

NEWSLETTER

CHANGING THE WORLD THROUGH ADDITIVE MANUFACTURING



Professor Paulo Bartolo
Executive Director

MESSAGE

The second quarter of 2026 marked another period of dynamic international engagement for the Singapore Centre for 3D Printing. A highlight was the successful organisation of the 2nd Singapore-Portugal Research and Innovation Week, held with the valued support of the Portuguese Embassy in Singapore and the Portuguese Trade and Investment Agency. The event brought together leaders from academia and industry and was honoured by the presence of the President of COMPETE 2030. During the week we formalised research collaboration agreements with the University of Coimbra, Polytechnic of Leiria, Instituto Pedro Nunes and Institute of Polymers and Composites, further strengthening the scientific and technological bridges between Singapore and Portugal.

We were also privileged to host His Excellency the Ambassador of Mexico to Singapore and a high-level delegation from the United Nations Office of Counter-Terrorism. We also received insightful visits from Professor Ric Parker and Professor William O'Neil, and many industrial guests including a large delegation from the Industrial Research Council of the Royal Swedish Academy of Engineering Sciences. Of particular importance was the signing of an important research collaboration agreement with Leistriz AG, opening new avenues for advanced materials processing and additive manufacturing innovation.

Moreover the three patents, five technical disclosures and around 30 papers published in leading journals confirm the quality of our research. New projects were launched with the National Dental Centre Singapore and the Institute for Technological Research in Brazil, expanding our impact in healthcare and advanced manufacturing.

These achievements reaffirm SC3DP's role as a vibrant hub for research excellence, international partnership, and industrial translation.

HIGHLIGHTS

**Singapore - Portugal
Research and Innovation
Week (22 - 26 June)**

**H. E. The Ambassador of
Mexico to Singapore
Visits SC3DP**



**New Research Collaboration
Agreement with Leistriz**



**SC3DP Welcomes UNOCT
Delegation**

**Reinventing Construction
with 3D Printing
Technology**



2nd Singapore-Portugal Research and Innovation Week

The **2nd Singapore-Portugal Research and Innovation Week**, organised by the Singapore Centre for 3D Printing (SC3DP) at Nanyang Technological University, Singapore, with the support of the Portuguese Embassy in Singapore and the Portuguese Trade and Investment Agency (AICEP) Singapore, took place from 22 to 26 June 2026. The initiative, which was first organised by SC3DP in June 2025, aimed to bring together leading Portuguese academic, scientific, and industry organisations in Singapore to explore opportunities for research collaboration and strategic partnerships. The inaugural event resulted in the signing of a Memorandum of Understanding (MoU) with the University of Porto, a Research Collaboration Agreement with the Faculty of Engineering of the University of Porto, and the submission of a proposal to the Singapore Research Attachment Programme (SRAP), which was subsequently approved by A*STAR in January 2026.

This year, the event brought together nearly 30 representatives from leading Portuguese organisations such as **COMPETE 2030** (<https://compete2030.gov.pt/en/home/>), the **University of Aveiro** (<https://www.ua.pt>), **University of Algarve** (<https://www.ualg.pt/en>), **University of Coimbra** (<https://www.uc.pt/en/>), **University of Minho** (<https://www.uminho.pt/EN>), **Faculty of Engineering of the University of Porto** (<https://www.up.pt/portal/en/feud/>), **Instituto Superior Tecnico** (<https://tecnico.ulisboa.pt/en/>) and **Lisbon School of Architecture** (<https://www.fa.ulisboa.pt/index.php/en/>) both at the **University of Lisbon** (<https://www.ulisboa.pt/en>), **Polytechnic of Leiria** (<https://www.ipleiria.pt/en/>), **Instituto Pedro Nunes** (<https://www.ipn.pt/en/>), **CENTIMFE – Technological Centre for the Mouldmaking, Special Tooling and Plastic Industries** (<https://www.centimfe.com/en-home.html>), and the industrial companies **Erofió Group** (<https://www.erofio.pt>) and **Durit Group** (<https://grupodurit.pt/en/>).

The Portuguese delegation participated in an intensive five-day programme at Nanyang Technological University, Singapore, beginning with welcome addresses by **H.E. the Portuguese Ambassador to Singapore, Dr Carlos Pires**, and the **Executive Director of SC3DP, Professor Paulo Bartolo**, followed by a guided tour of SC3DP's laboratories.

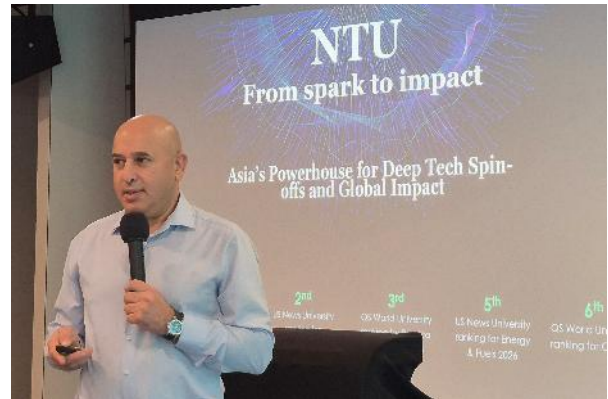


On the first two days, the Portuguese delegation visited several industrial partners including **Addept3D** (<https://www.addept3d.com>), **ELH Tech** (<https://elh3d.com>), **Mencast Holdings Ltd** (<https://www.mencast.com.sg>), and the **Hyundai Motor Group Innovation Center Singapore** (HMGICS, <https://www.hyundai.com/sg/home>), to gain insights into Singapore's advanced manufacturing ecosystem and explore industrial activities in advanced materials, automation, additive manufacturing, robotics, and virtual reality technology and applications.

The third day commenced with opening addresses by **H.E. the Portuguese Ambassador of Portugal to Singapore, Dr. Carlos Pires**, and **NTU's Associate Vice President (Strategy & Partnerships), Professor Lam Kwok Yan**, focused on identifying opportunities for research and industrial collaborations and comprised the following presentations:

- **“Deep Tech Innovation in Singapore”**, Dr. Lim Jui (CEO, SGInnovate)
- **“NTUitive and the Innovation Ecosystem at NTU”**, Dr David Shem Tov (Associate Vice President (Technology Transfer), NTU)
- **“Research, Innovation and Enterprise in the New Age of AI”**, Mr Douglas Foo PBM BBM (Founder & Chairman of Sakae Holdings Ltd., and Non-resident High Commissioner to United Republic of Tanzania)
- **“The National Additive Manufacturing Innovation Cluster (NAMIC)”**, Dr Ho Chaw Sing (CEO of NAMIC)
- **“Driving Cooperation, Innovation, Competitiveness and International Partnerships – Opportunities”**, Dr Alexandra Vilela (President, COMPETE 2030)
- **“Portugal Across Borders: An Inside Look into AICEP's Role in Singapore”**, Dr Rita Sansana (Director of AICEP in Singapore)





The third day of the 2nd Singapore-Portugal Research and Innovation Week featured the public announcement of the “FEUP-SC3DP Advanced Doctoral Program in Additive Manufacturing Processes and Technologies” established in collaboration with the Faculty of Engineering of the University of Porto (FEUP). The different project’s PI from Singapore and Portugal presented the six initial projects, while three students, joining live from Portugal, shared their motivation for participating in this programme. The significance of the initiative for both FEUP and the Singapore Centre for 3D Printing (SC3DP) was highlighted by both **Professor Rui Calçada**, Director of FEUP, and **Professor Paulo Bartolo**, Executive Director of SC3DP, **Professor António Pontes** (University of Minho), **Dr Nuno Fidelis** (CENTIMFE), **Dr Rui Tocha** (CENTIMFE) and **Eng Pedro Lourenço** (EROFIO Group) presented the Innovation in Additive Manufacturing (Innov.AM).

Key achievements and research outcomes of the CENTIMFE-SC3DP Research Innovation and Development Lab were presented by **Dr Rui Tocha** (CENTIMFE) and **Dr Mehmet Cagirci** (SC3DP). Moreover, **Professor Elsa Henriques** (Instituto Superior Tecnico) and **Dr Nuno Silva** (DURIT Group) also presented the outcomes of two projects funded by the Portuguese Government, highlighting advances in sustainable manufacturing, advanced materials, and manufacturing technologies for the automotive sector. The programme concluded with a presentation titled “Developing Portuguese Language Studies at NTU: Pathways and Challenges”, delivered by **Ms Estelle Bech** and **Mr Jean Francois Noel Ghesquiere**, Director of the Centre for Modern Languages, NTU.



On the fourth day, the Portuguese delegation participated in the **“Bridging Portugal and Singapore Through Innovation and Entrepreneurship”**, organised by **AICEP Portugal Global Singapore**, dedicated to strengthen the innovation and entrepreneurship ecosystems of Portugal and Singapore. The event took place at the ACE.SG (Action Community for Entrepreneurship, <https://ace.sg>). In parallel, they were also able to visit the Nanyang Environment & Water Research Institute (NEWRI, <https://www.ntu.edu.sg/newri>), the Singapore Centre for Environmental Life Sciences Engineering (SCELSE, <https://scelse.sg>), the Air Traffic Management Research Institute (<https://www.ntu.edu.sg/atmri>), the Facility for Analysis, Characterisation, Testing and Simulation (FACTS, <https://www.ntu.edu.sg/facts>), at Nanyang Technological University, Singapore, and the Singapore Institute of Technology (SIT, <https://www.singaporetech.edu.sg>), where the delegation explored SIT’s Innovation-as-a-Service (IaaS) model and how it translates innovative ideas into industry-ready solutions.



