

ARTC Innovation Week 2017

Developing Tomorrow's Manufacturing

Opportunities Together

23 & 24 November 2017

Programme Booklet



Advanced
Remanufacturing and
Technology Centre

In partnership with



**NANYANG
TECHNOLOGICAL
UNIVERSITY**
SINGAPORE

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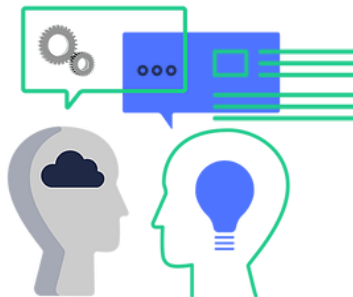
Introduction to ARTC Innovation Week 2017

ARTC Innovation Week (AIW 2017), organised by ARTC will be held on 23-24 November 2017.

This year's theme, 'Developing Tomorrow's Manufacturing Opportunities Together' will feature presentations by industry leaders on advanced manufacturing and supply chain strategies, challenges and opportunities in the aerospace and FMCG sectors.

In the interactive exhibit and demo segment, participants will be exposed to latest technologies and capabilities for the industry. In addition to this, there will be engaging displays from ARTC members.

Join us at the ARTC Innovation Week (AIW 2017) to form new business contacts, explore business partnerships with both local and overseas industry leaders, and share your organisational training/learning challenges



About ARTC & NTU

**Agency for Science, Technology and Research (A*STAR),
Advanced Remanufacturing and Technology Centre (ARTC)**

Initiated by the Agency for Science, Technology and Research (A*STAR) in partnership with the Nanyang Technological University (NTU), the ARTC is the first centre in Asia that adopts the 'AxRC' model of industry-led public private partnership across supply chains. This unique model is gaining attention from governments and industry globally in recent years. It leverages on a ready pool of resources and R&D funding to achieve technology capabilities and catalyse new business opportunities for all stakeholders.

At ARTC, like-minded companies from multinational corporations to global equipment and software providers to small and medium enterprises come together to collaborate and achieve advanced remanufacturing and manufacturing capabilities in a faster, better and cheaper way than working alone. Based on a membership framework, it drives commitment from both industry members and ARTC as active strategic partners in driving a shared capability roadmap.

Through this unique framework, industry members are able to solve similar problems on a cost-sharing basis where best-in-class knowledge is created and shared. In addition, our members have access to advanced industrial-scale equipment and a world-class facility, as well as being able to tap on extensive industrial research expertise.

Day 1 Programme

**23
Nov**

08:30

Registration & Coffee

09:30

Welcome Address

10:00

The Importance of Advanced Manufacturing

Mr Stephen Burgess, Director, Manufacturing Technology, Rolls-Royce

10:20

Trust: The Foundation in the age of AI/ML and Cybersecurity

Mr Richard Koh, CTO, Microsoft

10:40

Tea Break

10:50

Perspective on I4.0 transformation in Southeast Asia

Dr Alpesh Patel, Director, Innovation Centre, McKinsey & Company

11:10

NI Trend Watch 2018 - Future Faster

Mr Ng Yousi, Area Sales Manager, National Instruments

11:30

SME Power Hour

12:50

Lunch

- 13:40** | **Digital Additive Manufacturing Ecosystem - Opportunities & Challenges**
Ms Yvonne Lim, Business Development Manager, Electro Optical Systems (EOS)
- 14:00** | **Embracing the 4th Industrial Revolution - Opportunities and Challenges for FMCG Companies**
Mr Luis Rueda, Group Manager, Packaging Competence Unit, Nestlé
- 14:20** | **Manufacturing of the Future**
Mr Quan Long Van, Associate Director Product Supply, Procter & Gamble (P&G)
- 14:40** | **Tea Break**
- 15:00** | **Digitalisation Drives Innovation**
Mr Jai Samtani, Director of Consumer Products & Retail, Siemens PLM Software
- 15:20** | **Monozukuri' Process Innovation through Digital Transformation**
Mr Satoshi Emoto, Vice President, Common Technology Infrastructure Center, Technology & MONOZUKURI Business Unit, Fujitsu
- 15:40** | **Interactive activity / Exhibits & Demo & *End-to-End Business Meetings**
**Pre-schedule 15 minute meeting with speakers for engagement opportunities and connect with potential collaborators*
- 17:00** | **End of Programme**

Day 2 Programme

24
Nov

Preparing our Workforce for Tomorrow's Manufacturing

08:30 | **Registration & Coffee**

09:00 | **Welcome Address, Meeting the Training Needs for Advanced Manufacturing**

Mr Tan Ying Kiat, Director, SERC and Dr Bertil Brandin, Director, ARTC

09:20 | **Reskilling & Upskilling for Advanced Manufacturing**

Ms Huang Yingwen, Manager, SkillsFuture Singapore

09:45 | **Development of Training Extension Programmes**

Mr David Chai, Centre Director, Technology Development Centre, Singapore Polytechnic

