Forging a new concept in design innovation with AI technologies, the Design and Artificial Intelligence (DAI) programme focuses on better design with the help of AI and aims to nurture a new breed of talents with these specific skills. A major focus is on application of AI-driven design across user interface/user experience, products, systems and built environments.

From designing smarter medical systems for accurate early disease detection to predicting urban growth patterns to optimise city planning, and safer and more intuitive digital banking services. These are just some of the possibilities of how AI-driven design innovation can transform the economy and improve our lives.

DAI students are designers and innovators who harness the power of AI to tackle both present and future challenges, improving design using AI across products, systems, services and the built environment.

Graduate with a Bachelor of Science in Design and Artificial Intelligence.
DAI Core Subjects

- Algorithms
- AI Applications in Design
- Product Design Studio
- Machine Learning
- Human Computer Interaction and AI
- Service Design Studio
- Applied Deep Learning
- Spatial Design Studio
- Systems Design Studio

Learning Outcomes of DAI Core

Multi-disciplinary Expertise
Combine technical expertise in AI with design innovation skills to apply across a range of disciplines, e.g. engineering, healthcare, media, built environment and more.

Effective AI Deployment
Increases effectiveness in AI deployment.

In-depth Knowledge of Design Theories & Practices
Disrupt economies with your extensive know-how in design theories and practices.

Varying Composition in Design/Al/Business
Depending on the chosen electives, you have the flexibility to vary your concentration in Design/Al/Business.

Specialisation
Choosing a specialisation is optional and gives you further flexibility to customise your DAI curriculum according to your interests and aspirations. You are expected to discuss your elective choices with faculty members. Your specialisation will be reflected on your transcript so that future employers can recognise this expertise.

Healthcare Design
Discover how to design healthcare products and services with artificial intelligence and be equipped with fundamental knowledge in medical technologies to develop the next generation of healthcare solutions.

Enterprise Design
Gain skills and knowledge on design, manufacturing, sustainable engineering and business subjects which are required to make an enterprise successful in our fast evolving world.

Ideal for those who wish to lead transformational innovations within organisations.

DAI Curriculum

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<td>TERM 1</td>
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<td>Modelling &amp; Analysis</td>
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<td>VACATION/ INTERNSHIP/ EXCHANGE</td>
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<td>Systems Design Studio</td>
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- Freshmore Subject
- Core Subject
- Capstone
- Humanities, Arts & Social Sciences (HASS) Subject
- Elective (AI/Design Innovation/Business)

*Term 3 Electives: Science and Technology for Healthcare, Data Driven World, Designing Energy Systems, Spatial Design World

Minor Programmes

DAI students will have the option to read a Minor, equipping you with additional knowledge and greater flexibility in pursuing broader interests. Some relevant Minor Programmes for DAI students include Minor in Digital Humanities (DH) and Minor in Engineering Systems (ES).

Curriculum including specialisations offered are subject to change. Visit dai.sutd.edu.sg for updates.
WHY DESIGN?

DRIVES BUSINESS INNOVATION AND GROWTH

The design innovation process improves operational efficiency, adds value and encourages competition as businesses strive to be relevant to market demands.

IMPROVE LIVES

Design is a user-centred innovation process that transforms products, services and experiences, improving lives.

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EDB to oversee and support design council’s work from April

Amelia Teng

In a move to help local companies tap design to expand beyond the country, Singapore’s national agency for design – the DesignSingapore Council – will be transferred from the Ministry of Communications and Information to the Economic Development Board (EDB) from April next year.

Announcing the move yesterday, Communications and Information Minister S. Iswaran said design is increasingly important to drive business innovation and growth “against the backdrop of rapid technological advancements and growing customer sophistication”.

Speaking at the Design Education Summit at Parkway Parade on Beach Road, he said the change will allow the DesignSingapore Council, which was set up in 2003, to work more closely with the economic agencies under the Ministry of Trade and Industry (MTI), and help different sectors adopt design.

EDB, a statutory board under MTI, will oversee and support the council’s work with industry and also provide business networks to help companies use design.

Mr Mark Wee, who will continue as the DesignSingapore Council’s executive director, said: “Our mandate to be a champion for the design industry will not change. As part of the EDB family, we will be able to tap its immense industry knowledge and extensive networks even more, to promote the adoption of design in companies.”