A key highlight of the 2nd Singapore-Portugal Research and Innovation Week was the signing of strategic Research Collaboration Agreements between the Singapore Centre for 3D Printing (SC3DP) and the **University of Coimbra, Polytechnic of Leiria, Institute of Polymers and Composites of the University of Minho and Instituto Pedro Nunes**. These collaborations strengthen industry-academia partnerships and address challenges in strategically important sectors, including tooling and high-precision manufacturing, construction, aerospace, automotive, and healthcare. These sectors are critical to driving innovation, enhancing competitiveness, and advancing sustainability and resilience.



Media Coverage of the Research Collaboration Agreement Signings

Online:

- **Beira Digital** <https://beiradigitaltv.pt/universidade-de-leiria-e-oeste-reforca-internacionalizacao-com-acordo-cientifico-em-singapura/>
- **Diário de Leiria** <https://www.diarioleiria.pt/2026/07/06/universidade-de-leiria-e-oeste-reforca-estrategia-com-acordo-de-investigacao-em-singapura/>
- **Jornal de Leiria** <https://www.jornaldeleiria.pt/noticia/universidade-de-leiria-e-oeste-assina-acordo-de-investigacao-com-singapura>
- **Diário de Coimbra** <https://www.diariocoimbra.pt/2026/06/22/uc-celebra-acordo-estrategico-com-congenere-de-singapura/>
- **Notícias de Coimbra** https://www.noticiasdecoimbra.pt/universidade-de-coimbra-reforca-presenca-internacional-ao-celebrar-acordo-estrategico-com-congenere-de-singapura/#google_vignette

Radio:

- **91 FM** <https://91fm.pt/nova-universidade-de-leiria-e-oeste-reforca-estrategia-internacional-com-acordo-de-investigacao-em-singapura/>
- **Cister FM** <https://cister.fm/nova-universidade-de-leiria-e-oeste-reforca-estrategia-internacional-com-acordo-de-investigacao-em-singapura/>
- **Rádio Foz do Mondego** <https://rfmondego.pt/universidade-de-coimbra-estabelece-parceria-de-investigacao-com-universidade-de-singapura/>

H. E. The Ambassador of Mexico to Singapore Visits SC3DP



On 5 May, the Singapore Centre for 3D Printing (SC3DP) had the honour of welcoming **H.E. Dr Agustín García-López Loeza, Ambassador of Mexico to Singapore**, accompanied by **Dr Steven Milon Esparza** (Cultural, Education, Tourism and Cooperation, Embassy of Mexico in Singapore) and **Dr Mario Calderon** (Economic and Trade Commissioner, Embassy of Mexico in Singapore). The visit provided an opportunity to showcase SC3DP's research capabilities, key laboratories, ongoing research projects, and collaborations with Mexican institutions. Discussions also explored future initiatives and potential areas of collaboration to further strengthen research and innovation partnerships between SC3DP and Mexico.

This visit followed an earlier meeting held at SC3DP on 24 April, where Dr Steven Milon Esparza and Dr Mario Calderon met with a delegation from Tecnológico de Monterrey including **Professors Alex Elías Zúñiga, Oscar Martinez Romero, Daniel Olvera Trejo, and Dr Jorge Estrada**. The meeting focused on ongoing research collaborations between SC3DP and Tecnológico de Monterrey, as well as plans to establish a major partnership in the state of Nuevo León, a leading industrial hub with more than 800 companies adopting additive manufacturing across the aerospace, automotive, medical devices, electronics, and energy sectors.

The meeting marked an important step towards establishing a Research Collaboration Agreement between SC3DP and Tecnológico de Monterrey, which both parties look forward to formalising in the near future. The visit also included a workshop to enhance mutual understanding of the research capabilities and expertise of both SC3DP and Tecnológico de Monterrey.



Advancing Collaborative Innovation in Additive Manufacturing: SC3DP Welcomes UNOCT Delegation



On 30 April, SC3DP hosted a high-level delegation from the United Nations Office of Counter-Terrorism (UNOCT), led by **Dr Guadalupe Megre Pires** (Director), **Dr Kalil Otmane** and **Dr Arturo Ojeda Demaria**. The delegation met with SC3DP's Executive Director **Professor Paulo Bartolo**, who presented SC3DP's initiative. **Professor James Wang** subsequently presented his groundbreaking research on **eVTOL** (electric vertical take-off and landing) system, followed by a visit to SC3DP's laboratories. The visit marked an important step towards fostering international partnerships in advanced manufacturing technologies, with discussions focusing on potential collaborations that leverage additive manufacturing to address global security and innovation challenges.

The United Nations Office of Counter-Terrorism (UNOCT) is a key office within the United Nations (UN) Secretariat, that provides leadership, coordination, and capacity-building support to Member States through technical assistance, training, policy guidance, and resource mobilisation.

Professor Ric Parker Visits SC3DP



On 20 April, the Singapore Centre for 3D Printing (SC3DP) welcomed **Professor Ric Parker**, Special Advisor to A*STAR; Chairman of the Singapore Aerospace Programme; Chairman of the National Low Carbon Energy Research Programme, Technical Committee; and Chairman of the Technology Centre for Offshore and Marine, Singapore, Scientific Advisory Board. During the visit, Professor Paulo Bartolo, introduced the Centre's research capabilities, with a particular focus on aerospace, highlighting its technical expertise, ongoing research activities, and industry partnerships. The programme also included a tour of SC3DP's laboratories. The visit provided an excellent opportunity for Professor Ric Parker to gain a deeper understanding of SC3DP's strengths and expertise in aerospace research and advanced manufacturing.

Strengthening Research Networks with the University of Cambridge

On 24 April, the Singapore Centre for 3D Printing (SC3DP) was honoured to welcome **Professor William (Bill) O'Neill FEng** from the University of Cambridge on his first visit to the Centre. Professor O'Neill is the Director of the Centre for Industrial Photonics at the University of Cambridge and is internationally recognised for his expertise in laser-matter interactions, optical engineering, laser-based manufacturing technologies, and micro- and nanofabrication. SC3DP looks forward to strengthening its partnership with the University of Cambridge and advancing impactful research and innovation together.



ATLANT 3D Visited SC3DP



As part of its continuous efforts to expand its global network in advanced manufacturing, SC3DP welcomed a delegation from ATLANT 3D, comprising **Dr Maksym Plakhotnyuk** (CEO and Founder of ATLANT 3D), **Dr Bonnie Tsim** (Vice President, Commercial Strategy and Partnerships), and **Mr Lim Chong Lin** (Link Fab Technologies). The visit focused on exploring potential research collaborations and opportunities for future partnership.

ATLANT 3D is a deep-tech company enabling AI-driven advanced materials innovation through atomic-scale manufacturing technology. Its proprietary Direct Atomic Layer Processing (DALP®) technology enables precise and programmable materials synthesis for Optics, Photonics, MEMS/Sensors, Microfluidics, Radio Frequency (RF), and Printed Electronics.

Building Future Partnerships: Obayashi Singapore Visited SC3DP



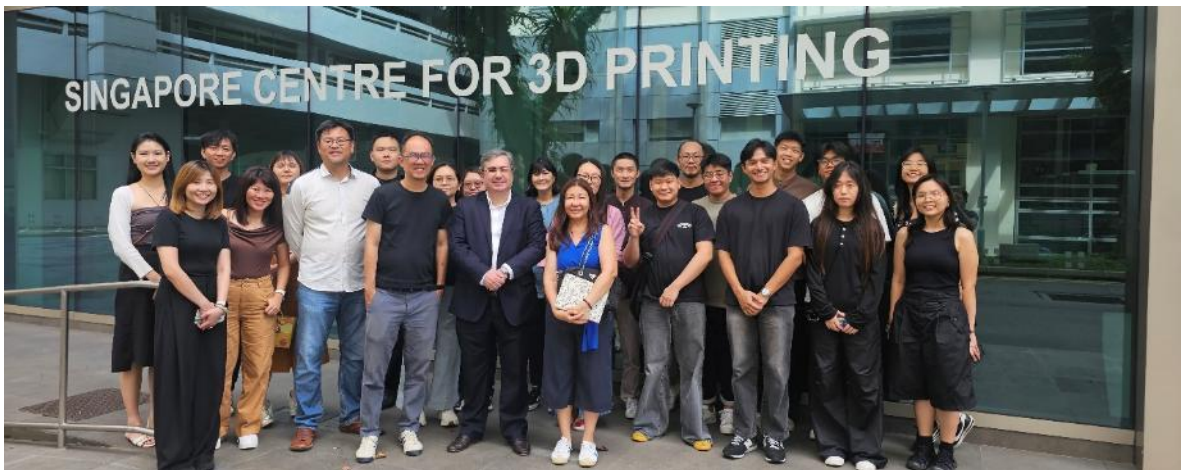
The Obayashi Singapore team and Mr **Hajime Onojima**, Executive Officer of the Technology Division, Obayashi Corporation, visited SC3DP to discuss the progress of our current project, new research collaboration opportunities, and mechanisms to strengthen our partnership.

Permanent Collection Textile at Victoria & Albert Museum (V&A)



On 25 May, the **Victoria and Albert Museum (V&A)** acquired three material samples, developed through research conducted by the UKRI Interdisciplinary Textiles Circularity Centre (TCC), for inclusion in its permanent collections. The samples, produced by **Professor Paulo Bartolo, Dr Cian Vyas and Dr Evangelos Daskalakis**, showcase the use of advanced 3D printing technology to deposit bio-waste-derived bacterial cellulose onto textiles, enhancing durability and extending product lifespan. The research explored how bio-based circular materials can support textile repair, reinforcement and reuse through innovative circular design and advanced manufacturing approaches.

