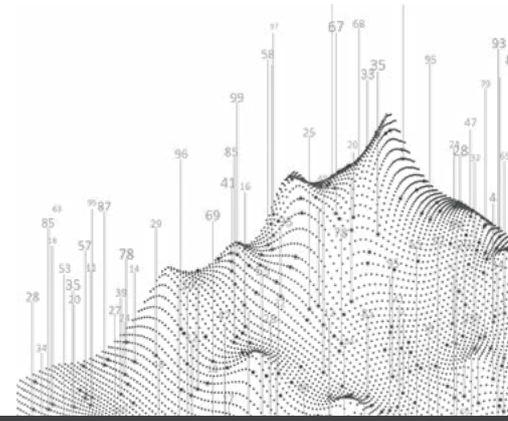


ISTD

INFORMATION  
SYSTEMS  
TECHNOLOGY  
AND DESIGN

# OVERVIEW



## Design goes beyond aesthetics – it transforms the way we live.

The power of design is deeply rooted in understanding the human experience and needs, and then creating innovative products, services and systems to meet and improve them. That's why forward-thinking companies and nations are investing heavily in design to drive innovation and growth.

At Information Systems Technology and Design (ISTD), the mathematical grounding, algorithmic thinking and intense exposure to design in the context of computing empower you to tackle challenging problems and develop need-driven computing solutions, instead of simply focusing on tech-driven solutions.

As technologies rapidly evolve, society's challenges have also become much more sophisticated. The need for a profound understanding and application of computing systems and design principles are crucial to solving these problems.

With a strong focus on computing, systems and intelligence, ISTD students are the drivers of the future's digital development. They possess abilities in computing and system knowledge in both software and hardware, as well as the power to design machines of the future with augmented intelligence.



### COMPUTING

Computing is not just about computers. You learn about computation and information. You will master practical techniques for creating new software and hardware, while gaining skills like logical thinking, creativity and problem solving.



### SYSTEMS

Systems is about systems thinking from the perspective of computing. It involves both design and implementation of the fundamental software and hardware systems that form a computing infrastructure.



### INTELLIGENCE

Intelligence is the science of giving computers human-like intelligence and automation. Be equipped with the fundamentals of intelligent systems, such as software agents, neural networks, pattern recognition, computer vision, artificial and computational intelligence.



## A Computing Systems Curriculum Underscored by Intelligence

The ISTD curriculum focuses on information and computing technologies, and its relationship with the world. It integrates the traditional disciplines of Computer Science and Information Systems.

On top of your ISTD subjects, you will take courses in Humanities, Arts and Social Sciences (HASS). This will prepare you to be a new type of tech leader, one who embraces the cultural and social context of technology in the modern world.

### ISTD Core Subjects

- Introduction to Information Systems & Programming
- Elements of Software Construction
- Computation Structures
- Computer System Engineering
- Introduction to Algorithms

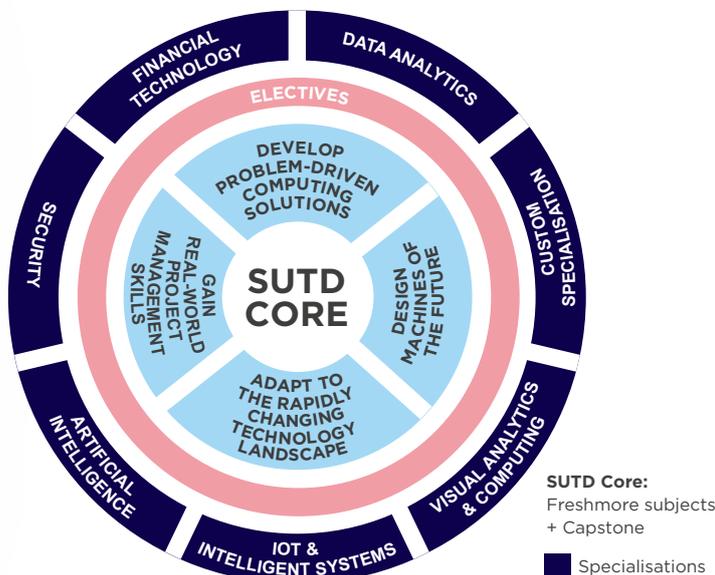
### Learning Outcomes of ISTD Core

**Develop Problem-Driven Computing Solutions**  
A strong mathematical grounding, algorithmic thinking and intense exposure to design empowers you to tackle challenging problems the right way, instead of simply focusing on tech-driven solutions.