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WHY AI?

IN-DEMAND SECTOR

With 10,000 tech-related jobs expected to be created in the next three years and a new National AI Office to set the agenda for AI, be equipped with future-ready career skills to be highly sought after.

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Strategy will position S’pore to...

Hariz Baharudin

Singapore’s national plan to harness artificial intelligence (AI) technologies for social and economic benefits will position it to be a regional and global leader in AI, experts told The Straits Times.

They said Singapore’s new national AI strategy, announced yesterday by Deputy Prime Minister Heng Swee Keat, plays to the country’s strengths, such as its state-of-the-art infrastructure, effective governance and good education system.

Mr Greg Urssworth, digital business leader at PwC Singapore, said the strategy shows Singapore is “clearly stepping up” in terms of building its reputation as a trusted regional digital hub, to develop impactful AI solutions that address economic and societal challenges.

“The effective and responsible adoption of AI as part of such a comprehensive framework, through practical sector-based initiatives, will bring real demonstrable benefits to Singapore and encourage the next phase of innovation,” said Mr Urssworth.

Echoing his point, Mr Andreas Ebert, Microsoft Corporation’s worldwide national technology officer, added that Singapore is already playing a global leading role in AI ethics and governance.

“The publication of the national AI strategy is evidence that Singapore is taking a holistic and inclusive approach (towards being) a fast adopter of best-in-class technology that is empowered by a focus on building national capabilities,” he said.

As part of its nationwide strategy, the Government has announced national AI projects in five key areas: transport and logistics, smart cities and estates, healthcare, education, and safety and security.

The projects were chosen as they can deliver quick results, and have
UNIQUE FEATURES OF DAI

DAI focuses on using AI to “better design” with an emphasis on application-based courses and design studios. By graduation, you would have a comprehensive portfolio of industry-inspired projects.

AI DESIGN INNOVATION STUDIOS
• Make connections between AI and design thinking methodologies
• Diverse exposure to industry sectors, working on real-world data via company-sponsored projects

BUSINESS SUBJECTS
• Understand commercial needs and the importance of value-creation

HUMANITIES, ARTS AND SOCIAL SCIENCES (HASS)
• Drive the understanding for ethics and social responsibility

FLEXIBLE, CUSTOMISABLE CURRICULUM
• Depending on the chosen electives, you will have a varying concentration in Design/AI/Business

be a global leader in AI: Experts

high social and economic impact.

Alibaba Group chief technology officer Jeff Zhang said Singapore's national AI strategy and its ability to plan and meet national targets have affirmed the e-commerce giant's decision to work closely with the nation.

Mr Zhang, who is also president of Alibaba Cloud Intelligence, said: “Singapore has consistently demonstrated its foresight and tenacity to fulfil its (national) objectives, as demonstrated in its strong talent base and world-leading research institutions.”

These factors, along with its good education system and effective government, stand Singapore in good stead to succeed in the AI space, experts said.

Professor Isaac Ben Israel, director of the Bioinformatics Interdisciplinary Cyber Research Centre in Tel Aviv University, said the national strategy will significantly improve the lives of all Singaporeans.

“With the right strategy, AI can transform national-level planning and significantly raise the quality of public goods like transport, education and healthcare, raise productivity, and enable the creation of valuable products and solutions for the Singapore market and beyond,” said Prof Ben Israel, who is also co-chair of the Israel National Task Force for AI.

What is unique about Singapore’s national AI strategy is that it is grounded in the “human element” that addresses the needs of the country and its people, according to Mr Benjamin Chiang, government and public sector leader at EY Singapore.

“Ultimately, the focus is on improving the lives of citizens and residents through creating value-added jobs and providing quality services that deliver better outcomes and experiences,” he said.

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SUTD launches new degree in AI and design

Jolene Ang

Artificial intelligence (AI) technologies can benefit designers, if they know how to harness them.

Statistical data can be used to predict an outcome – a method known as predictive modelling. In urban planning, for example, demand for public transport can be forecast in order to create more efficient public transport deployment plans.

