

South Korea - Singapore Expanding PhD Opportunities

Mr Lim Chuan Poh, Chairman, A*STAR

Prof Alfred Huan, Executive Director, A*STAR Graduate Academy

Prof Yue Chee Yoon, Associate Provost, NTU

Prof Tan Eng Chye, Provost, NUS (absent with apologies)

Prof Chong Tow Chong, Provost, SUTD (absent with apologies)



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ABOUT SINGAPORE

An Overview of Singapore



Physical Land Area: 716 sq km

Population: 5.4 million

3.8 million (71.2%)

Singapore Residents

Literacy Rate: 96.5% (Aged 15 & above)

74.9% of those aged 25-34 years
have tertiary qualifications

2014 GDP S\$390.1bn (US\$307.9bn)

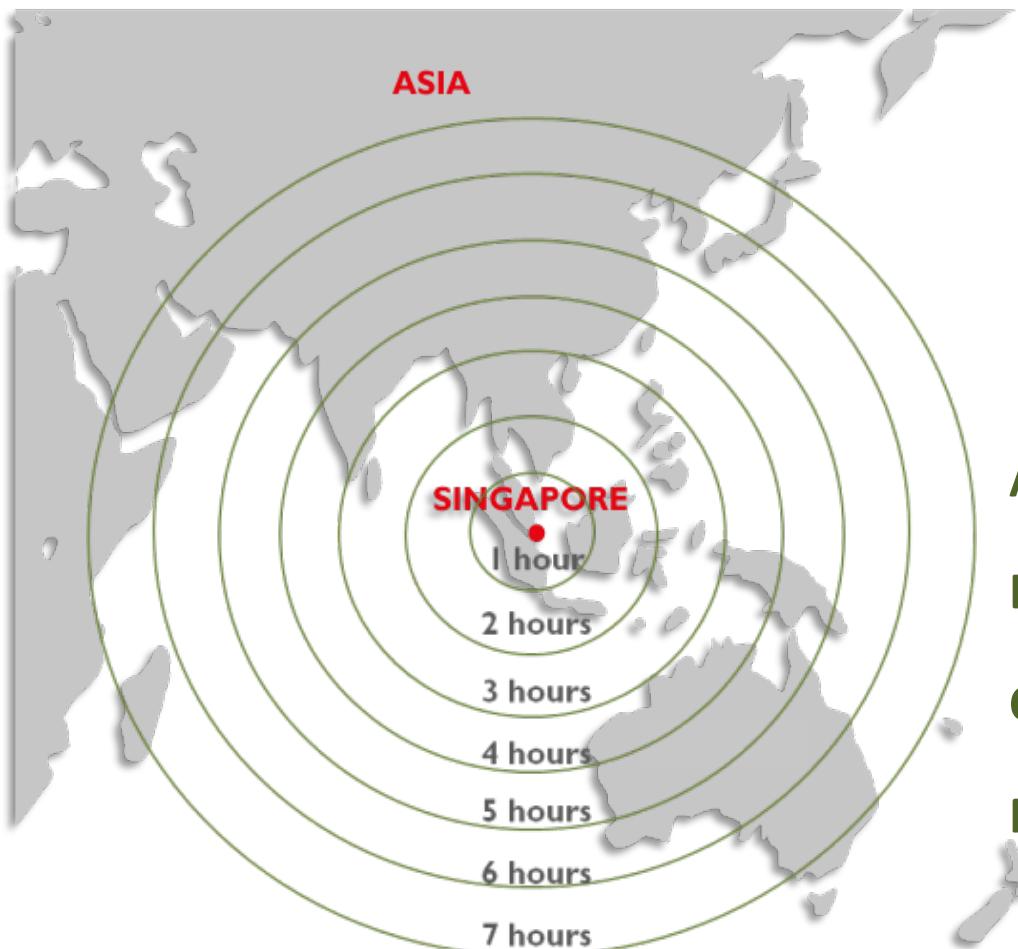
Real Growth : 2.9%

Per Capita GDP: S\$71,318
(US\$56,284)

Independent since 9 August 1965

CREATING GROWTH, ENHANCING LIVES

Singapore's Competitive Advantage



A Regional Hub:

For half the world's population
(3.4 billion people)
For markets worth US\$21.2 trillion
(S\$26.8 trillion)

A Well Connected Global City

English Speaking

Cosmopolitan Environment

Most Liveable City in Asia

Singapore's R&D Framework

FUNDING AGENCIES &
MINISTRIES

RESEARCH
PERFORMERS

Research, Innovation
& Enterprise Council



Lee Hsien Loong
Chairman, RIEC
Prime Minister Singapore

Ministry of
Education



Ministry of
Health



Ministry of
Trade & Industry



NATIONAL
RESEARCH
FOUNDATION



Agency for
Science, Technology
and Research



Polytechnics &
Universities

Hospitals

A*STAR
Research
Institutes

Corporate Labs

RIE 2015

5-year S&T Plans

Research

Innovation

Enterprise

National
Technology
Plan
(1991-1995)
S\$2 billion

National
Science &
Technology Plan
(1996-2000)
S\$4 billion

Science &
Technology
Plan 2005
(2001-2005)
S\$6 billion

Science &
Technology
Plan 2010
(2006-2010)
S\$13.9 billion

Research, Innovation
& Enterprise Plan
2015
(2011-2015)
S\$16.1 billion



Invest in
basic science for
future innovation



Attract and
develop
scientific talent



Emphasis on
competitive funding



Foster
synergies
in public-private
partnership



Focus on
research with
economic outcome



Support for
technology
commercialisation

CREATING GROWTH, ENHANCING LIVES



Agency for
Science, Technology
and Research
SINGAPORE

Singapore's Research Ecosystem



CREATING GROWTH, ENHANCING LIVES



ABOUT A*STAR

MISSION

We advance science and develop innovative technology to further economic growth and improve lives

VISION

A global leader in science, technology and open innovation

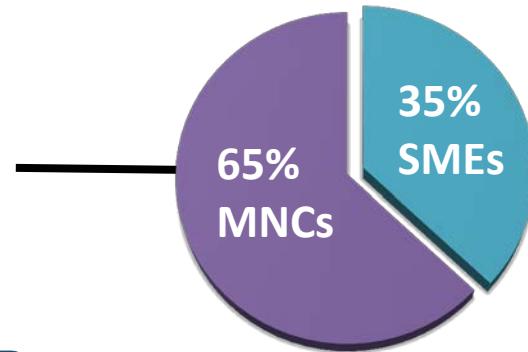
CREATING GROWTH, ENHANCING LIVES



Singapore's Lead Government Agency for Economic Oriented R&D

>1,700

INDUSTRY PROJECTS A YEAR
5 INDUSTRY PROJECTS A DAY



>2,800

PAPERS
PUBLISHED
A YEAR

>200

LICENSES A YEAR
4 LICENSES A WEEK

>13

START-UPS
A YEAR

>240

PATENTS FILED
A YEAR

1

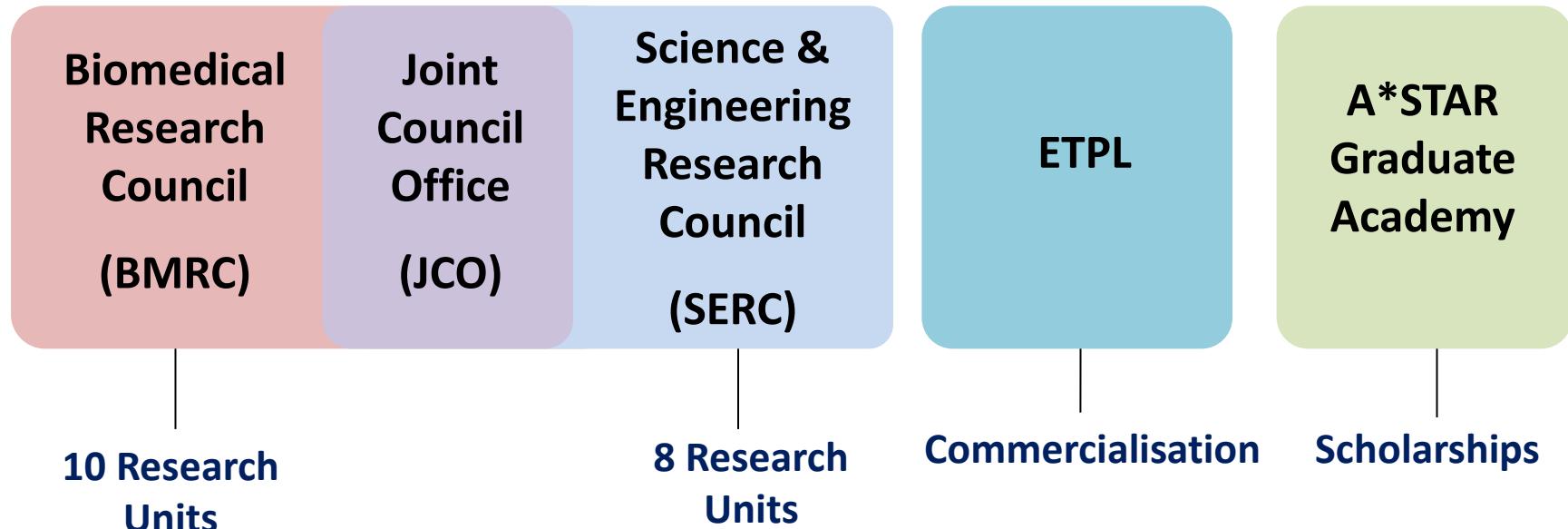
RSE SPUN OUT TO
INDUSTRY A DAY*

* average number of Research Scientists and
Engineers (RSE) per working day in a calendar year

CREATING GROWTH, ENHANCING LIVES

A*STAR

Mission: We advance science and develop innovative technology to further economic growth and improve lives