10:00 | **Tea Break**

10:20 | **NTU Advanced Manufacturing Technology**

A/P Tegoeh Tjahjowidodo, Nanyang Technological University (NTU)

- 10:45** | **Workshop discussions on challenges and requirements on training and learning in various technology areas and on leadership & management in manufacturing**
- 12:45** | **Lunch**
- 13:30** | **Sharing of workshop results & closing**
- 14:00** | **End of Programme**

Speakers



Mr Stephen Burgess

Director, Manufacturing Technology

Rolls-Royce

Topic: The Importance of Advanced Manufacturing

Biography

Stephen Burgess has held the post of Director, Manufacturing Technology at Rolls-Royce for the past thirteen years, prior to this he had technical responsibility for the manufacture of turbine aerofoil components, and this followed a number of other senior technology based leadership roles.

He is the Rolls-Royce Senior Fellow for Manufacturing, a Chartered Mechanical Engineer and FIMechE with over 40 years' experience of aerospace manufacturing in both line and functional roles, with a specific focus on manufacturing technology and capability acquisition processes.

In his current role he is responsible for Manufacturing R&D across Rolls-Royce, including university research, technology demonstrator programmes and manufacturing technology transfer, with a particular focus on the development of a global network of collaborative Manufacturing Research Centres (AxRCs). He is on the boards of the European Factory of the Future Research Association (EFFRA) and Rolls-Royce / Unipart JV 'MetLase'.



Mr Richard Koh

Chief Technology Officer

Microsoft, Singapore

Topic: Trust: The foundation in the age of AI/ML and Cybersecurity

In this presentation, Richard will be sharing why Trust is the underlying foundation of AI and Cybersecurity, the evolution of AI & Machine Learning and how companies like Microsoft are innovating in this area. He will also be sharing a section around modern cybersecurity methods employed by Microsoft in all its cloud services, including using its capabilities of AI & ML to protect, detect and respond to cyber threats.

Biography

Richard Koh is the chief technology officer of Microsoft Singapore. In this role, he is responsible for engaging with key executive leaders across government, industry and academia; bringing in the macro technology landscape; and helping customers leverage technology innovations for their digital transformation. His focus areas include guiding technology policies, standards, legal and regulatory matters, as well as security, privacy and compliance decisions.

Always passionate about the promises that the Internet and cloud computing can bring, and with a keen eye on business strategies, product development and marketing, Richard's professional experience spans the Asia and North America regions, as well as multiple functional areas including research & development, IT, product management, marketing, business development and sales operations.



Dr Alpesh Patel

Director of Digital Capability Center,
Singapore

McKinsey & Company

Topic: Perspective on I4.0 transformation in Southeast Asia

Biography

Alpesh Patel is an Associate Partner at McKinsey & Company and the Director of McKinsey Innovation Campus (MIC) in Singapore. As consultant he has extensive experience in motorsports, automotive, logistics, as well as in assessing economic impact of projects at country levels. He also holds a L2 certification in Operations – Manufacturing, with focus on Industry 4.0.

At McKinsey, in partnership with the Singapore government, the MIC drives the development of intellectual property by bringing together global experts in a collaborative setting. As the leader of the MIC, Alpesh collaborates with colleagues to pursue cutting-edge insights in key topics, such as digital, design thinking and advanced analytics.

He personally leads the Digital Capability Center (DCC) in Singapore, which has 3 missions:

- Showcase how to articulate Industry 4.0 in procurement, supply chain and manufacturing on a real-life company example
- Serve as testbed for pre-pilots
- Build capabilities at scale on Industry 4.0 topics.

Alpesh is also well connected with many technology startups in the Silicon Valley, some of which are featuring at the DCC.

His client engagement experience includes:

- Outfitting productivity improvement program for an EPC in the offshore oil and gas sector, looking at streamlining interactions between design and production, activity scheduling, and shop-floor productivity
- Joint-venture partnership project for a global OEM looking for an ASEAN partner, focusing on product development, manufacturing footprint and sourcing localization
- Operations transformation program for a global container shipping company, focused on bunker saving levers, including port productivity improvement to reduce vessel turnaround time.
- Operations diagnostics for a series of gateway and domestic ports in South-East Asia

Before working for McKinsey & Company, Alpesh worked during 7 years in Italy for the Ferrari Formula One Team as Senior Aerodynamicist, developing of key areas of the F1 car and transferring know-how to the firm's road car product development division.

Alpesh holds a degree in Mechanical Engineering and a PhD in Computational Fluid Dynamics from the Université Libre de Bruxelles. He received his MBA from the University of Chicago Booth School of Business. He is a native French speaker and is fluent in English and Italian



Mr Ng Yousi

Area Sales Manager (NI Singapore)

National Instruments

Topic: NI Trend watch 2018 – Future Faster

As we advance through the 21st century, our customers demand higher quality devices, faster test times, more reliable networking and almost instantaneous computing to keep their organizations moving forward. Not only is NI prepared to help customers keep pace by exploring the trends impacting our industry, we also provide actionable insights backed with an open, software-centric platform to accelerate the development of any customer-defined test, measurement or control system.