Freight Architects Visit SC3DP



On 26 May, SC3DP hosted a large group of architects and engineers from Freight Architects. The meeting began with an overview of SC3DP research activities, focusing on building and construction, followed by a visit to relevant laboratories. Major discussion evolves around 3D printing for complex metal parts, large plastic parts, wood panels and smart materials solutions.

Freight Architects is a collaborative office based in Singapore, dedicated to creating meaningful and interesting spaces, buildings, objects and master plans creating a positive social impact.

SC3DP Welcomed the Executive Director of NERLEI



On 5 June, SC3DP welcomed a delegation from **NERLEI (Business Association of the Leiria Region - Chamber of Commerce and Industry)**, Portugal, comprising its Executive Director, **Professor Henrique Carvalho**, and **Dr Petra Moleiro**. NERLEI is a cross-sectorial business association that provides internationalisation support, business development, and training to approximately 1,200 member companies. The meeting focused on the research and industrial landscapes of Portugal and Singapore, funding opportunities, and potential collaborations in advanced materials and manufacturing for the defence and packaging sectors.

Awards & Recognitions

On 12 June, **Associate Professor Moon Seung Ki** was elected as a **Fellow of the Korean Society for Precision Engineering (KSPE)**, in recognition of his outstanding contributions to precision engineering and manufacturing research. Founded in 1983, KSPE is a leading academic and professional society in South Korea dedicated to advancing precision engineering, manufacturing, machine tools, automation, and nano/micro-technologies. The society serves as a key platform for industry-academia collaboration, supporting technological innovation and industrial development. KSPE publishes the *International Journal of Precision Engineering and Manufacturing (IJPEM)*, a leading journal in the field, and the *International Journal of Precision Engineering and Manufacturing - Green Technology (IJPEM-GT)*.



Associate Professor Moon's election as a KSPE Fellow recognises his significant contributions to the advancement of precision engineering and sustainable manufacturing research, while further strengthening SC3DP's international research profile and engagement with the global manufacturing community. **Professor Yeong Wai Yee** was listed as **Top 200 Voices in Robotics and Deep Tech Worldwide** by Favikon.

SC3DP Explores a New Opportunity with Global F&B Leader Nestlé



On 15 June, SC3DP welcomed representatives from the **Nestlé R&D Centre Singapore** to explore potential collaborative projects related to food packaging design and manufacturing operations. The meeting built upon an earlier visit by the SC3DP team to the Nestlé R&D Centre Singapore on 20 May, where we gained insights into its food and beverage research, development, and manufacturing operations, with a particular focus on Milo and Nescafé products. During the visit, the team toured its well-equipped laboratories and pilot manufacturing facilities, which play a key role in product and packaging innovation, development, and manufacturing.

Professor Paulo Bartolo also presented SC3DP's advanced manufacturing capabilities and highlighted our research collaborations with leading industry and academic partners globally. SC3DP looks forward to strengthening its partnership with Nestlé and developing impactful collaborative projects that bridge research and industry needs.

Strengthening Research Collaborations with France Academic Institutions



On 18 June, SC3DP welcomed **Professor Lucas Lestandi** from the École Centrale de Nantes (France), **Professor Mathieu Ritou** from the Nantes Université (France) and **Dr Mark Hyunpong Jhor** from IHPC A*STAR (The Institute of High Performance Computing, a Research Institute under the Agency for Science, Technology and Research). Discussions focused on ongoing research collaborations between SC3DP and different organisations in France and in particular our NRF-ANR project 3DBioReg with the Nantes University and INSERM (The French National Institute of Health and Medical Research). New opportunities for collaboration were identified, and an action plan was proposed to support future joint initiatives.

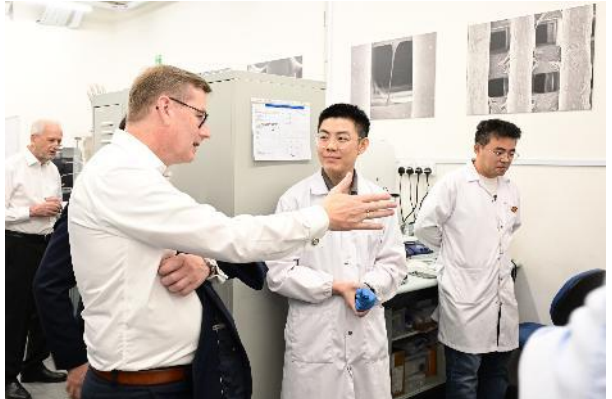
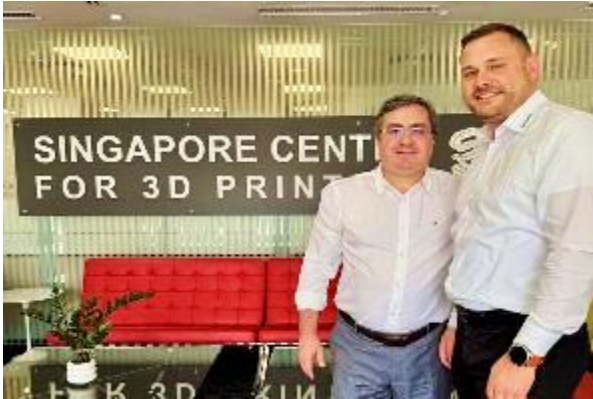
New Research Collaboration Agreement with Leistriz



On 23 June, SC3DP was pleased to host a distinguished delegation from Leistriz AG, a global leader in extrusion technology and precision engineering. The visitors included **Mr Michael Everts** (Group CEO), **Mr Eddie Tan** (Managing Director, Leistriz SEA), **Mr Joachim Ihrcke** (Senior Advisor to Leistriz), **Ms Jerin Ng**, **Mr William Loh**, **Mr Lucas Tay** and **Mr Steven Ho**. The visit marked the signing of a Research Collaboration Agreement focused on the joint development of novel extruder systems for advanced additive manufacturing and bioprinting applications. This partnership combines Leistriz's expertise in extrusion technology with SC3DP's advanced research capabilities to accelerate innovation in high-performance 3D printing solutions.

During their visit, the Leistriz's delegation toured SC3DP's advanced laboratories, gaining insights into ongoing projects in additive manufacturing, materials development, and bioprinting. We look forward to building a lasting partnership that will drive innovation in additive manufacturing and deliver impactful solutions for industry. Earlier, in May, **Mr Sebastian Fraas**, Director of Process Technology & Innovation at Leistriz Extrusion Technology, visited SC3DP to explore emerging developments in manufacturing technologies and innovation, and to discuss the key research areas underpinning the Research Collaboration Agreement.





Swedish Delegation Visits SC3DP



A Swedish delegation from the Industrial Research Council of the Royal Swedish Academy of Engineering Sciences (IVA), Sweden's engineering academy and a team of senior R&D and innovation leaders, broadly CTO and VP R&D level, from across Swedish industry and academia, visited the Singapore Centre for 3D Printing (SC3DP). The delegation represented organisations such as Ericsson, Scania, Vattenfall, Hitachi Energy, Siemens Energy, Husqvarna, Epiroc, Alleima, Mycronic, Zenseact, Cytiva, Getinge and Lantmännen, Chalmers University of Technology and Luleå University of Technology. During the visit, Professor Paulo Bartolo, Executive Director of SC3DP, presented an overview of the Centre's research initiatives, key projects, industry partnerships, and core activities. The delegations visited SC3DP's laboratories and gained insights into SC3DP's research focus and capabilities.



INTELLECTUAL PROPERTY

2 New Patents

- Kun Zhou, Boyuan Li - Auxiliary Heating System For Large-Scale Fused Deposition Modelling, 10202601850W
- Seung Ki Moon, Seong Je Park - Metal-Polymer Hybrid Structure, 19/681, 440
- C Jiayao, L Zhao, Three-dimensional printing, 19/116.771. 2026

5 New Technology Disclosure (TD)

- 2026-200: Printable Concrete Material For Additive Construction Across Multiple Strength and Performance Regimes, Ming Jen Tan, Daniel Yi Wei Tay, Teck Neng Wong
- 2026-263: A Novel Laser Cladding Nozzle Designed For Piston Crown Ring Grooves Repair. Li Zhang, Wei Zhou
- 2026-264: A Method Incorporating Powder Mixing And Statistical Modelling For Precise Finetuning Of Carbon Content And Hardness Of Stainless Steel Alloys For Additive Manufacturing. Shi Hao Sean Teoh, Wei Zhou
- 2026-266: Fatigue Property Tailoring In Directed Energy Deposition Of Copper Alloys Via Active Thermal Manipulation. Kangning Han, Boyuan Li, Hock Lye John Pang, Pengfei Tan, Kun Zhou, Yi Zhou
- 2026-278: In An Automated Reinforcement Strategy For 3D Printed Concrete Using Continuous Fiber Cables With In-Process Impregnation. Beifang Deng, Jeremy Keck, Mingyang Li, Emiko Lim, Kok Yong Lim, Bee Leng Liow, Zhenbang Liu, Ming Jen Tan, Sze Tiong Tan, Bak Koon Teoh, Hui San Tey, Sizhe Wang, Xiangyu Wang, Chuen Long Wong, Teck Neng Wong



PUBLICATIONS

In the period reported by this newsletter, **SC3DP's researchers published around 30 papers** in leading journals such as **Progress in Materials Science** (IF: 42.9), **Military Medical Research** (IF: 29.0), **International Journal of Extreme Manufacturing** (IF: 25.1), **Advanced Functional Materials** (IF: 19.9), **Cement and concrete composites** (IF: 14.4), **Advanced Science** (IF: 14.1), **Small** (IF: 11.8), and **Additive Manufacturing** (IF: 11.3).



