.

Augmented Reality has recently begun to be discussed within the context of industrial shop-floors, but so far mainly as a concept and there exist few practical demonstrators. Beumer Group, Danfoss & Tetra Pak will present their experience.

This seminar aims to advance the knowledge on augmented reality within the manufacturing domain by showing different implementations at manufacturing companies.

The aim of this seminar is to improve the participant knowledge of the Augmented Reality technology and how to use AR within industrial shop-floor context. Augmented reality might be one of the keys to fulfill the aim of improve shop-floor operations and maintenance.

Augmented Reality may be the application that serves as the piv-

What is Augmented Reality?

Augmented Reality (AR) is an expanded view of reality where you through a screen view computer generated images, audio or other data on the actual reality.

Augmented Reality is a combination of the real world and computer-generated data.

Augmented Reality focus areas

- Inspection
- Quality assurance
- Work instruction
- Training
- Workflow management
- Operations
- Safety
- Logistics
- Assembly

BUSINESS CASE

Augmented Reality is not a technology with incremental few percent savings, it might be a game changing application with measurable large savings ranging from two digits percent. The reason savings are high with AR, is because when companies augment people with AR, companies are not buying equipment – Companies are freeing cash flow because companies speeding up the processes and reduce maintenance costs.

ot point for IoT adoption because of its proven applicability and readiness for core industrial activities such as quality inspection, work instructions and training.

The physical and digital worlds are converging into a single new reality thanks to IoT, and by pursuing augmented reality to connect the physical, digital and human experience. Augmented Reality will completely change everything - from engineering to manufacturing to sales.

Participate in the seminar and get a picture of the possibilities with Augmented Reality systems on shop-floor.

We hope to see you and your colleagues at the interesting seminar on may 16, 2018 in Copenhagen (Bagsværd).



Augmented Reality on Shop-Floor. (Ref. CISCO Blogs)

Practical information for the Seminar, May 16th 2018

Seminar on Wednesday, May 16, 2018, at

Novo Nordisk A/S
Smørmosevej 17-19
2880 Ballerup
Denmark

Registration

www.sesam-world.com/tilmelding

Confirmation and invoice will be issued immediately after registration.

Last registration deadline

Monday, 14 May 2018

Price

Price for participation

1,800 DKK. (240 Euro) Excl. VAT for members of SESAM Denmark and SESAM Sweden.

3.900 DKK (525 Euro) Excl. VAT for non members.

Parking at Novo Nordisk

On the opposite side of Smørmosevej 17-19 there is a parking garage. However, it may be necessary to search for a parking space outside the parking lot.

Networking at the seminar

Use the breakers to have a dialogue with colleagues and specialists in the field.

Cancellation

No refund for cancellations later than 1 week before settlement.

If you wish to become a member of SESAM, and / or you would like more information, please contact us

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Attend the seminar

Hear about the business and technical possibilities that Artificial Intelligence (AI) and Augmented Reality (AR) solutions gives on the Factory Floor. Get a picture of the future opportunities for a combined physical and digital model of machines on the factory floor.

09:00 - 09:30

Registration, rolls & coffee

09:30 - 09:35

Welcome

Carsten Nøkleby, SESAM-World



09:35 - 09:50

Introduction to Novo Nordisk

Kim Bach Nielsen & Kasper Malthe Larsen, Novo Nordisk



Brief introduction to Novo Nordisk and practical information.

- Products, production and organization
- What makes AI & AR interesting for Novo Nordisk

09:50 - 10:30

Opportunities, values and challenges using AI and AR technologies

Jesper Vedsø, Partner, pwc



- Presentation of a new Industry 4.0 survey - present results from more than 1100 CxOs
- What are the potential of the new technologies for manufacturing companies?
- What challenges will companies face in relation to adopting the new technologies?
- How can companies prepare for the new technologies?
 - Technological, business process and organizational

10:30 - 11:10

Experience and demo of running AI and AR solutions

Per Engelbrechtsen & Kim Madsen, Teknologi & business specialists, Beumer Group



- Why use this technology, where can it help in current business and production processes?
- Demo of solutions - Show the possibilities of systems and technology.
- Experience with AR solutions and game engines (Challenges, opportunities)
- Experience with AI solutions (Challenges, opportunities)

11:10 - 11:40

Pause & networking, demonstration of technology

11:40 - 12:20

Transforming Your Production in a Digital World

Martin Thorning Hansen, Divisionschef, Microsoft



- How you take advantage of AI & AR experience to engage your business.
- How you use AR productivity tools to empower your employees.
- How you streamline and use AI technologies to predict problems before they happen.
- How you utilize AI & AR technologies to create new revenue streams and fundamentally transform the products you take to market.