**Design Machines of the Future**  
Develop machines with augmented intelligence to solve complex problems.

**Adapt to the Rapidly Changing Technology Landscape**  
Adept at mastering new computing technologies that constantly emerge through hands-on projects.

**Gain Real-World Project Management Skills**  
Gain insights into the practical issues of building products, systems and services through multi-disciplinary projects.



## ISTD Curriculum

JAN - APR	MAY - AUG	SEP - DEC
		<b>TERM 1</b>
		Modelling & Analysis
		Physical World
		Computational Thinking for Design
		World Texts & Interpretations (HASS)
	<b>TERM 2</b>	<b>TERM 3</b>
Modelling Space & Systems	<b>VACATION/ SUMMER PROGRAMME</b>	Modelling Uncertainty
Technological World		Theorising Society, Self, & Culture (HASS)
Science for a Sustainable World		Any Two Electives*
Design Thinking & Innovation		
	<b>TERM 4</b>	<b>TERM 5</b>
Introduction to Information Systems & Programming	Elements of Software Construction	<b>VACATION/ INTERNSHIP/ EXCHANGE</b>
Computation Structures	Computer System Engineering	
Introduction to Algorithms	Elective	
HASS	HASS	
	<b>TERM 6</b>	<b>TERM 7</b>
Elective	<b>VACATION/ INTERNSHIP/ SUMMER PROGRAMME</b>	Capstone
Elective		Elective
Elective		Elective
HASS		HASS
	<b>TERM 8</b>	
Capstone		
Elective		
Elective		
HASS		

- Freshmore Subject
- Core Subject
- Humanities, Arts and Social Sciences (HASS) Subject
- Elective
- Capstone

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

## Minor Programmes

Minors offer you more choices and flexibility in pursuing your broader interests, equipping you with additional knowledge.

- Minor in Artificial Intelligence (AI)
- Minor in Design Innovation, Ventures and Entrepreneurship (DIVE)
- Minor in Healthcare Informatics
- Minor in Engineering Product (EP)
- Minor in Engineering Systems (ES)
- Minor in Digital Humanities (DH)
- Minor in Design, Technology and Society (DTS)

Information is subject to change. Visit [istd.sutd.edu.sg](http://istd.sutd.edu.sg) for latest updates.

# WHY ISTD?



## FUTURE-READY CAREER SKILLS

With the same skills of a computer scientist but with an elevated expertise in multi-disciplinary and systematic design approach, your knowledge will be in demand by employers.



## PROBLEM-ORIENTED APPROACH

Work on cross-modular projects and be equipped to develop problem-driven computing solutions instead of just technology-driven solutions, which often do not solve the root of a problem.



## HOLISTIC UNDERSTANDING OF THE WORLD

Your comprehensive understanding of the social, cultural, political and economic dimensions of the world you're creating and designing for gives you a holistic view of any problem, empowering you to apply the most appropriate computing solutions.

# FUTURE POSSIBILITIES



## CAREERS

ISTD graduates are prepared for a wide range of computing and management careers. Your specialised skills in software design, artificial intelligence, data analytics, security, computer engineering and financial technology makes you a technical leader in both the public and private sectors, such as telecommunications, e-commerce, FinTech, transportation and gaming.