CALL FOR PAPER



Call for Papers

Special Issue on

**Advanced Manufacturing for Medical Robotics:
From Surgical Precision to Physical Intelligence**

IF: 25.1 #1 in Engineering Manufacturing

Scope

Medical robotics is reshaping the future of minimally invasive intervention, as well as precision diagnostics, personalized rehabilitation and targeted therapy. It is also moving beyond the traditional use of motors and gears, to leverage the latest developments in new materials and fabrication schemes for multi-functional, power-efficient, compliant, and autonomous function in in vivo settings. To this end, conventional manufacturing methods struggle to reconcile the competing physical demands of sub-millimeter to microscale precision, heterogeneous material integration, and structural compliance required for sustained in vivo operation and dynamic human-robot interaction.

This Special Issue aims to bridge the latest advancements in new materials and fabrication schemes for the development of next-generation medical robotics with material properties that harness physical intelligence and precision actuation. We seek to include both cutting-edge research and comprehensive reviews/perspectives that address the scientific and engineering challenges in fabrication and advanced manufacturing techniques for these medical robotic systems.

Possible topics of the special issue will include, but are not limited to:

- Ultra-precision manufacturing and wafer-scale assembly of neural interfacing robots
- Heterogeneous integration and biohybrid robotics
- Voxel-level additive manufacturing for soft robots
- 4D printing of programmable medical robots
- Nanoscale fabrication of field-responsive microrobots
- Bio-hybrid micro-robotics and in vivo drug delivery
- Advanced fabrication of onboard physical intelligence schemes
- In situ, in vivo 3D/4D printing and bio-sensing integration
- In-situ metrology for extreme manufacturing

Important dates

- Submission deadline: 1st Dec. 2026
- First round of reviews: Jan. 2027
- Final submission and decision: Mar. 2027
- Publication: mid 2027

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RESEARCH PROJECTS

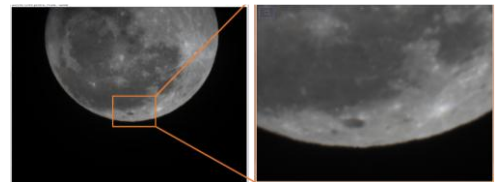
Telescope Built with 3D Printed Silicon Nitride Ceramics

The ceramics 3D printing team led by **Professor Gan Chee Lip** and **Dr Du Zehui** has established a complete 3D printing, debinding and sintering protocol to fabricate large size and intricate silicon nitride ceramic structures for various engineering applications. The sintered ceramics exhibit flexural strength of about 800 MPa and thermal conductivity of 80 to 90 W/m·K. As an application demonstration, a Cassegrain-type optical telescope system has been designed and assembled with 3D printed Si₃N₄ ceramics as mirror housing structure. The prototype exhibits excellent imaging quality under ambient environment or thermal turbulence.

Assembled telescope



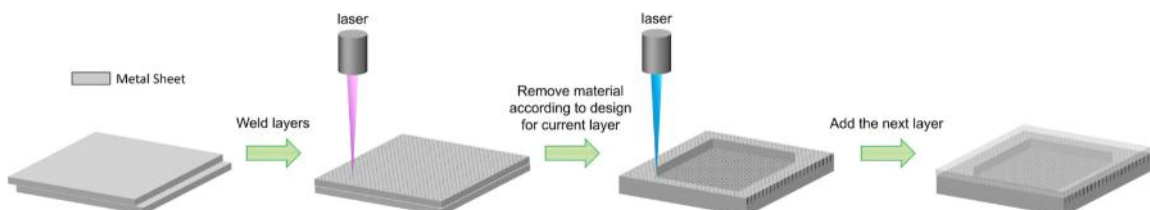
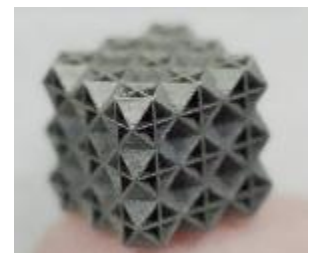
Image taken from the telescope



A New Startup from SC3DP : LAPIS Innovations Pte Ltd

[LAPIS Innovations Pte Ltd](#), the latest startup from the Singapore Centre for 3D Printing (SC3DP) and the School of Mechanical and Aerospace Engineering (MAE), has been awarded the Enterprise Singapore (ESG) Startup Fund and the NTUitive Seed Fund. The funding marks a significant milestone in the commercialisation of the company's innovative metal additive manufacturing technology.

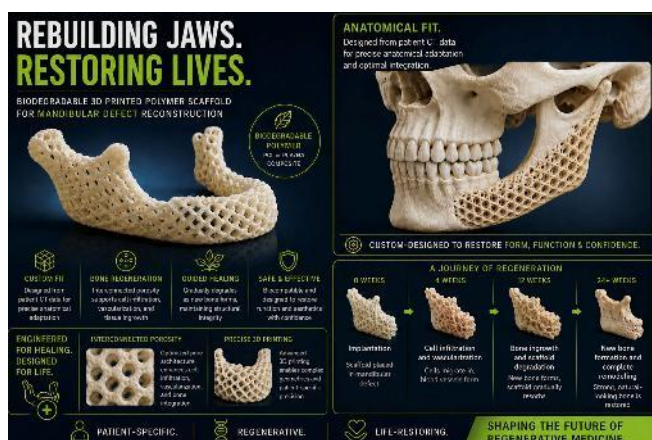
Driven by strong industry interest, LAPIS Innovations is advancing its proprietary technology for the safe and reliable manufacture of metal components from sheet metal. With the support of its new funding, partners, and investors, the company will accelerate research and development, strengthen its technical capabilities, expand its team, and bring its next-generation manufacturing solutions to market.



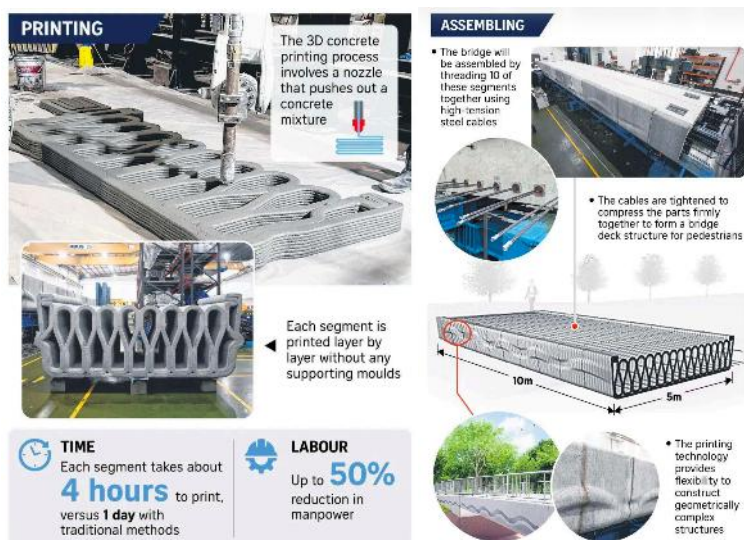
Anatomically Designed Piezoelectric Scaffolds for Mandibular Regeneration

The “Anatomically Designed Piezoelectric Scaffolds for Mandibular Regeneration”, supported by the National Additive Manufacturing Innovation Cluster (NAMIC Singapore), is a collaboration between the Singapore Centre for 3D Printing and the National Dental Centre Singapore (NDCS). The goal is to develop next-generation patient-specific biodegradable scaffolds for large mandibular defect reconstruction using advanced additive manufacturing technologies.

By integrating biodegradable polymers, bioactive ceramics, and piezoelectric biomaterials, the research seeks to create anatomically tailored scaffolds capable of converting physiological loading into localised electrical stimulation, thereby promoting osteogenesis, vascularisation, and enhanced long-term bone regeneration. Building on SC3DP's pioneering work in anatomically designed bone scaffolds and electro-active biomaterials, the project advances the development of clinically translatable, patient-centred, and cost-effective solutions for craniofacial reconstruction.