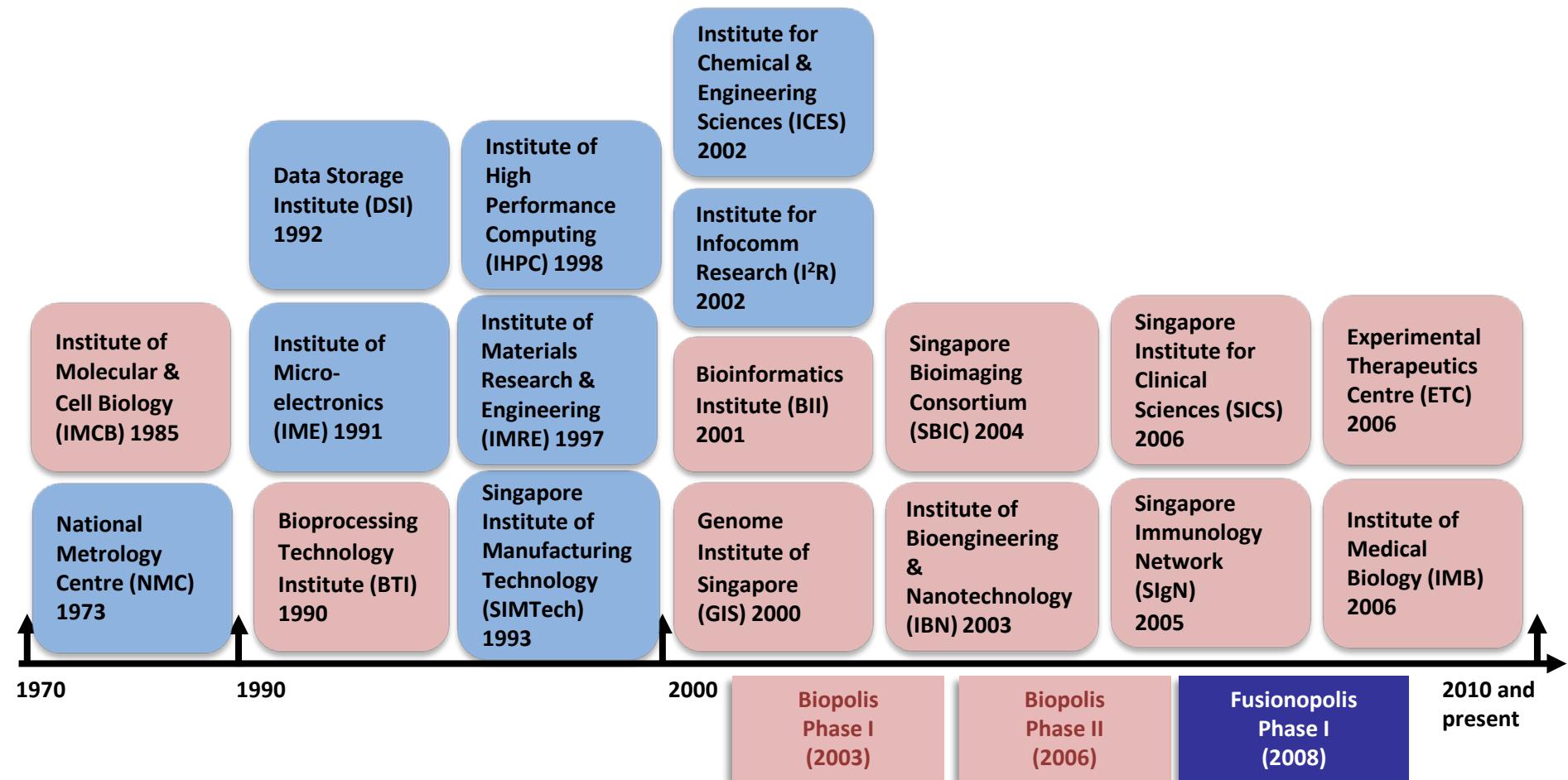
>5,400 Staff

>4,500 Researchers, Engineers and Technical Support Staff

>40% of whom come from 60 countries

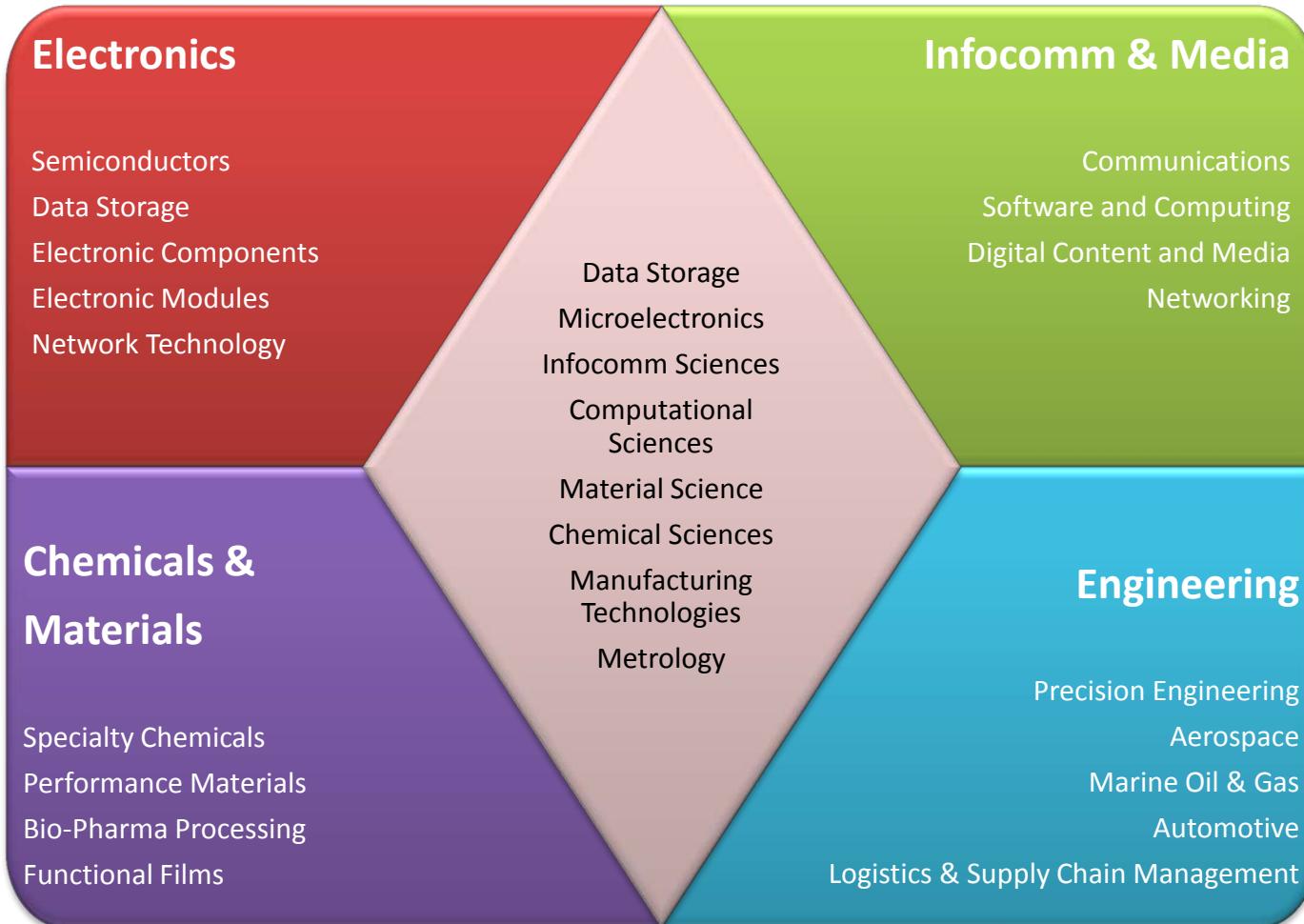
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A*STAR



CREATING GROWTH, ENHANCING LIVES

Core SERC Capabilities



CREATING GROWTH, ENHANCING LIVES



BMRC Core Capabilities

PHARMACEUTICALS

Development of small molecule therapeutics

Development of high-value nutrition and personal care / consumer products

NUTRITION & PERSONAL CARE

Bioimaging

Bioprocessing

Genomics & Proteomics

Molecular & Cell Biology

Drugs/Biologics Discovery and Development

Bioengineering & Nanotechnology

Computational Biology

Immunology

MEDICAL TECHNOLOGY

Medical devices, info tech, diagnostics

Development of protein-based therapeutics

BIOTECHNOLOGY & BIOLOGICS

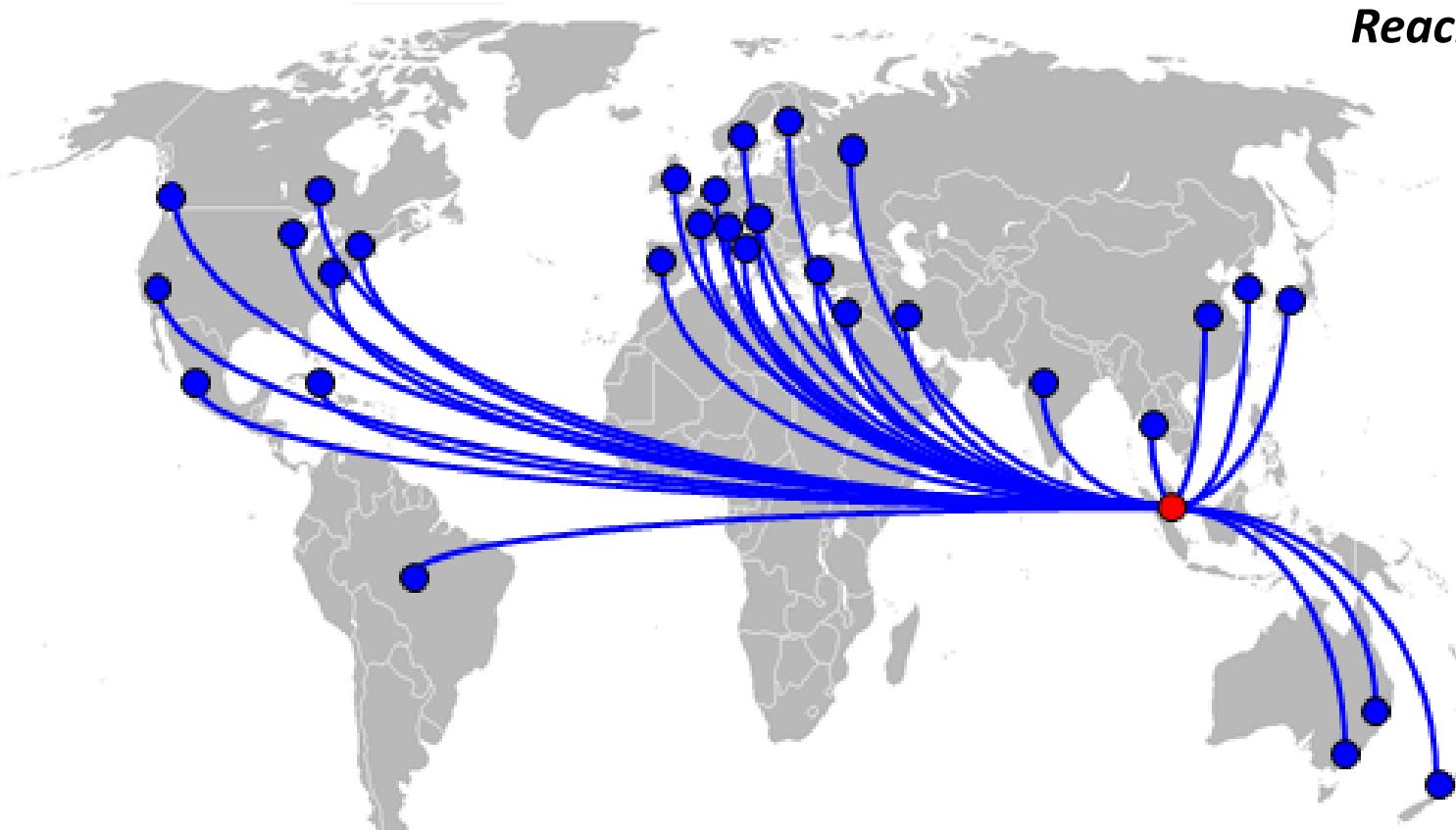
CREATING GROWTH, ENHANCING LIVES



Agency for
Science, Technology
and Research
SINGAPORE

International Relations & Partnerships

*Science is International
Reaching out*



*Continue to foster collaborations and cooperation through
bilateral grants, scientific exchanges and joint symposiums*

CREATING GROWTH, ENHANCING LIVES



RESEARCH AT A*STAR

CREATING GROWTH, ENHANCING LIVES



Agency for
Science, Technology
and Research

Societal Impact, Improving Lives



A*STAR is developing Singapore's first H1N1 influenza vaccine, in collaboration with Switzerland's Cytos Biotechnology. This will improve Singapore's ability to respond to flu outbreaks.