### Examples of ISTD graduates' job titles:

- IT security specialist
- Data analyst or scientist
- Software and multimedia developer
- Systems analyst or engineer
- Industrial engineer
- Business or management consultant
- Financial analyst
- Infrastructure engineer or architect
- Software or project manager



## ENTREPRENEURSHIP

With a solid background in design and technology, an ISTD graduate is well placed to launch startups that make a difference.

**Codomo** aims to instil design thinking and computational thinking in children through delightful educational initiatives. The startup launched **Potato Pirates**, dubbed the tastiest coding card game, and raised over \$250,000 on Kickstarter.

**Beep Technologies** provides a low-cost, unified cashless payment system for vending machines. "Making dumb machines smart", it aims to increase merchants' efficiency without investing in additional hardware.

**Affable** is an AI-based influencer marketing platform that has successfully raised \$1 million in seed funding. By tapping onto AI and automated technology, Affable allows brands to discover, engage and measure authentic influencers.



## GRADUATE SCHOOLS

ISTD's rigorous technical training will also prepare you for various post-graduate programmes. Our ISTD graduates are enrolled at top universities such as:

- Carnegie Mellon University
- Columbia University
- University of Cambridge



## ALUMNI TESTIMONIALS



SUTD equipped me with a **solid technical foundation and practical application of concepts**, allowing me to put them to use when I joined GovTech to develop citizen-centric products. In the increasingly complex world we live in today, multi-faceted problems can no longer be solved within a single area of expertise. SUTD has helped me **broaden my skill sets in collaborating with cross-functional teams, understanding and solving complex problems as well as exploring innovative approaches to meet user needs**. Working on multi-disciplinary projects at SUTD and the study of the arts and humanities have provided me with multi-perspective analytical skills.

**Janice Tan**  
Associate Software Engineer,  
Government Digital Services Agile Consulting  
and Engineering  
Class of 2016, ISTD Alumnus

Aside from a world-class education in ISTD, **SUTD has unconditionally supported my peers and I in a myriad of unorthodox ventures** - from setting up a beer brewery student club during our first year to converting our final year capstone project into a startup by **providing industrial and academic expertise in addition to monetary support and incubation facilities**. We owe it all to SUTD!

**Aditya Batura**  
Co-Founder and CEO, Codomo  
Class of 2015, ISTD Alumnus

Apart from deep technical skills, at SUTD, **I developed a keen understanding of a universal design methodology that is necessary to tackle large, complex and abstract design problems**. We were trained not to shy away from interdisciplinary problems but to embrace them. It has enabled me to traverse through leading institutions both in business (Citi) and academia (University of Cambridge). It is this **compatibility of SUTD's education with the needs of real businesses** that the SUTD pedagogy shines.

**Joshua Cheong**  
Digital Innovation Lead, Assistant Vice President,  
Citi Commercial Bank  
MPhil in Technology Policy, University of Cambridge  
First Commonwealth Scholar in Innovation  
Class of 2015, ISTD Alumnus

## EMPLOYER TESTIMONIALS



Upon being hired, the SUTD ISTD graduates are first placed in Citi's Technology Analyst programme which provides them with the exposure needed to get a good understanding of the bank. The programme also serves as a feeder into Citi's Next Gen Programme, enabling these employees to continue advancing their expertise in the technological space. We are pleased to note that the graduates **displayed intellectual curiosity, learning agility and resilience**. Coupled with **a passion for digital innovation**, these young professionals **possess the skill sets relevant to the future of banking**.

Citi Singapore

In our experience, **ISTD graduates have been universally bright, capable, and ready to do complex engineering work**. At Pivotal Labs, we expect our engineers to be able to not only code well, but also be able to teach engineering best practices to the largest and most important organisations in Singapore. We have hired several ISTD graduates, and they **all came in with the theoretical and practical skills to immediately start having a high impact**. An SUTD **ISTD degree is one of the first things that we look for when we are hiring**.