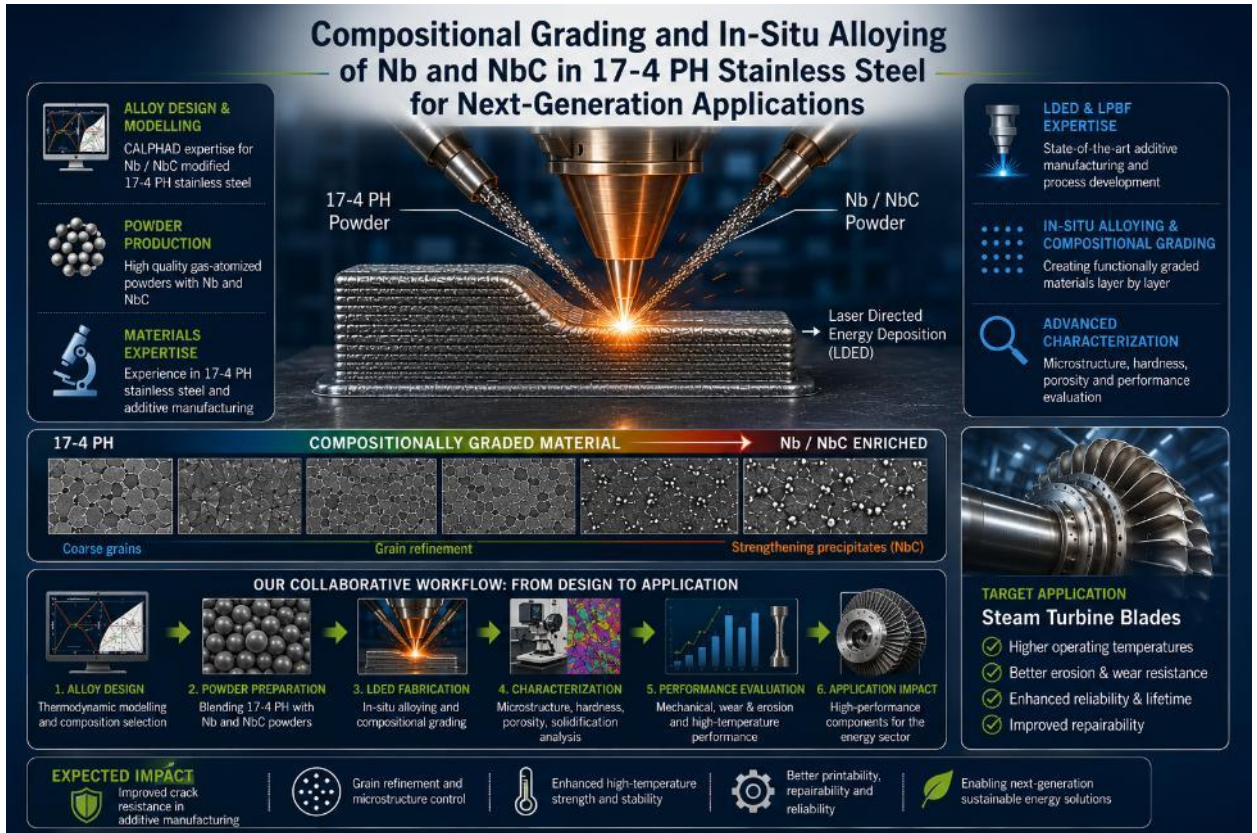
Singapore's First 3D Printed Pedestrian Bridge



On 6 April, the Land Transport Authority (LTA) unveiled the prototype of **Singapore's first 3D-printed pedestrian bridge** during a press conference. The full-scale bridge, which will span the Jurong River to connect Jurong West and Tengah Town, is expected to be completed in 2028. The project is a collaborative effort between the Land Transport Authority (LTA), the Singapore Centre for 3D Printing (SC3DP), Witteveen+Bos, and CES_Innovfab, a member of GRC Limited. The project showcases the potential of 3D concrete printing for sustainable infrastructure.

Images Source: LTA and AZMI ATHNI, STRAITS TIMES GRAPHICS

Compositional Grading and In-Situ Alloying of Nb and NbC in 17-4 PH Stainless Steel for Next-Generation Applications



The project "Compositional Grading and In-situ Alloying of Nb and NbC in 17-4 PH Stainless Steel for Next-Generation Applications", **supported by the Brazilian Government**, is a collaborative initiative between the Singapore Centre for 3D Printing (SC3DP) and the **Institute for Technological Research (IPT), Brazil**.

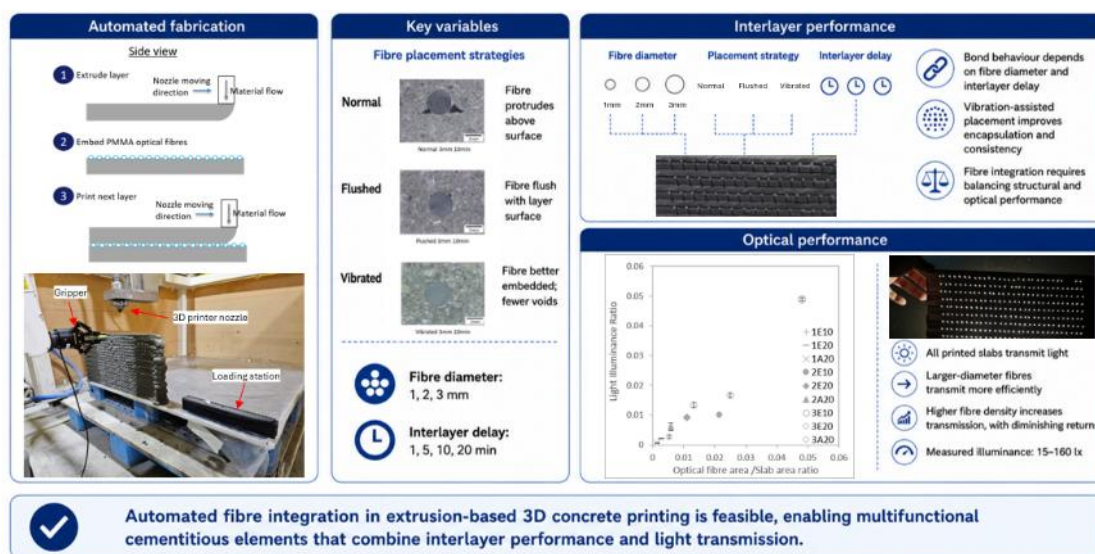
The project investigates the combined effects of niobium (Nb) and niobium carbide (NbC) through in-situ alloying of precipitation-hardening 17-4 stainless steel (17-4 PHSS) to enhance grain refinement, improve crack resistance during laser-based additive manufacturing (AM), and achieve superior material performance. By integrating in-situ alloying with compositional grading techniques, the collaboration aims to bridge advanced alloy design and additive manufacturing processability, accelerating the development of robust, high-performance steel compositions for repair and demanding engineering applications, with a particular focus on steam turbine blades.



RESEARCH HIGHLIGHTS

Impacts of optical fibres and interlayer delays on bond strength and functional properties of 3D-printed translucent concrete

Assistant Professor Tay Yi Wei Daniel, Dr Tan Kai Noel Quah, Dr Jian Hui Lim, Dr Quoc Nghia Vuong, Dr Jia Wei Chen, Dr Khalid M. Mosalam, Professor Ming Jen Tan



Introduction:

The construction industry requires sustainable materials that reduce environmental impact while maintaining structural performance. The integration of optical fibres into extrusion-based 3D printed translucent concrete offers a potential solution by combining load-bearing capability with daylight transmission. However, unlike conventional cast translucent concrete, the interlayer behaviour of fibre-integrated systems in 3D printing remains insufficiently understood. This study investigates the mechanical and optical implications of embedding optical fibres during extrusion-based 3D concrete printing. The mechanical investigation evaluates the effects of fibre diameter, placement strategy, and interlayer time gap on splitting tensile strength. Separately, light transmission performance is examined by varying fibre diameter and fibre density. The results show that incorporating optical fibres reduces interlayer tensile strength compared to control specimens, with retained strength ranging between 60 - 95% depending on configuration. Larger fibre diameters and longer deposition delays lead to greater reductions in bond strength. Vibration-assisted placement improves fibre encapsulation and enhances mechanical consistency by reducing interfacial voids. Optical testing further shows that larger-diameter fibres transmit light more efficiently than smaller fibres at similar area ratios, while increasing fibre density results in diminishing optical gains.

Key Highlights:

- Robotic optical fibre embedding was demonstrated in 3D concrete printing.
- Bond strength varied with placement strategy and interlayer delay.
- Mechanical–optical trade-offs were evaluated for fibre size and density.

Conclusion:

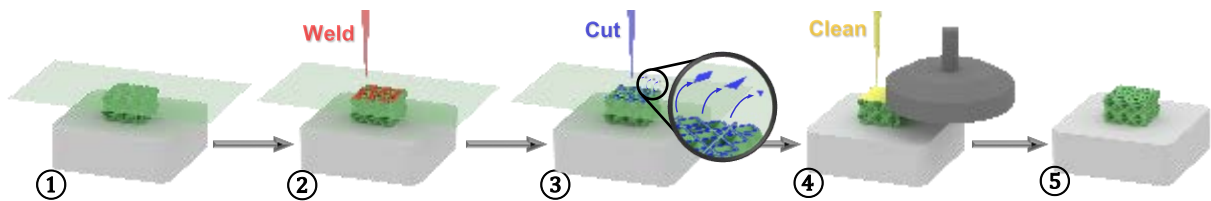
Overall, the study demonstrates the feasibility of automated fibre integration in extrusion-based concrete printing and clarifies the mechanical and optical trade-offs involved in developing 3D-printed translucent concrete.



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Manuscript

Ultrahigh Stiffness and Energy Absorption Properties of Isotropic Metallic Closed Cell Microlattices

Assistant Professor Lai Changquan, Dr Dominic Kang Jueh Lim



Introduction:

Hybrid plate lattices have been theorized to exhibit exceptional stiffness-to-weight ratio and strength with isotropic mechanical properties, making them highly suitable for lightweight applications in industries like aerospace and automotive. However, their closed-cell geometry makes them incompatible with all manufacturing techniques to date, including powder bed fusion, due to the entrapment of precursor material during fabrication.