A*STAR contributes to the safety of the water you are drinking everyday. A*STAR's Fish Activity Monitoring System (FAMS) processes video images of fish movements to detect and alert operators of incidences of abnormalities.

GUSTO

Understanding infant cognitive development and finding ways of preventing the onset of diseases in later years.



thesundaytimes
home 17
Mar 4, 2014 marieblair@newspaperworks.com

Anxious mums = smaller babies

Study finds that the mental state of pregnant women can affect their infants' brain development

A*STAR's Genetics Research Saves a Life

A*STAR researchers identified the mutation of a child suffering from an extremely rare genetic disease affecting her skin and T cells in her immune system. Acting on the research findings, KKH carried out bone marrow transplantation to replace the child's missing T cells. The child is now recovering.



Institute of
Molecular and
Cell Biology
A*STAR



Institute of
Medical Biology
A*STAR



KK Women's and
Children's Hospital
SingHealth

Research Opportunities in Singapore for International Students



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Invitation to International Students

Opportunities for Graduate & Pre-Graduate students from around the world



Graduate

Singapore International Graduate Award (SINGA)

- Full PhD scholarship
- At A*STAR, NUS, NTU and SUTD

A*STAR Research Attachment Programme (ARAP)

- PhD research attachments at A*STAR Research Institutes
- Under joint supervision of A*STAR scientists and overseas universities

Pre-graduate

Singapore International Pre-Graduate Award (SIPGA)

- Short-term research attachments at A*STAR Research Institutes
- For students in the later years of Bachelors' or Masters

Singapore International Graduate Award (SINGA)



Agency for
Science, Technology
and Research



NANYANG
TECHNOLOGICAL
UNIVERSITY



NUS
National University
of Singapore



SINGAPORE UNIVERSITY OF
TECHNOLOGY AND DESIGN

Established in collaboration with MIT

Singapore International Graduate Award (SINGA)

Outstanding international students given a chance to:

- Conduct **cutting-edge research** in A*STAR, NTU, NUS or SUTD
- Receive a **top-tier PhD degree** from either NTU, NUS or SUTD

Since 2008:

- SINGA has attracted **over 15,000 applications from 149 countries**

Currently:

- **More than 650 students from over 75 countries** pursuing their PhD or have graduated under the programme

(as of 3 Dec 2015)



Singapore International Graduate Award (SINGA)

Award terms

- Tuition fees for 4 years PhD programme
- S\$2,000 → S\$2,500 (*2,000,000 South Korean Won*)
- Airfare Grant of S\$1,500 (*1,200,000 South Korean Won*)
- Settling-in Allowance of S\$1,000 (*800,000 South Korean Won*)

Student eligibility

- Graduates with excellent academic performance
- Strong passion for research
- 2 Recommendation reports
- Good skills in written and spoken English

Areas of Studies

Biomedical Sciences	Physical Sciences and Engineering
Biochemistry/ Pharmaceutics Immunology / Microbiology Molecular Cell & Biology Developmental & Systems Biology Bioinformatics Biotechnologies/ Biologics Neuroscience Biostatistics / Epidemiology Clinical Sciences/ Bio-imaging Nutrition	Electrical & Electronics Engineering Computer Science & Engineering Chemical Engineering Mechanical Engineering Physics & Applied Physics Materials Science & Engineering Civil & Environmental Engineering Manufacturing Technologies

Medical Technologies
Chemistry



Visit our website

<http://www.singa.a-star.edu.sg>



Agency for
Science, Technology
and Research



NANYANG
TECHNOLOGICAL
UNIVERSITY

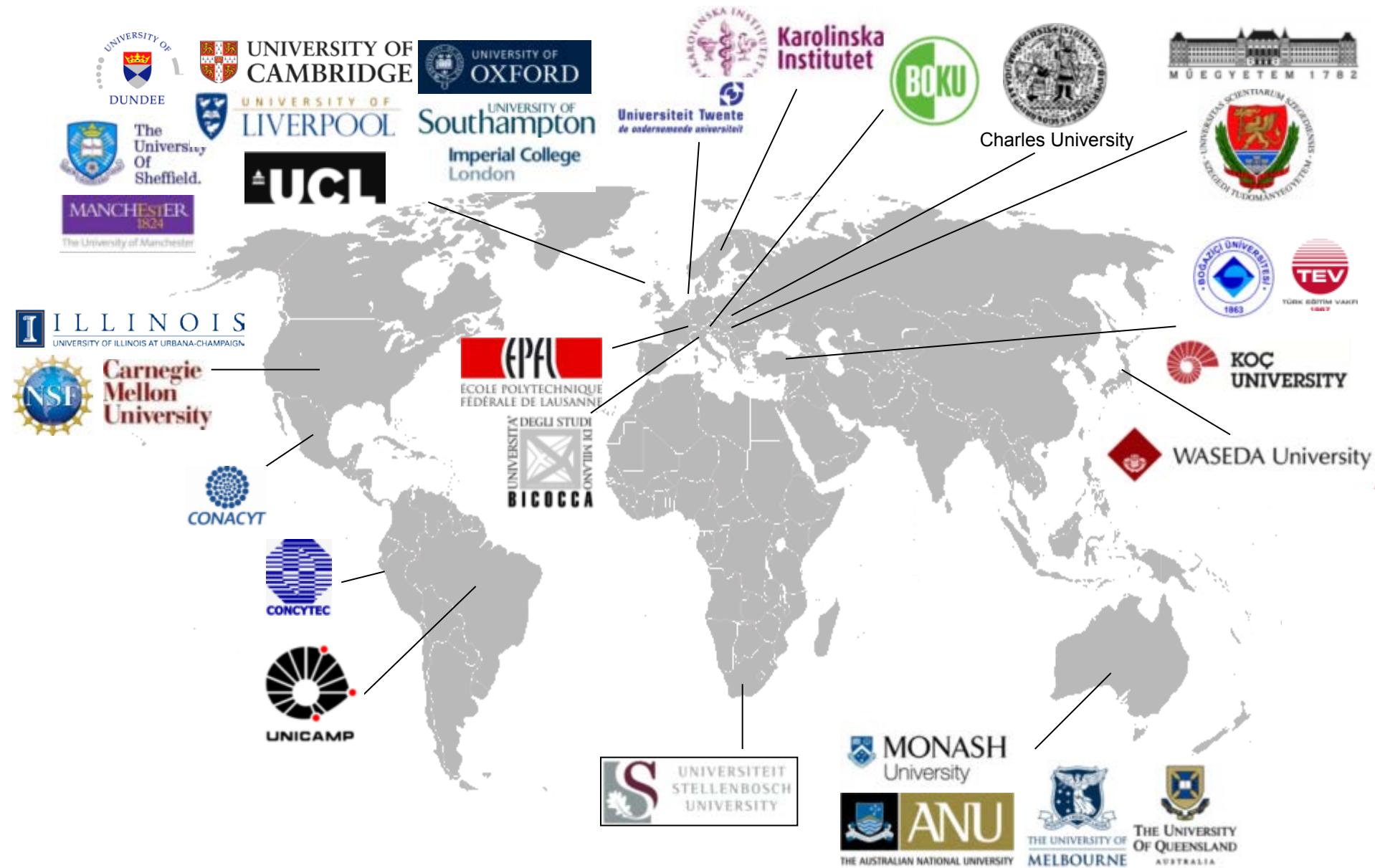


NUS
National University
of Singapore

SUTD
SINGAPORE UNIVERSITY OF
TECHNOLOGY AND DESIGN

Established in collaboration with MIT

Our International Partners



A*STAR Research Attachment Programme (ARAP)

- Established in 2008, ARAP is designed to facilitate collaboration between A*STAR and overseas universities.
- PhD students from overseas universities spend 1-2 years at an A*STAR Research Institute under the joint supervision of staff of the A*STAR Research Institute and the university.
- PhD degree will be conferred by the university.
- Since 2008, over 190 students from about 35 countries (such as the United Kingdom, Italy, Australia and Tunisia) have been awarded ARAP.

Partners include:



MONASH University



ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE



UNIVERSITY OF
Southampton



The University of Manchester



A*STAR Research Attachment Programme (ARAP)

Award terms:

- Monthly stipends of S\$2,500 for the period based at A*STAR
- One-time settling-in allowance of S\$1,000
- One-time airfare grant of S\$1,500

Student eligibility:

- Enrolled in a PhD programme with the University
- Bachelor's degree is at least Second Class (Upper) Honours or equivalent



CREATING GROWTH, ENHANCING LIVES

Singapore International Pre-Graduate Award (SIPGA)

- Supports short-term research attachments of 2-6 months for international pre-PhD students at an A*STAR Research Institute.
- Open for application by all international students who are in their 3rd/4th year of undergraduate studies or doing their Master's studies.
- Since 2008, over 610 students from about 65 countries such as Brazil, USA, Croatia and Japan have been awarded SIPGA.



CREATING GROWTH, ENHANCING LIVES

Singapore International Pre-Graduate Award (SIPGA)

Award Terms:

- Monthly stipend of \$1,500

Student eligibility:

- In 3rd/4th year of undergraduate studies or students doing Master's studies
- Bachelor's degree is / on track to at least Second Class (Upper) Honours or equivalent

*The above eligibility criteria are not exhaustive. A*STAR may include additional selection criteria based on prevailing scholarship policies. These policies may be amended from time to time without notice.*

CREATING GROWTH, ENHANCING LIVES



Our International Scholars



[SINGA]

Giorgiana Ribeiro Salgado, Brazil

BS: Federal University of Minas Gerais

Research: Institute of Medical Biology, A*STAR



[SINGA]

Daniel Rugeles, Colombia

BS: National University of Colombia

MS: Purdue University

Research: Institute for Infocomm Research , A*STAR



[ARAP]

Alessandro Riccio, Italy

PhD: University of Liverpool, UK

Research: Institute of Molecular & Cell Biology, A*STAR



[SIPGA]

Carlos Campos Cuerva, Spain

BS: Utrecht University, The Netherlands

Research: Institute of Chemical & Engineering Sciences, A*STAR



[SIPGA]

Ece Kurtaraner, Turkey

BS: Sabanci University, Turkey

Research: Singapore Institute of Manufacturing
Technology, A*STAR

CREATING AN INNOVATION ECONOMY



Agency for
Science, Technology
and Research

**FOR
YOUR NEXT
MILESTONE,
HEAD EAST.**



Singapore University of Technology and Design (SUTD) Graduate Programmes

Presented by

Prof Chong Tow Chong
Provost, SUTD





“The Singapore University of Technology and Design will provide something different from the existing institutions ...”