With the release of NI Trend Watch 2018, the report examines the technological advances propelling our future faster than ever before along with some of the biggest challenges engineers face looking ahead to 2018

The talk covers 3 Mandates of IIOT and how Machine Learning puts data to work

Biography

Ng Yousi joined National Instruments in 2007, and is currently the Area Sales Manager for Singapore. Prior to this, Yousi worked as a field engineer serving key accounts, including R&D sector in Singapore. He has a deep understanding about the R&D marketing and provides them with solutions that focus on their strategic direction and core business.

You si graduated from National University of Singapore (NUS), specializing in Electrical & Computer Engineering



Ms Yvonne Lim

Business Development Manager

EOS Singapore Pte Ltd

Topic: Digital Additive Manufacturing Ecosystem — Opportunities & Challenges

Additive Manufacturing (AM) – 3D printing (3DP) – has graduated from the niches of prototyping and rapid tooling to industrial production. It is fast gaining momentum in a global manufacturing landscape racing towards digitization. For most executives exploring AM-enabled business models, the decision to do so is part of defining a wider digitization strategy. EOS being the key enabler in AM industry shares our observations of current adoption trends and our vision on how AM can be embedded in a digital manufacturing environment. Understand what are the key challenges highlighted by most adopters and what are their next steps forward.

Biography

In this role, Yvonne helps develop and promote the adoption of additive manufacturing solutions in both Aerospace and Medical industry. These customized additive manufacturing solutions target to help manufacturers' addresses common challenges seen in product development and production floor such as long production L/T and high non-recurring engineering charges associated in high mix, low volume production. In addition, through EOS consultancy arm, Additive Minds, Yvonne helps build capabilities and skills within the aerospace and medical industry in terms of process and product qualification with the certification associations.

Yvonne has extensive manufacturing experience in the fields of process control, mechanical design and consultative sales across aerospace, medical, oil & gas, semi-conductors and general manufacturing sectors.

Yvonne holds a Mechanical Engineering (Honours) degree from the Nanyang Technological University of Singapore. She majors in manufacturing processes and quality assurance.



Mr Luis Rueda

Group Manager

Nestlé

Topic: Embracing the 4th Industrial Revolution - Opportunities and Challenges for FMCG Companies

Biography

Mr. Luis Rueda is the Head of Packaging Competence Unit for Asia/Oceania markets, based in Nestlé Research & Development Centre Singapore.

He holds a Degree in Electronic Engineering from the University of Vale do Paraiba, Brazil and MBA from IBMEC Sao Paulo, Brazil.

He started her career with Nestlé in 1990, joining as a student in apprenticeship program (Nestle Technical School of Mechatronics). After graduation, in 1993, he embarked in the packaging engineering journey holding several positions in operations (Nestle Brazil) and R&D (Europe and Asia).

His domain areas of experience include Packaging Engineering, Material Science and Design with more than 25 years' experience in manufacturing (packaging process).

In 2013 Mr. Rueda had the opportunity to move to Singapore to set up the new department for Packaging Engineering and Operation, supporting all Nestle markets in Asia and Oceania. He has been instrumental to the company on the development of local Packaging talents, with strong support to operations in terms of machinery standards, technology expertise and advanced manufacturing journey.



Mr Quan Long Van

Asia GTM Engineering Associate Director

P&G Singapore

Topic: Manufacturing of the Future

We are on the cusp of revolutionizing the way P&G does Manufacturing. The eco-system in which we do business is changing at an exponential rate. The new generation of consumers are asking for personal offerings, optimized for him or her. The ultimate lot size for Manufacturing will become one. The new consumer is digitally savvy and demands 24/7 service via the channel he or she prefers – be it online or brick & mortar. Mega-cities, Less than Same Day Delivery, and Direct-to-Consumer supply streams will dramatically change how we connect with and delight Consumers. High Frequency stores, E-Commerce, and Subscription Services will alter our relationship with Customers. The Online Marketplace and E-Retailers will continue to challenge and change how P&G goes to market.

Biography

Long Quan has a Bachelor of Engineering (Chemical) and Bachelor of Arts degrees from The University of Melbourne. He joined P&G in 1998 in Kobe at the Japan Head Quarter as a technical engineer in dry laundry process for the Asia region.

Over almost 20 years career in P&G, he has taken up assignments in various countries across Asia and in Ukraine & Pakistan. He was in 3 key business units (Fabric, Oral & Shavecare) and was involved in the front end innovation of laundry technology through to leading the design, construct and start-up of 4 dry laundry & 1 shavecare manufacturing modules both brown field and green field sites.

Long is the current Asia GTM Engineering AD responsible for “Go To Market” Innovation and delivery in Asia across the domain of In-Store Shopper innovation, Manufacturing Automation & Digitisation, Supply Chain Digital Track & Track, eCom, Supply Network Modelling & Simulation and Warehousing & Trucking.