To equip students with such skills, the Singapore University of Technology and Design (SUTD) has launched a new undergraduate degree in design and AI.

The 3-year programme – the first of its kind in Singapore – will take in students in the academic year starting in May, SUTD said yesterday.

Students will be exposed to areas of design such as user interface/user experience, product, systems, built environment and data-driven design. Graduates from this programme will be able to work as data scientists and data visualisation specialists, in industries such as urban planning, product design and telecommunications, the university said.

SUTD president Chong Tow Chong said: “The recent announcements from Deputy Prime Minister Heng Swee Keat on the next steps in Singapore’s Smart Nation journey underscore the importance of artificial intelligence and the role it will play in bringing about social and economic benefits.”

“The main goal of the design and AI programme is to equip students with the ability to create human-centred design using data analysis and machine learning, which is AI-driven.”

Established in 2009, SUTD is the fourth autonomous university in Singapore and focuses on engineering, innovation and design.

In terms of entry requirements, students should generally be competent in mathematics and the sciences. Of the A-level students who were offered places last year, nearly all had taken mathematics at the H2 level, and eight in 10 scored at least a B. Nearly all had also taken either physics or chemistry, or both, at the H2 level, and nearly seven in 10 scored at least a B for either of both subjects.

Nanyang Pioneer Junior College graduate Michael Hoon, 18, who read H2 maths, further maths and physics, and also took an H3 physics module offered by Nanyang Technological University, is interested in the new programme.

“I’ve always been interested in maths and science since I was young, for the most part because of exposure to school teachers and research on a lot of information online,” he said.

“Both subjects are visibly all around us and pretty much serve as the foundation for our survival and development, and being able to apply and integrate the theoretical modelling we have learnt in our daily lives is pretty interesting too.”

jolenezj@spf.com.sg
SUTD’s new DAI programme has a unique course structure that focuses on the design and application of the latest AI technologies to solve problems and improve quality of life. With Singapore’s goal of becoming a Smart Nation, design and AI would be an important asset to achieve that goal, especially in digitisation.

Michael Hoon
Jurong Pioneer Junior College Alumnus

SUTD’s new program will equip students with much needed complementary skills in design and AI. This gives them an edge to impact the world.

Dr Terence Hung
Chief of Future Intelligence Technologies, Rolls-Royce

The DAI looks to me an excellent programme to generate the future AI talent for business and consultancy.

Mr Hong Cao
Head of Data Science, Ernst & Young LLP

AI is a new area. Designing AI into a traditional engineering system is often an afterthought. An AI-capable system should incorporate AI into its design at the onset. It will benefit the industry if AI & DI can be fused seamlessly into all AI product designs.

Dr Peh Chin Hwee
Vice President, Head of Intelligent Systems (Robotics & Autonomous, Systems), ST Engineering

SUTD’s DAI degree is relevant in building a pipeline of multi-disciplinary data scientists and AI engineers.

Mr Johnson Poh
Executive Director & Head Enterprise AI, United Overseas Bank

Examples of DAI graduates’ job titles:
• AI solutions architects
• Product/system/service manager
• Product/system/service designer
• User-experience (UX) or user-interface (UI) designer
• Data visualisation specialist
• Business intelligence developer
• Business analyst
• AI engineer

DAI is the first university course that combines design and AI. Its versatility creates opportunities to cater to the needs of all sorts of industries in Singapore. Plus, DAI will help us to be proficient with the skills needed to shape and grow the future of these industries.

Soh Yao Hui
Nanyang Polytechnic Alumnus
EXAMPLES OF BETTER DESIGN WITH AI
by SUTD faculty and students

Prediction of Vehicle Activities

Machine learning is used to improve an existing survey to collect mobility data for commercial vehicles. Various temporal, sequential, contextual and environmental features are used for activity prediction.

AI Driven Car Design

The “Flintstone Car” is developed in Fusion 360, a combination of both Computer-Aided Design (CAD) and Computer-Aided Styling (CAS). Evaluate the design from every possible angle, explore possible prototyping options and optimise the design for final fabrication.

Modelling of City Plan Designs

Statistical data can be used to predict an outcome - a method known as predictive modelling. In urban planning, for example, demand for public trains can be forecast in order to create more efficient public transport deployment plans.