Lee Hsien Loong



Education, Research,
Exchanges





SUTD East Coast Campus

"If I had the chance to start MIT again, SUTD would be how I would do it."

Tom Magnanti
Founding President of SUTD
MIT Institute Professor



Big 'D' Movement : Unique focus on Design

- Design, or Big D, is a strong differentiator for SUTD
 - Design permeates every stage of full value chain
 - Design is key to Ideas, Innovation, Functionality to end users
 - Design serves as a catalyst for solutioning
 - Design boost commercial viability of end products
 - Design Thinking is the key driver for the 21st century



Global Faculty: US & Europe - 36%;
Asia Pacific - 25%; Singapore - 39%



Graduate Student Diversity



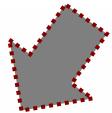
Nurturing faculty. International diversity. MIT standards.
Not lacking in good mentors and diversity.



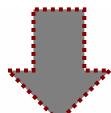
SUTD faculty to undergo year-long
training in MIT

SUTD PhD Programme

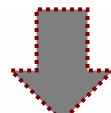
Residency: 3 to 5 years (Sep & Jan Intakes)



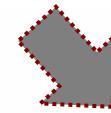
Architecture
and
Sustainable
Design



Engineering
Product
Development



Engineering
Systems and
Design



Information
Systems
Technology
and Design

Looking for bold thinkers, aspiring leaders, trend-setters.



SUTD Unique PhD Programme

Stimulating
Multi-
Disciplinary
environment

World-Class
Faculty

at the forefront of
their fields

Engagement
society's
Grand
Challenges

Creating the 21st Century PhDs... for the Design Economy

Mentored
Teaching
opportunities

International
research attachments
at Top
Universities

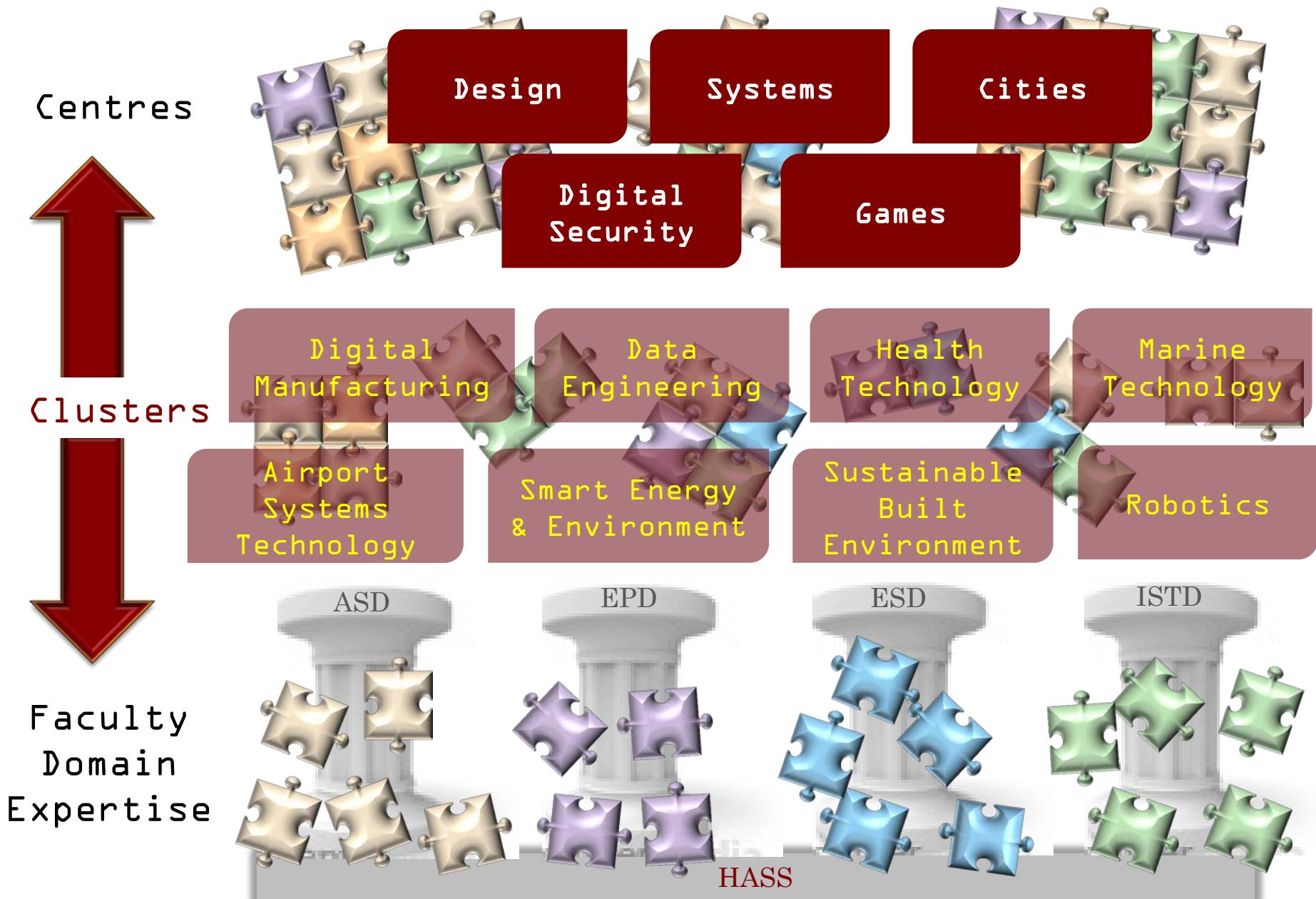
Industry
Internship &
Research
Attachment

Career
Development
and Placement

Innovative and
Entrepreneurial
Ecosystem

PhD Big D
Design Project

SUTD Research



SUTD PhD - Research Areas



Architecture and Sustainable Design

- ✓ Architecture and sustainable design and practice
- ✓ Innovative city design and development
- ✓ Environmental policy and planning
- ✓ Computation pertaining to the description, generation, and construction of architecture
- ✓ Development and application of advanced technology for buildings
- ✓ Historical, theoretical, and critical



Engineering Systems and Design

- ✓ Operations research broadly defined, including optimisation, stochastic modelling, statistics, game theory, and control science
- ✓ Operations management with application to manufacturing, services, and the public sector
- ✓ Areas at the interface with economics, public policy, organisational behaviour, finance, and marketing
- ✓ Large scale complex systems, including supply chains and logistics, transportation systems, health delivery systems, and



Engineering Product Development

- ✓ Bio-medical engineering, medical devices and healthcare
- ✓ Design theory and science
- ✓ Innovation and creativity
- ✓ Electronics and photonics
- ✓ Robotics, transformers and unmanned platforms
- ✓ Energy harvesting and alternative energies
- ✓ Materials, ceramics and nanomaterials
- ✓ Complex dynamic systems and controls
- ✓ Imaging, infocomm and digital media
- ✓ Integrated circuits, sensors and semiconductors
- ✓ Wireless networks and smartgrid



Information Systems Technology and Design

- ✓ Information security
- ✓ Software engineering
- ✓ Wireless and sensor networks
- ✓ Multi-modal information retrieval
- ✓ Graphics and visualisation
- ✓ Human computer interface
- ✓ Machine learning and artificial intelligence
- ✓ Very large database systems
- ✓ Audio analysis
- ✓ Natural language processing
- ✓ Semantic web applications

Research Centres



SUTD-MIT INTERNATIONAL DESIGN CENTRE (IDC)

Undertake the impossible, Design the unexpected

An ambitious goal of becoming the world's premiere scholarly hub for technologically intensive design.

iTrust Center for Research in Cyber Security

Fundamental and applied research in the broad areas of information and system security, including large and complex cyber physical systems.

Temasek Laboratories @ NTU
Defence system design and development: Unmanned Systems, Information Systems, Soldier Systems and Engineering Systems.

Lee Kuan Yew Centre for Innovative Cities
Stimulate thinking and research on the critical issues of cities and urbanisation, and to provide breakthrough urban solutions. The Centre will study the confluence of governance, social management frameworks and technology and design innovations.



LEE KUAN YEW CENTRE
FOR INNOVATIVE CITIES



SUTD GREaT Lab

Collaboration with NTU on Secure cloud gaming; Gaming for enhancing rehabilitation; Futuristic gaming.





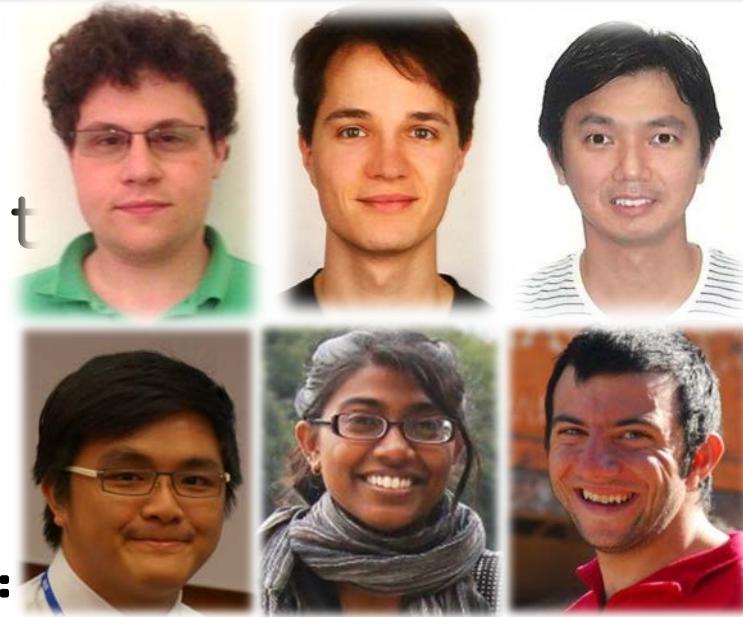
GREAT TALENTS. GREAT INTERNSHIPS. GREAT CAREERS.