**David Varvel**  
Engineering Director  
Pivotal Labs



# SPECIALISATIONS

## 7

### IoT and Intelligent Systems



Build large-scale networked and distributed systems, gaining fundamental knowledge to make them effective, scalable and intelligent.

### Financial Technology



Understand the core challenges in finance and advanced computing technologies to drive the next generation of financial services.

The ISTD curriculum offers you the flexibility to customise it to suit your interests and aspirations. Your specialisation will be indicated on your transcript so that future employers can recognise this expertise. Choosing a specialisation is optional and you are expected to discuss your elective choices with faculty members.

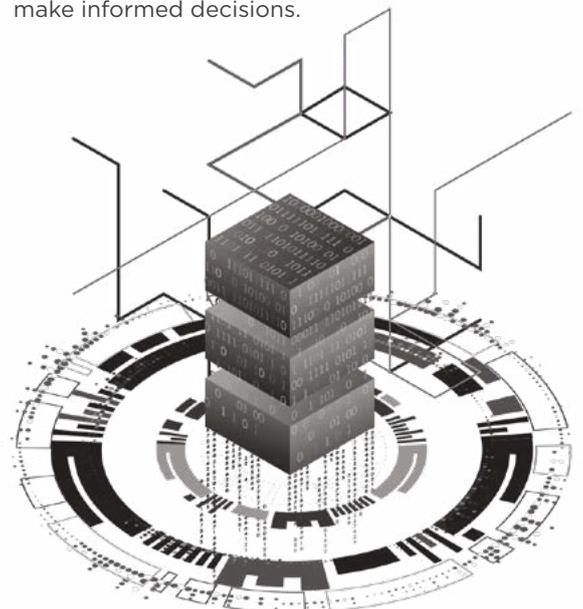
Find out more at [istd.sutd.edu.sg/specialisations](http://istd.sutd.edu.sg/specialisations)

*\*Specialisations offered in a year are subject to changes.*

### Data Analytics



Revolves around three main activities: data capture, data analysis and data exploitation. You will gain the computing skills to develop systems that have the ability to extract insights from data and make informed decisions.





## Artificial Intelligence



Focuses on the fundamental mechanisms that enable the construction of intelligent systems that can operate autonomously, learn from experience, plan their actions and solve complex problems.

## Custom Specialisation



Offers you the opportunity to be an expert in your field of interest and to best realise your career objectives. With the flexibility to select subjects from ISTD and other majors, customise an interdisciplinary curriculum that is firmly grounded in computing around a coherent technical theme.



## Visual Analytics and Computing



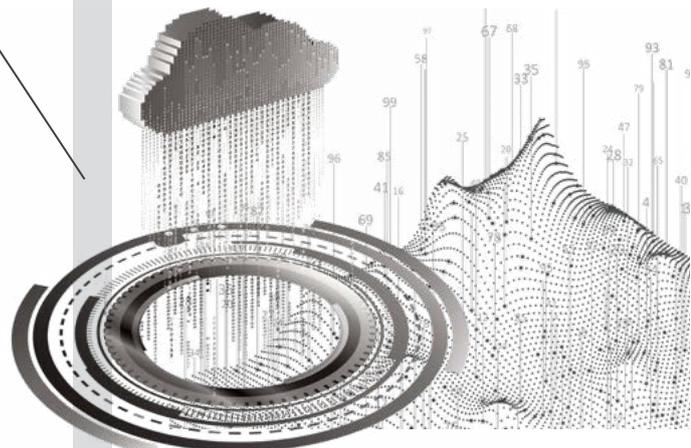
Develop systems to handle visual data, mainly images, videos and shapes. Using computers to analyse, acquire, synthesise and render visual data.



## Security



Designed for students who want to develop state-of-the-art knowledge of computer security, network security and cybersecurity technologies.





Information Systems  
Technology and Design

For enquiries: [sutd.edu.sg/prospectivestudent](https://sutd.edu.sg/prospectivestudent)

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 [istd.sutd.edu.sg](https://istd.sutd.edu.sg)

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