Mr Jai Samtani

Director of Consumer Products & Retail

Siemens PLM

Topic: Digitalization Drives Innovation

Digitalization changes all areas of life: The way we stay informed, the way we travel, the way we buy things and the way we manufacture products. The pace of innovation and the ability to disrupt are becoming key success factors in global competition. This increases the pressure on enterprises, no matter the industry opening up new business opportunities at the same time.

Digital Transformation in the FMCG industry is creating opportunities for organizations to innovate more rapidly and drive inefficiency out of their businesses. Those organizations that make the best use of their data assets are more competitive and can drive innovation and exploit new opportunities more quickly than their peers

We at Siemens live a holistic approach that transforms a traditional value chain into an integrated product and production lifecycle – from product design to production planning, production engineering, production execution, and service. Only a fully digitalized business model with a consistent digital thread has the power and flexibility to speed up processes and optimize production operations. This also requires a joint data storage and data management system. On top of our holistic value chain you see our cloud-based, open IoT ecosystem, MindSphere.

Biography

In his role at Siemens he is responsible for Portfolio development for the CP&R Industry within Asia Pacific.

Jai has over 17 years in enterprise software experience and has held positions in both large and small software companies.

Over the last 10 years he has worked with many global CPG companies delivering solutions that help them manage the lifecycle of a Brand and is associated products.



Mr Satoshi Emoto

Vice President

*Common Technology Infrastructure
Center, Fujitsu Limited*

Topic: Monozukuri' Process Innovation through Digital Transformation

Fujitsu has established and implemented 'Innovative Digital Place, or Co-creation Place, enabled by the leading-edge ICT design knowledge/intelligence and digital technologies, in the spaces of product development, manufacturing and repair/maintenance.

My presentation will touch on how Digital Transformation can innovates 'Monozukuri Field', through case studies of highly-secured product design platform, know-how sharing utilizing Artificial Intelligence, or AI, and smart 'Monozukuri.'

Biography

Mr. Satoshi Emoto, Vice President of Common Technology Infrastructure Center, Fujitsu, is providing technical asset for Fujitsu inside and/or outside customers, especially in the space of innovative product design, technology development and manufacturing for ICT industry.

Prior to his current role, Mr. Emoto joined Fujitsu in 1987, he has brilliant engineering backgrounds in the field of SMT, and Barechip Assembly process. In 2013, he was assigned current role.



Dr Bertil Brandin

Strategic Development Director

*Advanced Remanufacturing & Technology
Centre (ARTC)*

Topic: Introduction to Advanced Manufacturing & Technology Academy

Biography

Dr Bertil Brandin is based in Singapore. He spent over nine years in Asia developing the engineering and maintenance services business of ABB, a leading international OEM, holding various service related management positions. He implemented ABB's new service strategy across the South Asia, significantly increasing its service business. In China, Bertil started-up the outsourced maintenance businesses of ABB, winning and executing the first external outsourced maintenance contract for one of the world largest pulp and paper production lines at the time.

Bertil joined ABB in 2008 from Siemens Medical Solutions, where he held various management positions, including Business Manager Clinical Chains, European Sales, and General Manager Health Services, Italy. Previously, Bertil worked at Siemens Corporate Research in Munich, successfully leading the development of a new software verification technology.

His background is in engineering and information technology across multiple sectors including industrial automation, automated manufacturing, maintenance services, healthcare and R&D. He holds a Ph.D. in Electrical Engineering from the University of Toronto, Canada, a Bachelor degree from the University of New South Wales, Australia, and an MBA from IMD, Switzerland. He is a member of the Electrical Engineering Advisory Committee of Singapore's Ngee Ann Polytechnic Council and of the Institute of Electrical and Electronics Engineers (IEEE). He has authored over thirty-three refereed papers in international journals and conferences, and has been granted six patents.



A/P Tegoeh Tjahjowidodo

Assistant Professor

Nanyang Technological University (NTU)

Topic: NTU Advanced Manufacturing Technology Programmes

Biography

Tegoeh obtained his PhD from Katholieke Universiteit Leuven, Belgium in 2006. Formerly he obtained his master degree from Institut Teknologi Bandung, Indonesia. During his study, he was involved in a lot of researches, particularly on non-linear dynamics of friction.

He was a Senior Researcher at Flanders' MECHATRONICS Technology Center (FMTC) in Belgium, a research center bridging academic research and industrial know-how in mechatronics since 2006. In this research centre, he was involved in several projects, mainly in developing a model-based diagnosis methodology of mechatronic systems and noise reduction techniques in machineries. Tegoeh obtained his PhD from Katholieke Universiteit Leuven, Belgium in 2006. Formerly he obtained his master degree from Institut Teknologi Bandung, Indonesia. During his study, he was involved in a lot of researches, particularly on non-linear dynamics of friction.