Current PhD Students (since Sept 2013)

143

PhD student



19

countries

From top universities around the world:

Massachusetts Institute of Technology

ETH Zurich

Tsinghua University

National

University of Singapore

Hong Kong University of Science and Technology
University

Fudan

Architecture Association School of
Architecture

Nanyang Technological University
Bilkent University

Incoming students also from:

SUTD President's Graduate Fellowship



- ✓ Full tuition fees
- ✓ Monthly stipend of S\$3,000 (approximately USD2,200)
- ✓ Annual conference funding support
- ✓ Opportunities for overseas research attachments and industry internships

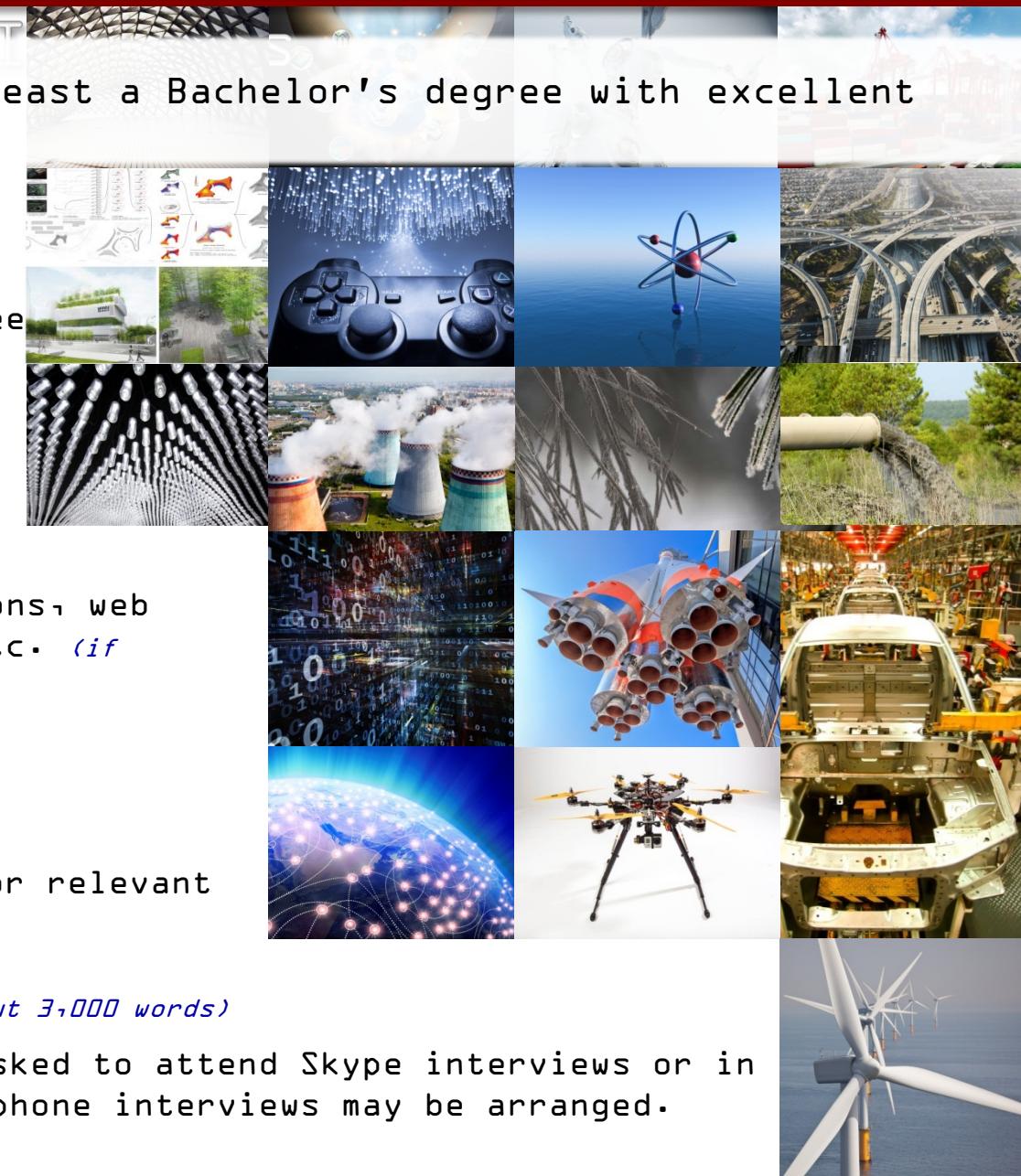
Application - Sep 2016 & Jan 2017

Applicants should possess at least a Bachelor's degree with excellent academic standing.

www.sutd.edu.sg/phd_application

- Original Undergraduate and/or Master's transcripts and degree certificates
- TOEFL or IELTS score report
- Graduate Record Examinations (GRE) score report
- Portfolios, awards, publications, web links to personal portfolio etc. *(if applicable)*
- Names & E-mail Addresses of 3 Recommenders
- A copy of your Identity Card or relevant pages of your Passport
- A Statement of Objectives *(about 3,000 words)*

Short-listed applicants may be asked to attend Skype interviews or in some cases, face-to-face or telephone interviews may be arranged.







TOWARDS A BETTER WORLD BY DESIGN



Established in collaboration with MIT

NUS OVERVIEW

A COMPREHENSIVE, RESEARCH-INTENSIVE UNIVERSITY

16

Schools

3

Research
Centres of
Excellence*

26

Research
Institutes
& Centres

6

Overseas
Colleges

* 4th Research Centre of Excellence shared with Nanyang Technological University

WE TAKE STUDENTS TO THE WORLD

> 70 double, joint & concurrent degree programmes with world's top universities

Student exchange programmes with over 300 top universities in 50 countries

> 70% undergraduates go overseas; 30% for > 6 months

NUS Overseas Colleges across China, Europe and the United States



WE BRING THE WORLD TO NUS

Students & faculty from **>100** countries
18% undergraduates & **60%** graduate students from abroad

Partnerships with overseas institutions
e.g. Duke-NUS, Yale-NUS, Yong Siew Toh Conservatory of Music

Inbound exchange students
> 1,900 per year





Internships at some of the world's most exciting entrepreneurial hubs

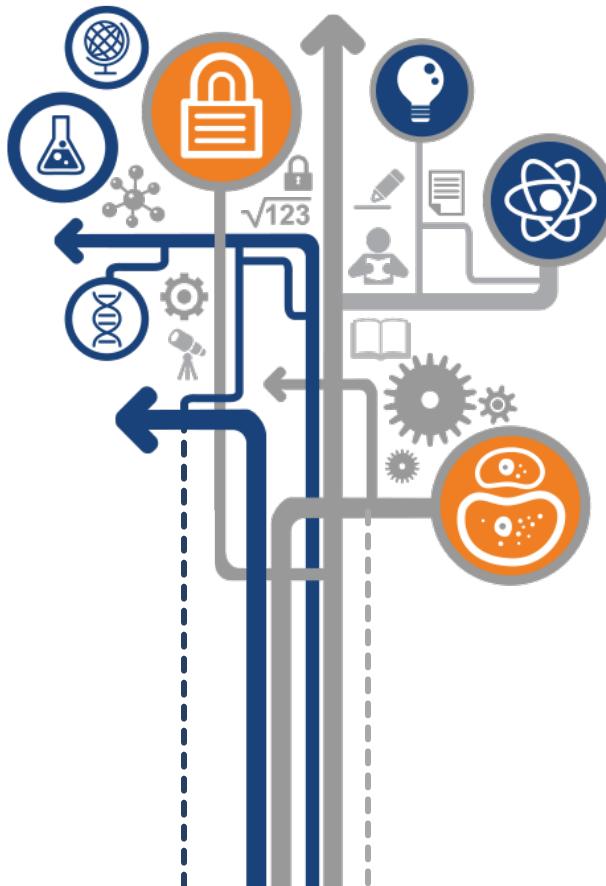
Study programmes at prestigious partner universities



Carry out cutting-edge research of **global impact** while supporting **national** research objectives

Achieve **peaks of excellence** across broad-based research

Bring research discoveries to **application** and **commercialisation**



Centre for Quantum Technologies (2007)

Cancer Science Institute of Singapore (2008)

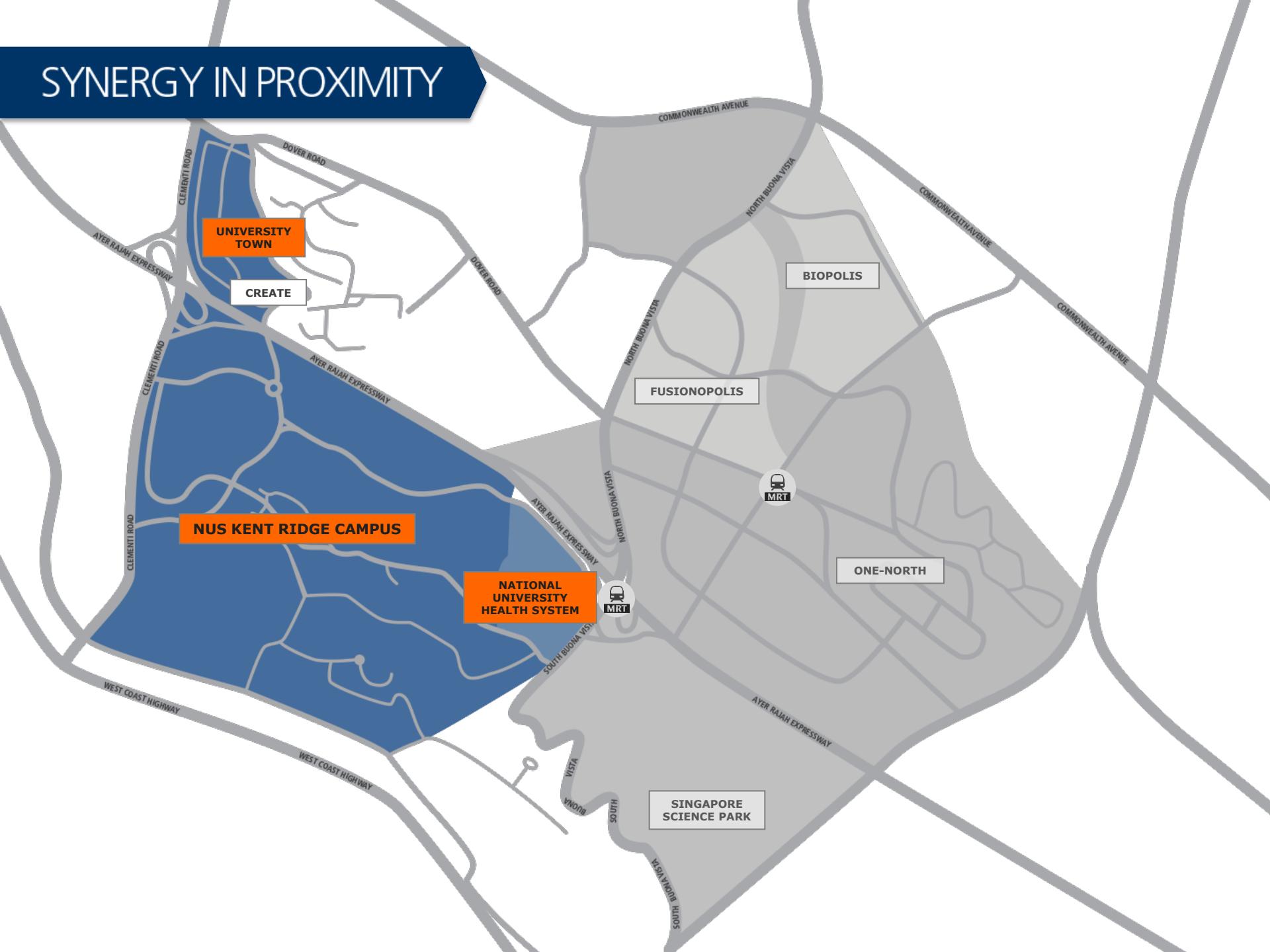
Mechanobiology Institute, Singapore (2009)

Singapore Centre on Environmental Life Sciences Engineering (jointly with NTU) (2011)