Key Highlights:

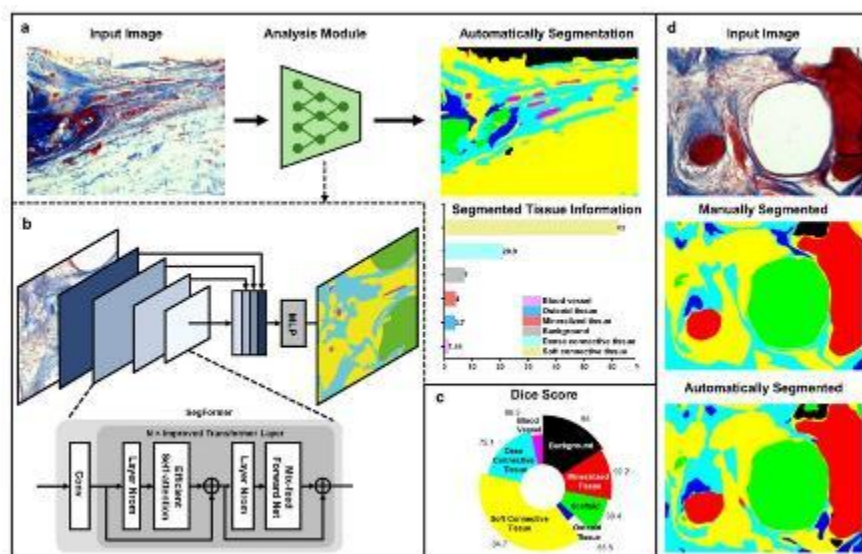
- Demonstrated the first realization of pSC-pFCC closed-cell lattice structures using LAPIS, a novel sheet-based additive manufacturing technique.
- Verified the faithful fabrication of fully enclosed internal voids through micro-CT imaging.
- Achieved experimentally measured stiffness approaching the Hashin–Shtrikman theoretical limit in both $\langle 100 \rangle$ and $\langle 110 \rangle$ orientations, confirming mechanical isotropy.
- Isotropic response extends into the plastic regime, achieving exceptional specific energy absorption (15–33 J/g) with efficiencies up to 44%, at a maximum stress of 410 MPa.
- Material work hardening in SS304L raised the plate-buckling plateau stress to the stretch-dominated elastic limit, uniting ultrahigh stiffness with excellent energy absorption in closed-cell metallic metamaterials.

Conclusion:

The findings affirm the feasibility of the proposed technique for scalable production of high-performance, isotropic closed cell metallic metamaterials and open up new opportunities for realizing other complex lattice designs without the geometric or material limitations of conventional additive manufacturing techniques.

A deep learning enabled in-silico animal study approach for bone tissue engineering

Dr Kai Yao, Dr Penglei Gao, Dr Xiyao Ni, Dr Jia An, Dr Kaizhu Huang, Dr Julia, Dr Helaehil, Professor Guilherme F. Caetano, Dr Boyang Huang, Professor Jie Sun, Professor Paulo Bartolo



Introduction:

While traditional efficacy evaluation in tissue engineering heavily relies on time-consuming animal studies and histological analyses that require sacrificing animals and fail to provide in-situ monitoring of continuous tissue changes at the identical anatomical site, the emergence of deep learning technologies, such as Transformers and Generative Adversarial Networks (GANs), offers a promising opportunity to develop alternative non-animal evaluation methods. To address the limitations of conventional approaches, this study proposes a novel Bone Tissue Prediction Generative Adversarial Network (BTP-GAN) for bone tissue engineering that integrates deep learning algorithms with a biological tissue growth model. By incorporating specific generative conditions like 3D printed scaffolds and electrical stimulation, this model can successfully simulate and predict the continuous development of bone tissue over time using only a single input histological image, thereby holding great potential to significantly reduce the reliance on extensive animal models in preclinical evaluations.

Key Highlights:

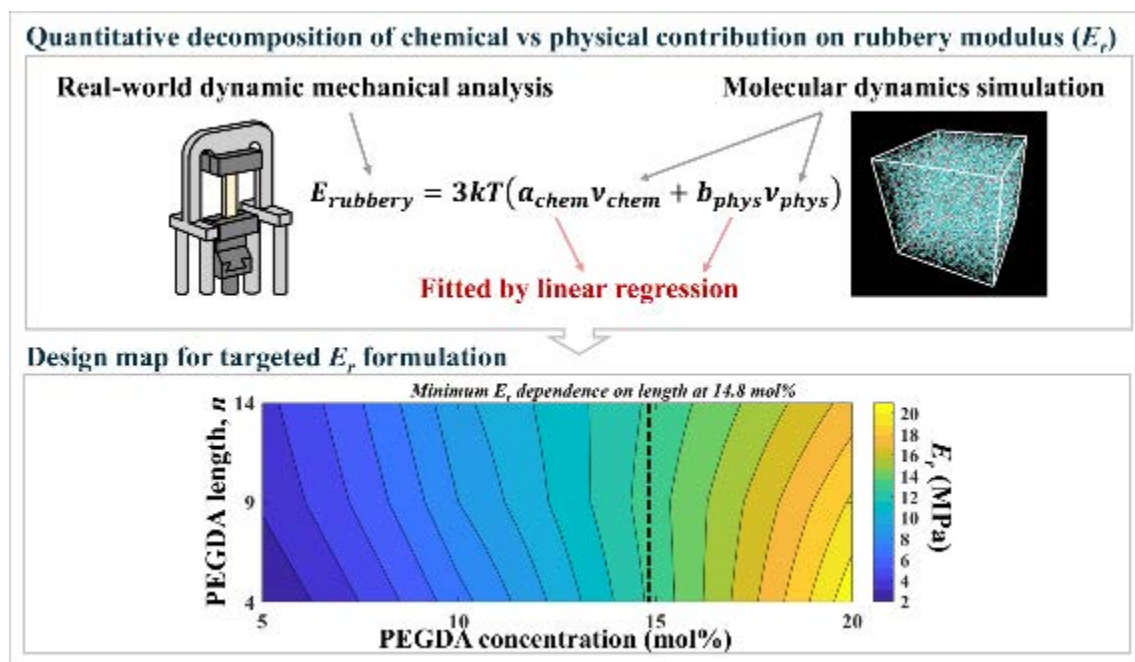
- Novel BTP-GAN model for in-silico animal studies.
- Single-image longitudinal prediction of histological changes.
- Synergistic tri-module architecture (Analysis, Growth, and Generation).
- Condition-specific simulation and decoupling (e.g., 3D printed scaffolds and electrical stimulation).
- Bidirectional temporal capability for forward prediction and backward reconstruction.
- High-fidelity image generation using limited training datasets.

Conclusion:

The BTP-GAN model is a pioneering deep learning prototype for in-silico animal studies, successfully simulating sequential bone regeneration over time from a single histological image. By leveraging three integrated functional modules, it can accurately model complex temporal tissue changes under specific regenerative conditions. This framework holds great potential to significantly reduce the reliance on extensive in vivo animal testing for future tissue engineering.

Molecular origins of the paradoxical crosslinker-length effect on rubber elasticity in crosslinked polymer networks for vat photopolymerization

Dr Taehyub Lee, Dr Chin Siang Ng, Dr Nannan Li, Dr Jianwei Zheng, Associate Professor Su Pei-Chen



Introduction:

In vat photopolymerization (VP) 3D printing, the rubbery modulus (E_r) is a key mechanical property of photocurable thermoset polymer networks and is commonly tuned by adjusting crosslinker length and concentration. Yet, the effects of crosslinker length on E_r are often inconsistent because it imposes competing influences on network structure. Specifically, increasing crosslinker length decreases the chemical crosslink density while simultaneously increasing the physical entanglement density, thereby making E_r trends difficult to predict and hindering rational resin formulation. To address this paradoxical behavior, we systematically investigated an isobornyl acrylate (IBOA)–poly(ethylene glycol) diacrylate (PEGDA) system, using PEGDA crosslinker length (4, 9, or 14 ethylene glycol units) and concentration (5, 10, or 20 mol%). Molecular dynamics (MD) simulations were employed to explicitly quantify the chemical and physical contributions to E_r , and the results were compared with measured E_r obtained via dynamic mechanical analysis (DMA).

Key Highlights:

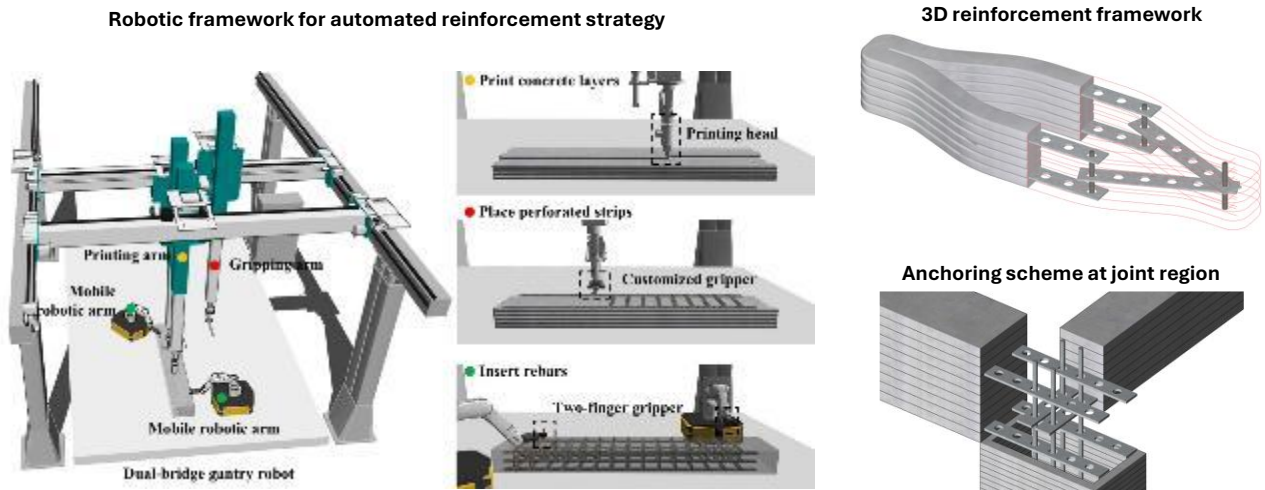
- MD simulations quantified the individual contributions of chemical crosslinking density and physical entanglement density on E_r . Physical contributions dominate at low concentrations of long crosslinkers (over 50% for PEGDA14 at 5 mol%) but become negligible at high concentrations of short crosslinkers (about 1% for PEGDA4 at 20 mol%).
- The design map of E_r across crosslinker concentrations and lengths was generated via linear model fitting, identifying a balanced transition zone where chemical and physical effects offset.