He was a Senior Researcher at Flanders' MECHATRONICS Technology Center (FMTC) in Belgium, a research center bridging academic research and industrial know-how in mechatronics since 2006. In this research centre, he was involved in several projects, mainly in developing a model-based diagnosis methodology of mechatronic systems and noise reduction techniques in machineries.

Ms Huang Yingwen

Manager

Skillsfuture Singapore

Topic: Reskilling & Upskilling for Advanced Manufacturing

(SSG) is a statutory board under the Ministry of Education (MOE). It will drive and coordinate the implementation of the national SkillsFuture movement, promote a culture and holistic system of lifelong learning through the pursuit of skills mastery, and strengthen the ecosystem of quality education and training in Singapore.

This presentation is on SSG's interventions for Advanced Manufacturing.



Mr David Chai

Centre Director, Technology Development
Centre

Singapore Polytechnic (SP)

Topic: Development of Training Extension Programme

In today's tight labour market, enterprises demand that any form of training needs to be tied to business outcomes and training episodes need to be effective and realistic enough to allow the potential worker to immediately contribute towards the enterprises' bottom line.

SP as part of its innovative pedagogical offering to enhance the student learning experience for both PET and CET students, has adopted the Pedagogy for the Profession Framework to train students to think, behave and act like a professional in their field of study.

This talk unpacks SP's approach on what is needed to develop training packages based on the framework, as well as how we work with industry partners to make it effective.

Biography

David heads the Technology Development Centre at SP, and is responsible for managing research grants and technology transfer activities across the campus. He works closely with the faculty to identify opportunities for partnerships and collaborative projects.

Prior to SP, David was with the Singapore University of Technology and Design (SUTD) taking care of industry engagement. He was also with Vestas Technology R&D, a manufacturer of utility-scale wind turbines. As part of the Global Research team, he facilitated research partnerships in Asia.

After graduating with a First Class Honours in Mechanical Engineering from the National University of Singapore in 2001, David started out as an engineer with Micron Semiconductor Asia. Subsequently, he joined the Agency for Science, Technology and Research (A*STAR) where he coordinated international R&D promotion efforts targeted at growing private-sector R&D activities in Singapore.

In 2013 Mr. Rueda had the opportunity to move to Singapore to set up the new department for Packaging Engineering and Operation, supporting all Nestle markets in Asia and Oceania. He has been instrumental to the company on the development of local Packaging talents, with strong support to operations in terms of machinery standards, technology expertise and advanced manufacturing journey.

SME Power Hour Speakers



Mr Lee Dong Hee

Vice President, Business Development
SuaLab (JM Vistec)

Topic: Deep-Learning Solution for Industry 4.0

The introduction of deep-learning algorithms has opened up countless opportunities & applications, bringing automation into a whole new level.

JM Vistec System has invited the VP of SuaLab, Mr Lee Dong Hee, to share more about how deep-learning solution can be implemented towards industry 4.0.

SuaLab is the recipient of 2017 Innovators Awards Platinum-level honoree awarded by Vision Systems Design.

Biography

Mr Lee Dong Hee, the Vice President of SuaLab, is actively involved in expanding the use of deep-learning solution for industry 4.0 in and out of South Korea.

He graduated from Seoul National University, major in Business Administration and worked at the Strategic Planning Office of Doosan Corporation (Tri-C) before assimilating his current assignment.



Ms Sally Chuen

Applications and Sales Manager

Creatz3D Pte Ltd

Topic: Empowering Product Development Process with 3D Printing

Learn about the different types of 3D Printing technologies and how it redefine the work process during the development to production stage through proven industry adoption.

Biography

Sally joined Creatz3D in 2012 and is one of the pioneers of the company. Being the Sales Manager, she is responsible for creating and managing the sales team that brings in steady revenue to the company. Furthermore, she also created and oversees the applications team as well. With her in-depth product knowledge on 3D printers and its applications, she is able to manage both teams concurrently and find the balance between both teams to benefit from her expertise.

With 10 years of experience in the manufacturing industry and understanding of the market, Sally knows the needs of her customers and how 3D printing will be able to improve their work process and meet that need.

Sally also holds a Bachelor's degree in Business Administration from the University of South Australia and a Diploma in Chemical Process Technology from Singapore Polytechnic, all of which contributes to the excellence in the work she does.



Mr Chua Choon Beng

Business Development Director

M8M Pte Ltd

Topic: Transforming Business Processes With The Industrial 4.0 Approach

The cost in Singapore for the past 15yrs have been increasing relatively to that of its neighbour countries, in order to maintain competitiveness, so as to sustain operation in Singapore, process automation is something that was carried out in M8M.

The presentation is a sharing of what M8M did to adapt the concept of Industrial 4.0 in its design engineering process, that automates the traditional engineering process using software and as a result shortens the project life cycle and improve customer's engagement and visibilities.

Biography

Choon Beng has a Bachelor's Degree in Electronics & Electrical Engineering with more than 15 years of experience with control system engineering. Presently he is working as business development director at M8M Pte Ltd, Singapore.