INTEGRATIVE RESEARCH CLUSTERS



SYNERGY IN PROXIMITY



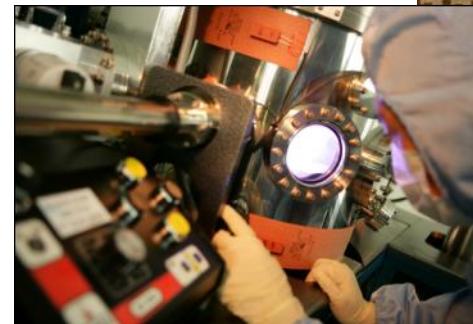
PhD Research Clusters:

- Algorithms and Theory
- Artificial Intelligence
- Biomedical Computing
- Database Management Systems
- Information Security
- Media, Graphics and HCI
- Programming/Software Engineering
- Systems and Networking
- Culture and Information Systems
- Economics of Information Technology
- Electronic Commerce
- Electronic Government
- Group Support Systems
- Negotiation Support Systems
- Information Privacy
- User-Database Interaction

Graduate Research Programs

Ph.D. and M.Eng. courses in the following areas:

- Biomedical Engineering
- Chemical & Biomolecular Engineering
- Civil & Environmental Engineering
- Electrical & Computer Engineering
- Engineering & Technology Management
- Industrial & Systems Engineering
- Materials Science & Engineering
- Mechanical Engineering



17 Departments:

Alice Lee Center for Nursing

Anesthesia

Anatomy

Biochemistry

Diagnostic Radiology

Medicine

Microbiology

Obstetrics & Gynaecology

Ophthalmology

Orthopedic Surgery

Otolaryngology

Pediatrics

Pathology

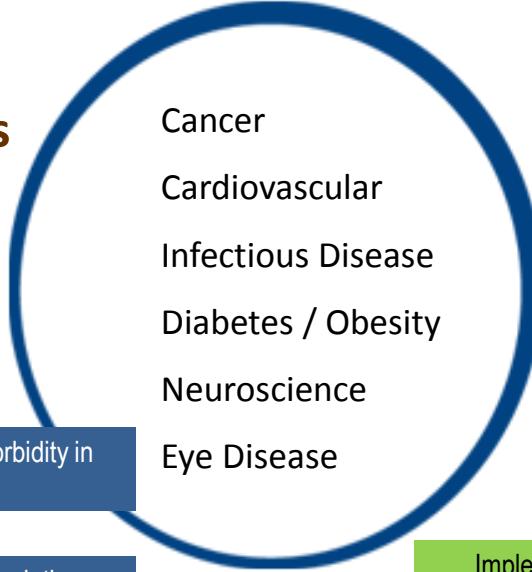
Pharmacology

Physiology

Psychological Medicine

Surgery

Targeted Research Areas



- Cancer
- Cardiovascular
- Infectious Disease
- Diabetes / Obesity
- Neuroscience
- Eye Disease

Leading causes of mortality and morbidity in Singapore

Important diseases in an aging population

Asian phenotype: Gastric cancer

Implement health services research to improve our delivery of quality health care

Establish proof-of-concept and efficacy in humans

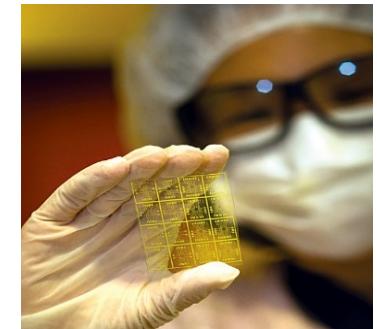
Generate multidisciplinary, theme-based research

Research

Some of our research strengths:

Biological Sciences

- Molecular cell & developmental biology: plant & fish biology, genomics, signaling, proteomics, lipidomics
- Molecular genetics & protein science: infectious diseases, biomarker discovery
- Environmental biology: marine, freshwater, park, forest, evolutionary ecology
- Physical biology: biophysics, bioimaging, bioinformatics



Pharmacy

- Pharmaceutical technology
- Molecular pharmacology

Physics & Chemistry

- Advanced materials: organic semiconductors, graphenes & 2D materials, nanomaterials
- Quantum information & computing
- Green chemistry: asymmetric catalysis, medicinal chemistry
- Environmental science



Mathematics & Statistics

- Pure mathematics: algebra & number theory, logic, geometry
- Applied mathematics: imaging science, finance, optimisation
- Big data: computational biology, epidemics, genetics, finance, methodologies

Zopim

- Award-winning live chat solution founded by NOC alumni in 2007
- Acquired by American company Zendesk for almost USD30 million in 2014

tenCube

- Mobile security service founded by NOC alumni in 2005
- Won Start-Up@Singapore Business Plan Competition 2006
- Acquired by McAfee in 2010





AYOXXA Biosystems

- Developed proprietary technology platform for multiplexed protein analysis
- Secured EU14 million in Series A and Series B funding
- Named **Promising NUS Start-Up** at Innovation & Enterprise Awards 2014



Clearbridge BioMedics

- Launched ClearCell System which detects, isolates and retrieves intact circulating tumour cells, benefitting the global cancer research community
- Secured SGD9 million funding in 2013



ViSenze

- Developed visual technology using only photos for online search in e-commerce and contextual display advertising
- Won **SiTF 2013 Award (Emerging Technology)** and **2014 Red Herring Top 100 Award**
- Invested by Japanese company Rakuten in 2014



NERI-Agilent Environmental Research Alliance

- Access to Agilent's state-of-the-art equipment in NERI laboratories to conduct studies on water, air, soil, food and bio-specimens
- Helps Agilent to develop new applications and software for its instruments



NUS Centre for Business Analytics

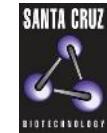
- Centre taps on NUS' strengths across multiple disciplines, focusing on "big data" analytics and technologies, as well as consumer data, financial and risk analytics
- IBM provides expertise in analytics technology and solutions



NUS-Keppel Corporate Lab

- Partnership between NUS (Faculty of Engineering, Tropical Marine Sciences Institute and Department of Biological Sciences) and Keppel Offshore & Marine
- Research areas:
 - Innovative systems for oil/gas exploration in deep/ultra-deep water and Arctic environments
 - More efficient production methods in shipyards
 - Environmentally-benign technologies to harvest polymetallic nodules from deep seabeds

PARTNERING INDUSTRY



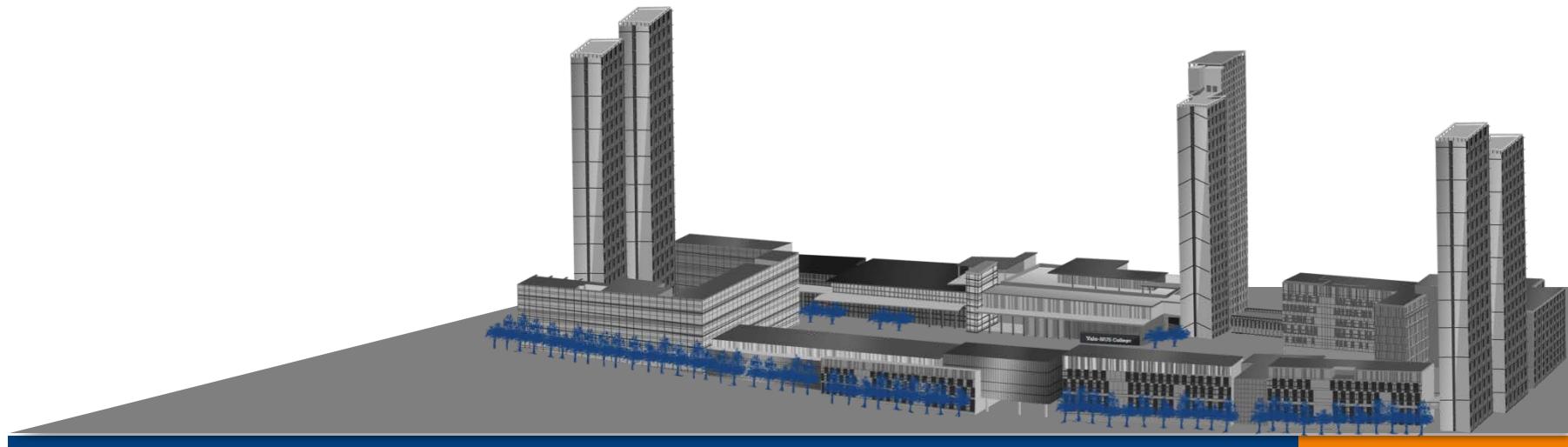
UNIVERSITY TOWN

- Home to Singapore's first residential colleges
- State-of-the-art teaching and learning facilities
- Excellent opportunities for interaction among diverse student and research communities



YALE-NUS COLLEGE

- Singapore's first liberal arts college
- New model of liberal arts and science education for Asia
- Collaboration with Yale University, its first campus outside New Haven, Connecticut



NUS (SUZHOU) RESEARCH INSTITUTE

- NUS' first overseas research institute
- First foreign university to set up a research institute within the Suzhou Dushu Lake Science and Education Innovation District of the Suzhou Industrial Park



IARU

International
Alliance of
Research
Universities

APRU

Association of
Pacific Rim
Universities

AUN

ASEAN
University
Network

U21

Universitas
21

WEF

Global University
Leaders'
Forum



QS UNIVERSITY RANKINGS

1

Asia
University
Rankings
2015

12

World
University
Rankings
2015 - 2016

TIMES HIGHER EDUCATION

2

Asia
University
Rankings
2015

24

World
Reputation
Rankings
2015

26

World
University
Rankings
2014 - 2015

The 2015 QS World University Rankings by Subject places **NUS** among the world's **10 best universities for 11 subjects**

SUBJECTS	WORLD RANKING
ENGINEERING – CIVIL & STRUCTURAL	3
ENGINEERING – CHEMICAL	5
ENGINEERING – ELECTRICAL & ELECTRONIC	6
MATERIALS SCIENCE	6*
ARCHITECTURE/BUILT ENVIRONMENT (<i>NEW</i>)	6
CHEMISTRY	7
BIOLOGICAL SCIENCES	8
ENGINEERING – MECHANICAL, AERONAUTICAL & MANUFACTURING	8
LINGUISTICS	8
GEOGRAPHY	9
ENVIRONMENTAL SCIENCES	10

* In joint position with another university



NUS has strived to differentiate itself as a global university centred in Asia through educational innovation, multidisciplinary research and strategic partnerships.

We will continue to keep a sharp focus on nurturing and recruiting talented faculty, staff and students, while providing a conducive environment for this thriving community to pioneer advances in education and research and make a strong positive impact on Singapore and society.