12:20 - 13:00

State of Industrial Augmented Reality

Martin Wassmann, Technical Specialist, PTC & Per Eiland, Managing Director, Novotek



- What Industries are Adopting AR?
- Where in the Enterprise is AR Used? And how Is AR Used?
- Why Are Businesses Pursuing an AR Strategy?
- What Hardware Is Used with AR experiences?
- Demonstration of Vuforia og ThingWorx Studio - AR technology platforms

13:00 - 13:40

Lunch & networking, demonstration of technology



13:40 - 14:20

Experiences with AR and AI in development projects

Sune Wolff, CTO & Partner i Unity Studios

- Today and tomorrows AR techlonogies
- How to bridge the real and virtual world
- How AR and AI can and will be used as a beneficial technologies together
- Presentation of cases and experiences with AI and AR



14:20 - 15:00

Leverage Virtual Design to Build a Better System

Antoon Laane, European Product Manager Rockwell Automation

Virtual design can help to compress development cycles, accelerate time to market, decrease commissioning costs, and mitigate risk. The presentation will cover topics on concurrent development of electrical, mechanical, and control systems - using Augmented Reality as a method of stepping into the virtual machine. Change how you build your next automation system.

15:00 - 15:20

Break & networking



15:20 - 16:00

Maintenance and the usage of Augmented Reality

Mattias Johansson, Director Automation Service, Tetra Pak

The presentation will show how connected machines and real-time monitoring help our customers avoid unplanned downtime.

- Get a picture of Tetra Paks digitalised services:
- How have Tetra Pak adapted the AI & AR tools and create tangible value for the Business and the Customers?
- Get an overview of the technologies used (mobile device, tablets, glasses)
- See some of the applications where service technicians are able to access the whole network of our specialists wherever they are.



16:00 - 16:30

Driving the Digital Transformation with Augmented Reality

Flemming Stordal Hansen, Segment Manager, Schneider Electric

Get inspired on how Augmented Reality can be benefit your product, production and supply chain business.

- Maintenance
- Procedures
- Service - Reduces downtime by giving real time process information



16:30

Summary and conclusion

Carsten Nøkleby, Senior Konsulent, SESAM-World

Information from SESAM



Come with your input for the coming events

SESAM would like to have your input or comments for the coming events. Please feel free to indicate if you or someone you know have an interesting presentation on one of the topics for the coming event. We would like the members to be more involved in the knowledge sharing within the SESAM network and the planning of the coming events. Below is an overview of the activities during first quarter of 2018, and further down in the newsletter a more detailed description is given.

The plan for the future is as follows:

May 2018

07.05.2018: SESAM workgroup: Information Security - PET seminar on insider threats. Schneider Electric, Ballerup.

16.05.2018: SESAM seminar: Augmented Reality in Manufacturing – what are the possibilities.

31.05.2018: SESAM workgroup: PackML and Line Integration - Danfoss, Gråsten.

June 2018

13.06.2018: SESAM seminar: Energy Management - How do Automation improve the Energy Management?- Industry Standards.

Coming events:

It is planned by the Board that the following issues have a big interest:

- Life Cycle Management of Automation Solutions - How can LCM be part of a system delivery that includes machines and process equipment.
- Block Chain - How will that influence the industry in the near future?

SESAM-Sverige

In addition, it is decided that SESAM Sweden will re-start with Seminars in Sweden in 2018.

There will be focus on topics such as:

- Digital Factory Design
- Real-time Factory Scheduling and control
- Flexible Factory Automation
- Digital Production Processes
- Real-time Monitoring of Supply Chain
- Digital Product Quality

Information on project application - Sweden

There has been work on a project application for PiiA last year, focusing on digitization of process companies. In connection with the application, several workshops were conducted, and the results from all these workshops were collected in a single report.

The report is available at http://sesam-world.com/_pdf/PiiA-report-V01.pdf

The application was not approved, but it is decided that we hold a meeting with the PiiA organization, and then assess whether we will reschedule the application and apply again.