Conclusion:

This study clarifies how crosslinker length dictates the E_r . At high concentrations (20 mol%), longer segments increase molecular volume and dilute chemical connectivity, decreasing the E_r . Conversely, at low concentrations (5–10 mol%), physical interactions dominate the elastic response as longer segments promote stronger constraints that increase the E_r .

A perforated strip-based three-dimensional reinforcement strategy for 3D printed concrete: Flexural testing of beams as a proof of concept

North Beifang Deng, Sizhe Wang, Mingyang Li, Xiangyu Wang, Zhenbang Liu, Teck Neng Wong, Bak Koon Teoh, Ming Jen Tan



Introduction:

The reinforcement of 3D printed concrete remains a critical bottleneck hindering the wider adoption of 3D printing technology in construction. The layer-by-layer nature of extrusion printing makes it difficult to embed conventional steel rebar cages, which are normally positioned before concrete placement. This study proposes a novel reinforcement strategy that combines perforated strips with rebars inserted through the perforations, forming an interconnected three-dimensional reinforcement framework. The strategy is integrated seamlessly into the printing process through the collaboration of a dual-arm gantry robot and a mobile robotic arm, and is adaptable to complex geometries. Large-scale beams were designed, automatically fabricated and tested under four-point bending to validate the feasibility and structural performance of the proposed strategy.

Key Highlights:

- Perforated strips and inserted rebars form an interconnected three-dimensional reinforcement framework without tying, bolting or welding.
- A parametric path planning program automatically generates the printing, strip placement and rebar insertion paths for structural members.
- Reinforced printed beams reached over 100 % of the ultimate capacity and 90 % of the ductility of well-reinforced cast beams.
- Existing design codes, Eurocode 2 and GB/T 50010-2010, were shown to be applicable in predicting the bending and shear resistance of the printed beams.

Conclusion:

The proposed strategy achieves compatibility with layer-by-layer 3D concrete printing while enabling automated formation of a three-dimensional reinforcement framework. Experimental and finite element results confirmed that the printed beams failed in a typical flexural mode of reinforced concrete beams, with flexural behaviour comparable to cast beams of similar reinforcement ratio.



FEATURED SC3DP'S FACULTY & STAFF

**Dr Rui Goncalves**

Assistant Chair (Student Development)
School of Materials Science and Engineering

Dr. Rui Goncalves obtained his BSc and MSc in Chemistry from the University of Coimbra, Portugal, and his PhD in Materials Science and Engineering from NTU. His research focuses on self-assembly systems, polymers and surfactants, interfacial phenomena, and surface modifications, with an emphasis on functional and sustainable materials.

His team is currently conducting research on functional materials for advanced manufacturing, with a focus on photochromic materials, colloidal systems, and nanoparticle-based coatings. The research supports diverse applications in additive manufacturing, inkjet-printed electronics, functional coatings, and responsive material systems.

**Research Fellow Hou Yanhao**

Singapore Centre for 3D Printing, NTU

Dr Yanhao Hou received his PhD from the University of Manchester in 2024 and subsequently held research positions at the University of Manchester and the University of Southampton before joining Nanyang Technological University (NTU). His research focuses on bioengineering and additive manufacturing, with particular emphasis on the development of functional scaffolds and implant systems for tissue regeneration. By integrating biomaterials, advanced manufacturing, structural design, and biological evaluation, his work aims to develop patient-specific, clinically relevant medical devices for regenerative medicine.

**Project Officer Ni Xiyao**

Singapore Centre for 3D Printing, NTU

Ni Xiyao completed his PhD in the School of Mechanical and Aerospace Engineering at Nanyang Technological University (NTU). His research focused on the 3D printing of smart piezoelectric composite scaffolds for bone tissue regeneration, with an emphasis on piezoelectric biomaterial mechanics and physiological electrical stimulation. He holds an MSc in Mechanical Engineering Design from the University of Manchester and a BEng in Mechanical Engineering from Technological University Dublin and Nanjing Tech University.

**Research Associate Pedro Pontes**

Singapore Centre for 3D Printing, NTU

Pedro is a Software Engineer with several years of industry experience in the fields of Machine Learning and Computer Vision, bringing a strong foundation in AI-driven systems and embedded software development to the field of Additive Manufacturing. His research focuses on developing the next generation of metal multimaterial additive manufacturing, through the conception of a novel Laser Powder Bed Fusion (LPBF) system, with emphasis on automation, control architecture, and in-process monitoring.

Pedro is also interested in the convergence of artificial intelligence and additive manufacturing, particularly the application of generative AI to design. His research explores how this emerging field can enable new approaches to geometry generation, design optimisation, and the creation of complex structures that are difficult or impossible to achieve using conventional design methods.

**Assistant Manager, Engineer, Lee Yuanhao**

Singapore Centre for 3D Printing, NTU

Lee Yuanhao holds a Bachelor of Engineering (Hons) in Mechanical Design & Manufacturing Engineering from Newcastle University Upon Tyne. An Additive Manufacturing Specialist and Venture Builder, he specialises in accelerating commercial 3D printing adoption, structuring strategic joint ventures, and driving industrial innovation ecosystems.

He has led several world-first engineering achievements, including the development of the world's largest DNV-certified 3D-printed shipboard fitting and the world's first 3D-printed crane travelling gear. He also established the framework that enabled the first certification of marine-grade 3D-printed steel. His work focuses on translating advanced materials and manufacturing innovations into scalable, high-impact industrial solutions.

**Assistant Manager, Technical, Tang Kum Cheong**

Singapore Centre for 3D Printing, NTU

Kum Cheong's professional experience spans lab management, tool training, device micro-fabrication, and CNC milling. His recent research focuses on the functional restoration of lightly damaged semiconductor devices to promote resource conservation. At SC3DP, Kum Cheong oversees the day-to-day operations of the research labs. He champions lab safety and best practices, ensuring the environment remains organised and productive. To make a safe workplace environment as a team, he welcomes ideas and is always open for discussion.



Coordinator, Nayli Insyirah Binte Mohamad Sofhian

Singapore Centre for 3D Printing, NTU

Nayli Insyirah serves as an Executive, Project Coordinator at Nanyang Technological University (NTU). She manages financial and administrative processes across research projects, including budget planning, procurement, claims administration, financial reporting, and compliance requirements. Working closely with researchers, industry partners, and institutional stakeholders, she focuses on ensuring financial accountability, operational efficiency, and the timely delivery of project objectives through effective coordination and process management.



MOBILITY



Shawn Tan

- PhD Student - Bachelor of Aerospace Engineering, MAE NTU
- Internship at the Singapore Centre for 3D Printing, NTU

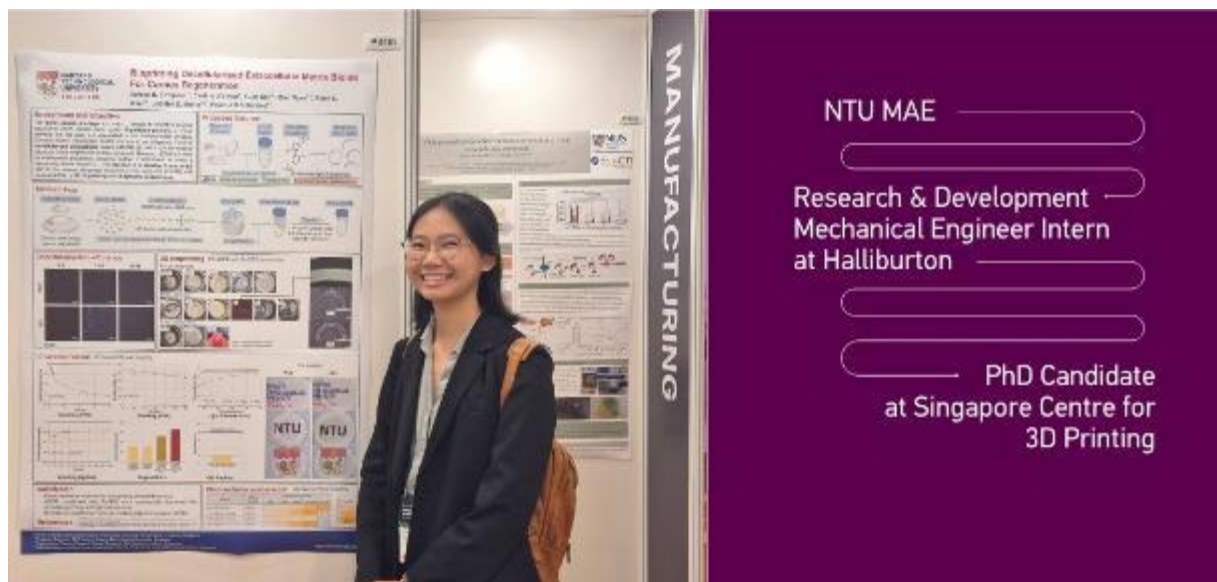
Shawn is currently pursuing a Bachelor of Aerospace Engineering (MAE) at Nanyang Technological University (NTU). During his professional attachment at SC3DP, he is contributing to the development of a UAV-based Chemical, Biological, Radiological, and Nuclear (CBRN) threat detection platform. His work focuses on the aerodynamic and structural design of the UAV, leveraging virtual simulations and physical testing to evaluate performance and iteratively refine the design. Through this process, he aims to enhance the platform's efficiency, reliability, and operational effectiveness in support of rapid threat detection missions.