He has been involved in development work for Intralogistics System that is used in Changi T1, T2, T3, Beijing International Airport, Dubai International Airport, etc.



Mr Michael Oxborrow

CEO

ACP Metal Finishing Pte Ltd

Topic: Future of Surface Finishing: Rethinking Mature Processes in the era of Digitalisation

Conventional processes like anodising and electroplating have been practised since the 1800s. Providing such processes as a premium service to the industry demands a high mix low volume environment. In such an environment, there is a labour dependency. As Singapore moves towards higher skilled labour industries, this calls for companies like ACP to move towards digitalisation and automation. What will the future of Surface Finishing look like in the vision that is Industry 4.0?

Biography

Trained for 5 years as an indentured apprentice in mechanical engineering – working specifically on steam and hydro turbine and diesel engines.

After training, moved to Sabah, Malaysia to sell saw-milling, earth moving equipment and a range of electrical, mechanical and civil engineering products to plantation/logging companies. Became MD of the Borneo Company (part of Inchcape Group) in Kuala Lumpur, Malaysia. Thereafter joined Singapore publicly listed Van der Horst as CEO providing chrome and nickel electroplating services to the marine and oil/gas sector.

Invested in ACP in 1999 providing electroplating services to a wide range of sectors in Singapore and the ASEAN region.

Members' Display

Fujitsu Smart Factory Solutions

Fujitsu Asia Pte Ltd

Engineering Cloud Orchestrator:

A next-generation manufacturing environment offered in the form of cloud-based services from Fujitsu's datacenters. The Engineering Cloud will support the manufacturing sector with a combination of Fujitsu's own engineering-support software — CAD and analytic software, as well as parts & physical properties database, HPC gateway — with a suite of new services to transform the manufacturing process.



Ubiquitousware Head Mounted Display:

The Fujitsu Head Mounted Display is the perfect partner for augmented reality environments delivering hands-free ease of use to enhance remote support, maintenance and training through the robust industry-focused design. It consists of an adjustable non-see-through display positioned in front of either eye, wearable keyboard, integrated camera and voice control/command.

Digitalisation for Food & Beverage

Siemens Industry Software Pte Ltd

New business drivers are forcing the Food & Beverage Industry to rebuild and rethink every element of the business. To survive and be successful in this revolution, companies need to leverage the advantages of innovation and digitalization to turn the challenge into tangible results, for example:

- How Digitalization is changing everything and how this is impacting F&B industry and your business
- How you can take advantage of the speed, flexibility, efficiency and increased quality by adopting a digitalization strategy
- Realizing the benefits of the Digital Twin of your Value Chain
- Understand the factors driving businesses towards more control of their value chain, achieving sustainability and adopting best practices in order to meet regulations and the demands of the consumers

Meet us at the Siemens booth to find out more.

Ultimate Valve

Abrasive Engineering Pte Ltd



Ultimate Valve is a flow rate control valve for steel shot and cut wire for peeing and blasting machines.

When connected to FlowMaster, the configuration of the Ultimate Valve can be retrieved and manipulated by the users for their desired applications.

Ultimate Valve complies with SAE AMS 2430, AMS 2432 and other technical requirements.

Virtual commissioning of Robotics solutions

ABB Pte Ltd

Reduce product cycles, shorten changeover and launch times through off-line programming and virtual commissioning

Model Factory in a box

Mckinsey & Company

MFIB is a portable, table top model factory that actually produces a product, here participants play the role of operators to learn about process optimization.

It is delivered in a series of modules where participants experience the frustration of a bad current state, and then are guided through a series of hands on exercises to improve the production system

Sick Building Syndrome

AmpTec Industrial Heating Pte Ltd

AmpTec Industrial is a provider of Sick Building Syndrome (SBS) solutions in Singapore.

SBS refers to situations in which occupants in a building experience acute health problems and general discomfort that appear to be linked to time spent in the building. Poor indoor air quality is one of the main factors contributing to SBS conditions.

AmpTec is committed to providing SBS solutions that aim to achieve optimum indoor air quality and resolve SBS conditions in occupants working in commercial and industrial buildings across Singapore.

Focused on ducts cleaning, our synergistic blend of SBS solutions encompassing steam cleaning and dry ice blasting work in tandem to effectively and thoroughly clean and maintain aircon ducts and HVAC systems. Our partners are established cleaning technology providers from South Korea, Europe, and the United States.

AmpTec also provides a suite of industrial and commercial cleaning solutions for manufacturing operations and building maintenance in industries such as healthcare, food & beverage, hospitality, and aerospace among others. www.amptec.com.sg

Sensor data Acquisition and Analytics at the edge

National Instruments (S) Pte. Ltd.