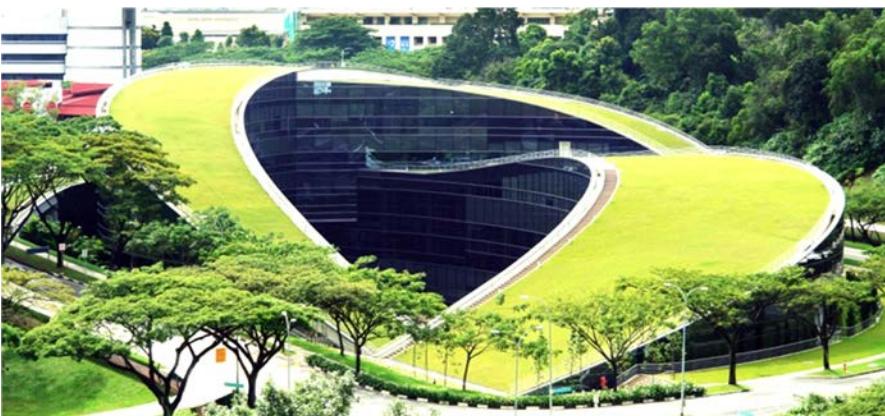


NUS President Professor Tan Chorh Chuan



NANYANG
TECHNOLOGICAL
UNIVERSITY

NTU Singapore



Presented by Prof C.Y. Yue Associate Provost (Graduate Education)

NTU – A Fast-rising University (founded 1991 : 25 years)

- Ranked 13th in *QS World University Rankings* (2015)
- Ranked 55th in *Times Higher Education World University Rankings* (2015)
 - **Quantum leap of 114 places over 4 years**
- Ranked 1st in QS Top-50 under 50 University rankings (2015)
- Ranked 4th in QS Asia University Rankings (2015)
- Ranked 5th in THE Top-100 under 50 (2015)
- Highly ranked in disciplinary assessments:
 - **Engineering & Technology:** 6th (QS 2015)
 - Electrical & Electronic: 7th (QS 2015), Materials Science: 8th (QS 2015)
 - Natural Sciences: 15th (QS 2015)
 - Arts & Humanities: 45th (QS 2015)
 - Social Sciences & Management: 22nd (QS 2015)
 - Life Sciences & Medicine: 131st (QS 2015)

ABOUT NTU

- Total student population:
 - $\approx 23,500$ undergraduates
 - $\approx 9,000$ graduate students
 - $\approx 3,540$ PhD students
- International students:
 - 20% of undergrads
 - 52% of Masters
 - 79% of PhDs
- **Total staff strength: $\approx 6,850$**
 - $\approx 1,700$ faculty (including visiting faculty)
 - $\approx 2,350$ research staff
 - $\approx 2,800$ admin & support staff

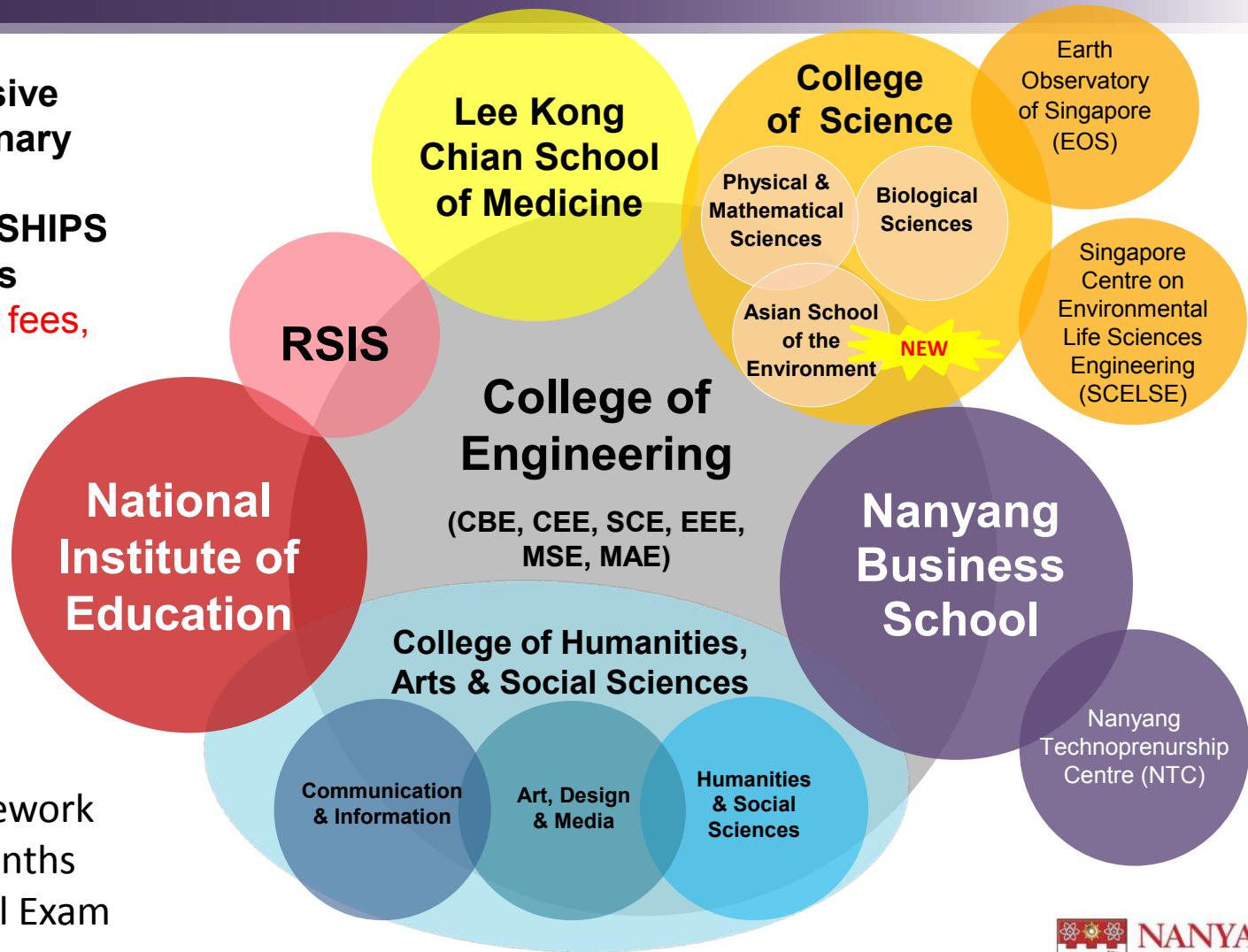


70% international
faculty & research staff

About NTU Singapore

One of the World's Biggest Engineering University, but More Comprehensive

- Research-intensive and interdisciplinary
- **FULL SCHOLARSHIPS** for PhD students
(covers full tuition fees, monthly living allowance for 4 years)



PhD (4 years)

- Year 1 coursework
- QE at 18 months
- Thesis + Oral Exam

NTU's Top International Partner Universities



IIT Bombay

Imperial College
London

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

TUM
Technische Universität München

Georgia Institute of Technology

CALTECH



UNSW
THE UNIVERSITY OF NEW SOUTH WALES
SYDNEY • CANBERRA • AUSTRALIA

UNIVERSITY OF CAMBRIDGE



東京工業大学
Tokyo Institute of Technology

LINKÖPINGS UNIVERSITET
LINKÖPINGS UNIVERSITET



Global Alliance of
Technological Universities

NANYANG
TECHNOLOGICAL
UNIVERSITY

NTU' FIVE PEAKS OF EXCELLENCE



Sustainable
Earth

Future
Healthcare

New
Media

New
Silk Road

Innovation
Asia

Peaks of Excellence

in a landscape of high achievement and potential

Sustainable Earth

Most established and prominent Peak

- ✓ Research funding ~US\$ 1 billion
- Earth Observatory of Singapore
Singapore Centre of Environmental and Life Sciences
- Nanyang Environment and Water Research Institute
- Energy Research Institute @ NTU
- JTC Clean Park
- CREATE Entities at NTU for Sustainability
- BGU and HUJ- Energy Efficiency
- TUM - Electromobility
- ETH - Future cities
- Singapore Berkeley Institute for Sustainable Energy
- Singapore Berkeley Building Efficiency and Sustainability in the Tropics

Healthy Society

- NITHM
- NNINM (Nonamedicine)
- Metabolic Diseases
- Infectious Diseases
- Neuroscience
- Structural Biology
- Experimental medicine
- CREATE Entities at NTU for future health care:
- Technion-Regenerative Medicine

Secure Community

- Institute for Media Innovation (IMI)
- Focus on the mega-trends in interactive and digital media research today
- Urban studies, sustainable cities,
- Complexity research
- Cyber security

GRADUATE PROGRAMMES (ENGINEERING)

- By Coursework: M.Sc. (1-yr) – No scholarships
- By Research: Ph.D. (4-yr) – Full scholarships available

Research Areas

College of Engineering - Schools

- Civil and Environmental Engineering (CEE)
- Electrical and Electronic Engineering (EEE)
- Mechanical and Aerospace Engineering (MAE)
- Chemical and Biomedical Engineering (SCBE)
- Computer Science and Engineering (SCE)
- Materials Science and Engineering (MSE)



Interdisciplinary Research

- Earth sciences
- Catastrophe risk management
- Energetics research
- Energy research
- Environment and water research
- Biological Sciences
- Environmental life sciences engineering
- Media innovation



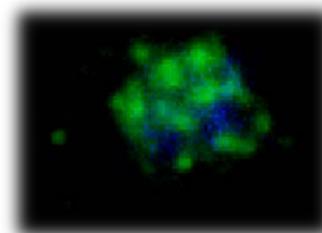
RESEARCH STRENGTHS (COLLEGE OF SCIENCE)



Chemical Synthesis



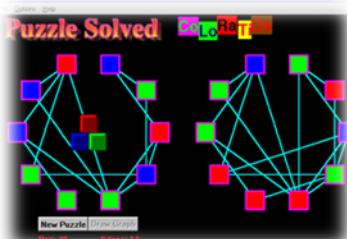
Green Chemistry



Malaria, Influenza



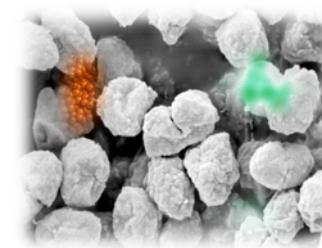
Coding & Cryptography



Theoretical Computer
Science

Research disciplines

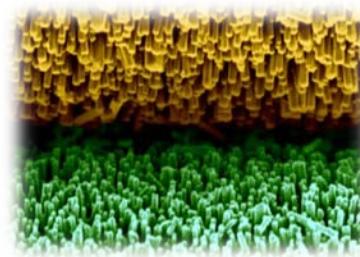
- Biological Sciences
- Chemistry
- Mathematical Sciences
- Physics
- Earth Sciences
- Asian School of Environ



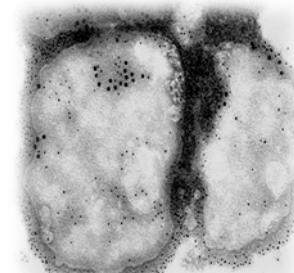
Structural &
Computational Biology



Optics & Spectroscopy



Condensed Matter



Infectious Diseases



NTU's NRF-CREATE Partner Institutions



Singapore-ETH Centre (SEC) for Global Environmental Sustainability



TUM Centre for Electromobility in Megacities



Cambridge Centre for Carbon Reduction in Chemical Technology (C4T)



Technion-Israel Institute of Technology (Technion) on Regenerative Medicine



Ben-Gurion University (BGU) of the Negev and Hebrew University of Jerusalem (HUJ) (On nanomaterials research to find solutions that increase energy efficiency and reduce water wastage)



Singapore-Berkeley Initiative for Sustainable Energy (SinberRISE) and Sustainability in the Tropics (SinberBEST)