- Testimonial -

SC3DP fosters global cross - fertilisation among researchers with advanced additive manufacturing technologies, and visionary leadership, SC3DP create a vibrant ecosystem that delivers a transformative environment for innovation - where ideas are translated into real-world applications that benefit both industry and society.



STUDENT SUCCESS STORY



Verena Regina Tirtajasa

- R&D Mechanical Engineer Intern at Halliburton
- Class of 2025 Bachelor of Engineering (Mechanical Engineering)
- PhD Candidate at Singapore Centre for 3D Printing

Verena Regina Tirtajasa graduated with a degree in Mechanical Engineering, specialising in Design. In 2023, she completed an internship at Halliburton as a Research & Development Mechanical Engineer, where she validated new safety valve designs against company requirements. For her final year project, Verena worked with Professor Paulo Bartolo, Executive Director of the Singapore Centre for 3D Printing (SC3DP), on cornea 3D bioprinting in collaboration with the Singapore Eye Research Institute (SERI).

In August 2025, Verena began her PhD at SC3DP, applying her multidisciplinary engineering background to 3D bioprinting for corneal regeneration and vision restoration. The following December, she presented the results of her final year project to an international audience at the Singapore Scientific Conference 2025.

- Testimonial -

Professor Paulo and the SC3DP community have provided a supportive and nurturing environment throughout my PhD studies, offering numerous opportunities to explore and expand my research. The research conducted at SC3DP has been both engaging and impactful, with a strong focus on translational applications that offer a unique perspective on addressing real-world challenges.



WORKSHOPS AND SEMINARS

Two-Photon Polymerisation for Microfabrication



On 12 May, **Dr. Yanis Taege** of Nanoscribe delivered a seminar titled "Two-Photon Polymerisation for Microfabrication." His presentation focused on how two-photon polymerization (2PP) and two-photon grayscale lithography (2GL) enable high-speed, high-precision fabrication of optical, mechanical, and microfluidic components, circumventing the difficulty of assembling micro-scale parts. Drawing on over a decade of expertise in laser physics, biomedical imaging, and 2PP, Dr. Taege demonstrated how this technology bridges research and industrial production. The session also showcased Nanoscribe's Quantum X product line for modular, customisable nano- and microfabrication solutions.

Reinventing Construction with 3D Printing Technology



On 19 May, SC3DP and the **Institution of Engineers, Singapore (IES)** co-organise a technical seminar focused on the construction sector. The seminar featured the 3D-printed pedestrian bridge near Jurong West, Singapore, as a case study demonstrating the practical implementation of large-scale additive manufacturing in infrastructure. Discussions explored how automated, layer-by-layer fabrication techniques are transforming the built environment by enabling greater design flexibility, improving construction efficiency, reducing material waste, and supporting more sustainable and customised building solutions.



The event featured a distinguished panel of speakers:

- “Advancing automated construction through large-scale 3D concrete printing”, **Mr Tan Sze Tiong**, Group Director of the Building & Research Institute (BRI) and Chief Sustainability Officer, Housing & Development Board (HDB);
- “Introduction to 3D concrete printing: principles, materials, and processes”, **Professor Wong Teck Neng**, Programme Director; **SC3DP**;
- “Fundamentals and printing quality control in 3D concrete printing”, **Dr Li Mingyang**, Senior Research Fellow, **SC3DP**;
- “3DCP: an innovative approach to the future of construction”, **Mr Kennerve Tan**, Senior Project Engineer, **CES_Innovfab**;
- “Enhanced efficiency and structural performance with metal 3D printing”, **Dr Mehmet Cagirci**, Senior Research Fellow, **SC3DP**;
- “Engineering the future: design and validation of load-bearing 3D concrete printed bridges” **Mr Shaun Wu**, Computational Design Specialist, **Witteveen+Bos**.

By bringing together SC3DP leadership, academic researchers, and industry partners, the event fostered interdisciplinary dialogue and strengthened collaborations, helping to bridge the gap between research innovation and practical implementation while advancing the adoption of additive manufacturing technologies in the built environment.

Beam Shaping and Production Technology : A Bidirectional Relationship



On 25 May, **Professor Michael Schmidt**, Chair of the Institute of Photonic Technologies at Friedrich-Alexander-Universität Erlangen-Nürnberg, made a three-day visit to SC3DP. During this visit, the second progress meeting was held for their jointly funded project, "Recycling Wood Waste and Parts for Sustainable Powder and Extrusion-Based Additive Manufacturing," supported by the Singapore National Research Foundation (NRF) and the Federal Ministry of Research, Technology and Space (BMFTR).

Professor Schmidt also presented a seminar, "Beam Shaping and production technology: a bidirectional relationship," on the critical role of beam shaping in photonics and laser-based manufacturing. Participants learned about fundamental beam shaping principles, recent technological advances, and emerging applications.

Nanyang Business School Visits SC3DP



On 29 May, SC3DP hosted the Nanyang Business School, NBS30 Masterclass Global Series 2026. We welcomed 40 participants, including students, professors, and industry partners. The programme featured an introductory session on SC3DP's global research network, core research areas, strategic objectives, and key initiatives in additive manufacturing. Participants also enjoyed a guided laboratory tour that showcased the Centre's advanced facilities, research projects, technological capabilities, and practical applications of additive manufacturing across various industrial sectors. This visit fostered meaningful engagement and knowledge exchange, paving the way for potential collaboration within the field of 3D printing.

Technical University of Munich (TUM) Asia visits to SC3DP



On 5 June, SC3DP hosted a group of students from the **Technical University of Munich (TUM) Asia**, providing them with an overview of the Centre's research capabilities and impact across the aerospace, building and construction, marine and offshore, and biomedical sectors. During the session, Professor Paulo Bartolo introduced SC3DP's multidisciplinary research, highlighting its role as a leading research centre in additive manufacturing and its close collaborations with industry and academic partners. Technical demonstrations were conducted by SC3DP research fellows; **Dr Shubham** on High Speed Directed Energy Depositions, **Mr Alpravinosh** on laser powder bed fusion, **Mr Aniol Bosh** on volumetric printing and **Dr Mehmet** on hybrid manufacturing.

Voyage Beyond: Reimagining Maritime Singapore



The National Additive Manufacturing Innovation Cluster (NAMIC) hub at NTU, coordinated by SC3DP, participated under the NAMIC booth at the "Voyage Beyond: Reimagining Maritime Singapore" travelling exhibition, organised by **Maritime and Port Authority of Singapore (MPA)** held on 27-28 June at the Punggol Coast MRT Amphitheatre and Atrium. The exhibition showcased the evolution of Singapore's maritime industry, from its historic trading roots to its position as one of the world's leading maritime hubs and its vision for the future.



Through interactive and immersive exhibits, members of the public explored the vital role of maritime technologies, innovation, and sustainability in supporting global trade and everyday life. As part of the NAMIC booth, we featured SC3DP's research and technological innovations through 3D-printed components and live demonstrations, highlighting how advanced engineering and additive manufacturing are contributing to the maritime sector.

Senior Minister of State for Transport and National Development, **Ms Sun Xueling**, visited the booth, where she interacted with SC3DP staff, who presented the Centre's research capabilities and demonstrated the applications of additive manufacturing in the maritime industry.

ASEAN Summer Programme



On 7 July, Professor **Kyle Morgan**, from the Asian School of the Environment, NTU brought together 40 students from Indonesia and other ASEAN member universities to visit the Singapore Centre for 3D Printing (SC3DP). During the visit, the students were introduced to a wide range of additive manufacturing machines and 3D printed products, including multi-material parts, scan-printed components, smart components, and printed electronics. The visit provided valuable insight into additive manufacturing technologies.

SC3DP Welcomes Austrian Business Delegation



The Singapore Centre for 3D Printing (SC3DP) welcomed a delegation of 17 representatives from leading Austrian companies, led by the Founder and CEO of CREATE2040. Organised by NTU's Office of International Engagement (OIE), the visit was part of a benchmarking programme to showcase Singapore's strengths in research, innovation and advanced manufacturing. The delegates toured SC3DP laboratories and explored the Centre's additive manufacturing research capabilities, including multi-material components, scan-printed parts, smart components, printed electronics, and many others.



UPCOMING EVENTS & SEMINARS

- 2nd International Conference on Future of AM | 4-6 Aug | [Link](#)
- AM-SMART Conference 2026 | 14-16 Sep | [Link](#)
- Global AM Summit 2026 organise by NAMIC | 22 Oct | [Link](#)
- Formnext Frankfurt | 17 – 20 November | [Link](#)
- SC3DP Open House | 05 November



Singapore Centre for 3D Printing

Innovation Port at The Arc, Nanyang Technological University
63 Nanyang Drive, Singapore 636922