Optimize the Things That Matter Most With INDUSTRIAL IoT SYSTEMS


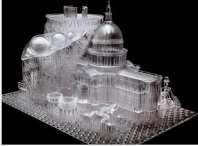















Three NI CompactRIOs are used as the edge devices for acquiring the real time data from more than 50 sensors from the NTX 1000. The data acquisition is triggered by the PLC of the NTX 1000 and synchronized through NTP. Different features are extracted from the raw data such as the FFT, RMS values and both the raw data and the extracted features will then be published through OPC UA. The acquired data and features will be used for developing predictive maintenance and yield optimization algorithms in the future.

To Be Implemented: Edge Analytics, Predictive Maintenance, Time-sensitive network (TSN).

Materialise Magics 3D Print Suite

Materialise Sdn Bhd

Create the best designs for 3D Printing	Prepare your files for 3D Printing	Get the most out of your 3D printing machine	Manage your AM production process
			
 Materialise 3-matic Design Optimization	 Materialise Magics Data Preparation	 Materialise Build Processor Machine Communication	 Materialise Streamics Production Management
	 Materialise Magics Reporting Quotes and Measurements	 Materialise Control Platform Machine Control and Steering	 Materialise Robot Workflow Automation
	 Materialise MiniMagics Free File Viewer	 Materialise Inspector Quality and Process Control	 Materialise Cloud Workflow Automation
	 Materialise e-Stage Automatic Support Generation		

The Complete Software Suite for Professional 3D Printing

The Materialise Magics 3D Print Suite is the software backbone for all businesses and industries that need professional 3D Printing. Whether you need support or automation in your 3D printing process, the Materialise Magics 3D Print Suite offers a wide range of software suited to your business and industry.

XRF, Product Inspection & 3D visualisation software

Accumet Instruments Pte Ltd

XRF

Powered by a proprietary 5W x-ray tube, the Niton XL5 generates fast and accurate results. By optimizing the space between the x-ray detector and sample, the Niton XL5 guarantees the lowest limits of detection ensuring that you receive lab quality results every time. Identify alloys, detect tramp elements, analyze precious metals, and determine coating weight and plating thickness.

Product Inspection

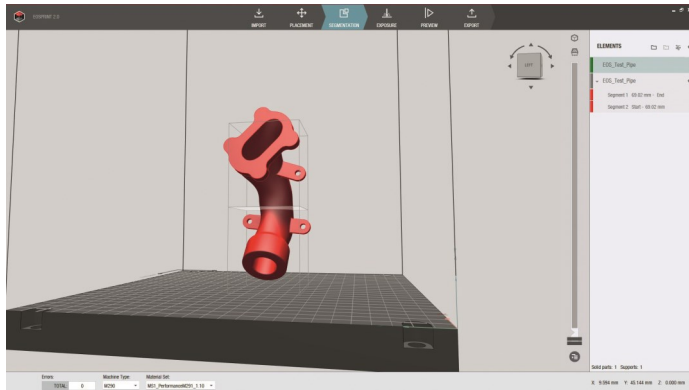
Thermo Scientific™ product inspection solutions have been helping companies protect the safety and quality of their packaged/unpackaged products. From the consistent accuracy of our checkweighers, to the sensitivity of our metal detectors, to the detection performance of our X-ray systems, our solutions are proven effective and expertly tailored to your application.

3D Visualisation Software

Avizo Software is an advanced application for exploring and understanding materials structures and properties. From straightforward visualization and measurement to advanced image processing, quantification, analysis and reporting, Avizo provides advanced solutions for materials characterization (porosity, fiber, deformation and physical properties analysis) and defect analysis (voids, inclusions, cracks...)

EOSPRINT 2, EOS AM parts

EOS Singapore Pte Ltd



Demonstration on EOS new software EOSPRINT 2:

EOSPRINT 2 is EOS new job and management software. It has a workflow-based user interface reflecting the AM CAM process that makes it intuitive and quick to learn. The Open EOS ParameterEditor module allows even greater freedom for application-specific parameter optimization. The new exposure patterns and parameters enable unseen part quality at lowest cost per part. And productivity is enabled with the new plane segmentation and significantly increases speed. An easy and safe part production with the automatic geometry and position-driven dosage quantity of material. It is prepared for full integration into automated workflows for the digital future.

EOSPRINT 2 is intuitive, open and productive with proven EOS quality.

EOS printed AM parts:

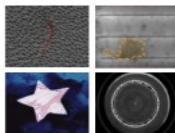
The exhibits will demonstrate the AM capability and application in the different industries namely, aerospace, medical, tooling, automotive and industry.

SuaKit A.I. Machine Learning Software & MU3 MUNOS 3D Profilometer

JM Vistec



Limitations in existing machine vision inspections



Unable to analyze complicated images

- When the images are irregular and atypical, setting the feature value of a deflection manually is difficult.
- This leads to a low accuracy rate of the machine vision and many companies rely on human vision for the inspection procedures.

Too much expense in optimization

- Frequent model changes with many different products leads to expenses in programming for optimization, every single time.

SUALAB's innovation in deep learning solution



Image learning for adequate/defective products

- Deep Learning algorithm is taught by collecting a few adequate product images and defective product images (With defect area indication).