Singapore-Peking University Research Centre for a Sustainable Low-Carbon Future (SPURc)



The Singapore-MIT Alliance for Research and Technology (SMART) Centre
{5 Inter-disciplinary Research Groups (IRGs): Infectious Diseases; Environmental Sensing and Modeling; BioSystems Micromechanic; Future Urban Mobility and the Low Energy Electronics Systems}

NTU & Technical University of Munich (TUM)

- NTU partners TUM in a major 5-year NRF-CREATE programme on electromobility;
 - Holistic approach on all relevant e-mobility topics
 - Multidisciplinary fundamental & technology research
- >40 professors from NTU & TUM with funding for 100 PhDs, Masters students, post-docs for 5 years
- Joint PhD students under the CREATE programme
- Significant involvement with the industry from Day 1, with BMW seconding a senior scientist from BMW for one of the IRGs



Technische Universität München



NTU & Rolls-Royce (RR)

Joint collaboration growing from strength to strength & becoming increasingly more strategic to RR with active engagement through:

- ERI@N, Chaired Professorships in power electronics, EEE, ARTC
- Rolls-Royce@NTU Corporate Lab:
 - A joint investment of S\$75 million by NTU, Rolls-Royce and NRF
 - 1st lab supported under NRF's Corp Lab @ University scheme
 - Bring about much deeper engagement & higher efficiency with focus on:
 - Electrical Power & Control Systems
 - Manufacturing Process Technology
 - Computational Engineering



The launch of RR@NTU Corporate Lab on 23 July 2013



ST Engineering @ NTU Corporate Lab

Business Vision

- Develop **collaborative & autonomous unmanned systems** that integrate seamlessly and safely in extreme and complex environments
- Multiply operational effect while reducing manpower

Core Research Areas:

- **APART: Airport Precision Air-side Robotics Technology**
Collaborative Teaming, Precision Mobility, Effectual Material Handling
- **CRISP: Crisis Response Intelligence Support Program**
Collaborative Teaming, Robust Mobility, Scene Understanding

Lab Funding = S\$52.5m

Professors, 25 research fellows, 37 PhD students, 20 research associates, 10 project officers.

PhD Topics include:

- Multi-robot task planning & assignment and dynamic re-tasking
- High precision GPS-less navigation



NTU-BMW Joint Research Lab for Future Mobility



- First Joint Lab in Asia with 10 Faculty & 15 Researchers/PhD Students
- Study & develop key areas relating to future transportation including:
 - Advanced Battery Research
 - Human Machine Interface
 - Intelligent Mobility
 - Smart Materials
- Interaction between industrial experience & top academic research
- Joint patents, publications, proposals

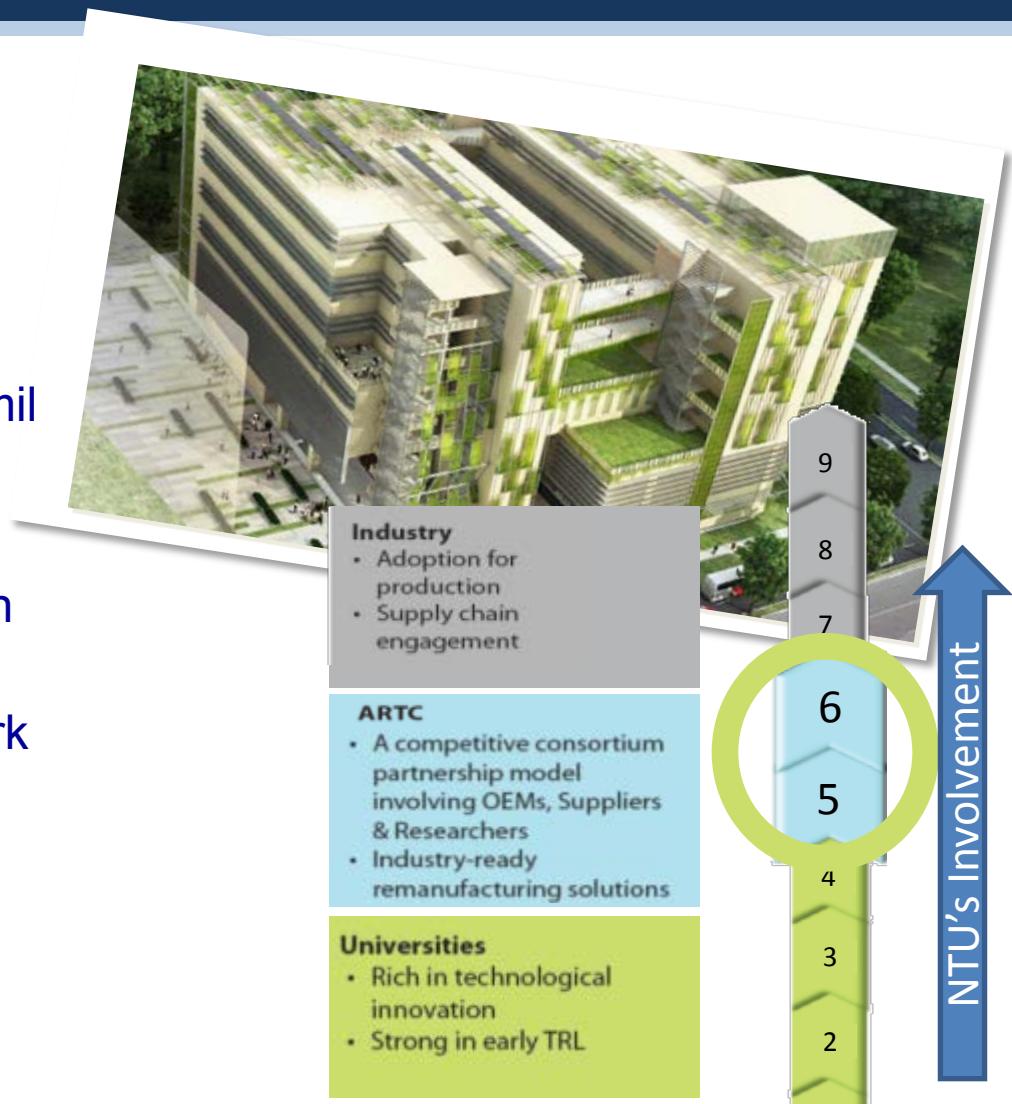
“ BMW Group has set up the “Future Mobility Research Lab” at the NTU to study not only the Asian context of mobility but to work on worldwide relevant topics such as Advanced Batteries, Intelligent Mobility & Human Machine Interface. **NTU gives the ideal settings for such an endeavor,** ”

Quoting Dr. Kay Segler on 24 Nov 2014
Senior Vice President MINI Business Coordination & Brand Management
BMW Group



Advanced Remanufacturing & Technology Centre (ARTC) of Singapore

- Dedicated centre focusing on remanufacturing technology & processes
- Predicted annual income to be \$7.4 mil by 5th year
- Only one in Asia amongst 7 centres in the UK & US within Advanced Manufacturing Centre (AxRC) Network



Tentative Tier 1 Founding Members



SIEMENS



IHI

Tier 2 Members



Power and productivity
for a better world™



We make it visible.



**NANYANG
TECHNOLOGICAL
UNIVERSITY**



Agency for
Science, Technology
and Research

CREATING GROWTH. ENHANCING LIVES.

NTU's Top International Industry Partners



On campus



Rolls-Royce



THALES

Tencent 腾讯



Johnson Matthey



IBM

Vestas

LOCKHEED MARTIN



SIEMENS

Post-PhD Positions

MIT

Stanford

Caltech

Michigan

Washington

Ecole
Polytechnique

Harvard

Johns Hopkins

UCSD

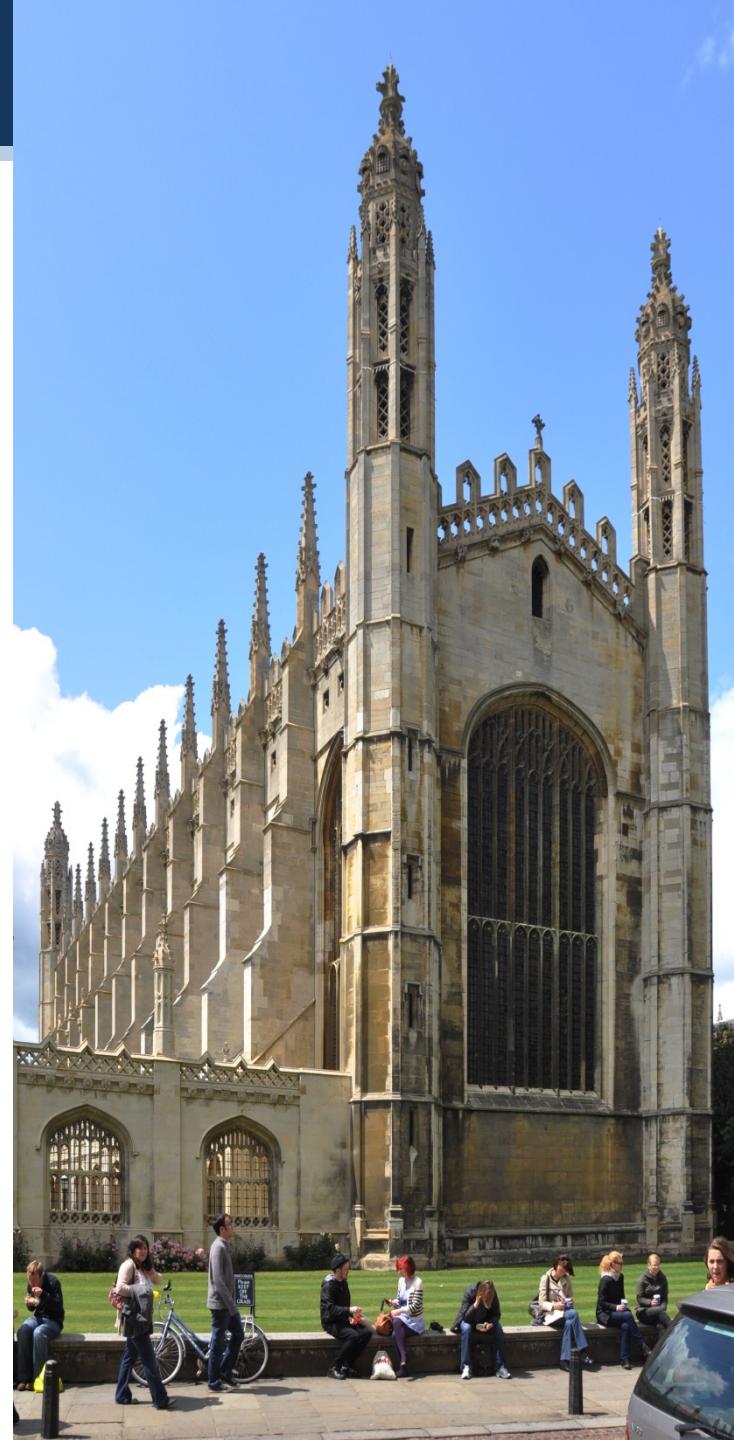
Wisconsin

Cambridge

Columbia

Scripps

Toronto



Thank you!



THANK YOU