

HP-NTU Corporate Lab showcases R&D innovations

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Researchers from HP Inc. and Nanyang Technological University, Singapore (NTU Singapore) in the HP-NTU Digital Manufacturing Corporate Lab showed digital manufacturing technologies set to make manufacturing and supply chain operations more efficient, cost-effective and sustainable.

Among them are intelligent design software tools that automate customization, as well as supply chain models that enable faster time to market while lowering carbon footprint.

The lab also unveiled a skills development program to help Singapore train in additive manufacturing and digital design – from fundamentals of additive manufacturing and digital product designs to data management and automation, under the SkillsFuture program.

With the intelligent design software tools under development by the lab, engineers can customize their materials' mechanical properties more effectively. The automated tools let designers achieve designs that have the best combination of properties to achieve the desired strength, flexibility, and weight.

Mass customization requires a state-of-the-art supply chain design for digital factories. With advanced business models and analytics to model supply chains, manufacturers will be able to decrease the time required to identify parts suitable for 3D printing production as well as to measure the impact on carbon footprint.

As a result, manufacturers will be able to scale production of customized goods during periods of high demand and reduce time to market while improving sustainability.

These proofs-of-concept and technology demonstrations were showcased at the official opening of the HP-NTU Digital Manufacturing Corporate Lab. The event was also part of HP's 50th Anniversary celebration of its presence in Singapore. HP started with a small assembly factory in Singapore in 1970. Today's HP's Singapore footprint includes its Greater Asia region headquarters, global supply chain control towers, print R&D centres of excellence, as well as manufacturing facilities.

The research partnership between NTU Singapore, HP Inc. and the National Research Foundation Singapore (NRF), was first announced in October 2018.

NTU Senior Vice President (Research) Professor Lam Khin Yong said, "The advanced technologies and automation solutions jointly developed by NTU and HP are expected to impact businesses in Singapore and beyond, as these innovations are geared towards efficiency, productivity and most importantly, sustainability.

"Over the last year, we are able to see the first fruits of the collaboration, which combines NTU's deep capabilities in machine learning, data science, AI and additive manufacturing, with HP's expertise in innovation and technology solutions. Technologies developed at the Corporate Lab can then be test-bedded on the NTU Smart Campus, a microcosm of an urban city.

"The new SkillsFuture courses developed jointly with HP also bring valuable industrial perspectives to help upskill and train a critical talent pool for Singapore. This will support the country's drive towards becoming a smart nation as it faces the challenges of the 4th Industrial Revolution."

The Corporate Lab aims to train some 120 working professionals per year through the new skills development program, which includes the fundamentals of Additive Manufacturing, digital product designs, data management,

automation, user experience and business models.