No need for programming (Self-learning)

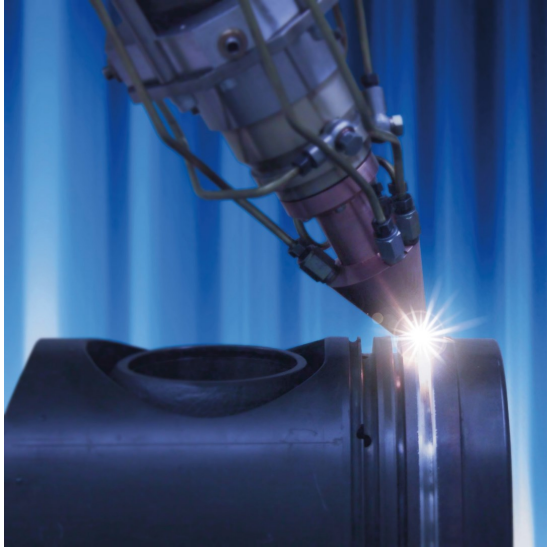
- Unlike the existing machine vision method, the Deep Learning method finds the feature value of defects on its own.
- When its self-learning is complete, the defects are found and categorized in high accuracy and speed from the input images.

SuaKIT, a deep learning-based machine vision inspection software. SuaKIT is a library based on actual image data generated from various industrial sites which has the primary functions of segmentation and classification. When the software's deep learning algorithm is taught new images of normal and defective products — at a speed of up to 1,000 2,048 x 2,048 images in 30 minutes — a neural network is used to autonomously identify the values for defects.

Even users without significant coding experience can use the software, as it does not require instance-by-instance coding, but works through self-learning by gathering and entering data on defects, according to the company. SuaKIT is also designed so that, through CUDA (Compute Unified Device Architecture) technology, data can be processed at high speed through a high-performance GPU.

Laser Cladding samples

Laser Cladding Singapore Pte Ltd



Laser Cladding Singapore provides remanufacturing solutions to worn out or damaged mechanical parts and components in various heavy industries such as marine, oil and gas, mining, power generation or other sectors. Laser cladding is a cost and time saving alternative to purchasing new spare parts. Learn more at our booth.

Disrupt the \$12 trillion manufacturing market with Multi Jet Fusion (MJF) 3D printing process

Eye-2-Eye Communications Pte Ltd



Lower operating costs and Increased volume production capabilities, raising the breakeven point for large-scale manufacturing to 110,000 parts versus injection moulding compared to the 1,000s of parts with current Additive Manufacturing technologies

BMW, Nike, Jaguar, Materialise are example companies that are embracing this Technology

ARTC Exhibition & Displays

Station No.	Demo Station	Demonstration
1	Outside Additive Manufacturing Workshop	Gearbox story (Dry demo)
2	Virtual Manufacturing Lab	Virtual Assembly
3	Inside Industrial Additive Manufacturing Facility (IAMF)	Powder Characterization Capability (Live Demo)
4	Plasma Giken PCS-1000	Pipe cladding using Cold Spray
5	Dry Cell	Adaptive weld removal, with integrated vision
6	Wet Cell	VR based robot path generation
7	Hybrid cell	Deburring with auto tool change
8	Cobot area	Collaborative robots for Industrial application
9	Robotic Area (UR5 Robot)	Soft Gripper
10	Robotic Area (Kuka iiwa Robot)	PackML (ROS)

Station No.	Demo Station	Demonstration
11	Robotic Area	Mobile manipulation
12	Robotic Area (UR10 Robot)	Scan & Plan (ROS)
13	NDT Lab (Inspection Area)	Intelligent borescope inspection solution
14	NDT Lab (NDT area)	NDT real-time high resolution ultrasonic array imaging
15	LMD Trumpf	Free Form Fabrication using LMD
16	Robotised Mass Media Finishing	Robotized mass flow finishing of additively-manufactured nozzle gas vane
17	Abrasive Flow Machine	Abrasive flow machining of additively-manufactured components
18	Robotic Shot Peening	Nozzle design from CFD simulation work
19	NTX 1000	Intelligent Machining Sensors and data display
20	DMU 160	On Machine Scanning

Station No.	Demo Station	Demonstration
21	Shop floor (SL603 machine)	Active damping demo for hard turning
22	Lean Assembly Line	Industry 4.0 Technology demonstration
23	Shop floor (NTX1000 machine)	AR self-guided maintenance & remote assistance
24	Plasma Giken PCS-1000	Pipe cladding using Cold Spray
25	Dry Cell	Adaptive weld removal, with integrated vision
26	Wet Cell	VR based robot path generation
27	Hybrid cell	Deburring with auto tool change
28	Cobot area	Collaborative robots for Industrial application
29	Robotic Area (UR5 Robot)	Soft Gripper
30	Robotic Area (Kuka iiwa Robot)	PackML (ROS)

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<https://artcevents.wixsite.com/aiw2017>

Or

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