THE ANSWER TO MANY OF THE COMPLEX PROBLEMS OF THE WORLD TODAY LIES IN THE INTERFACES BETWEEN DISCIPLINES.

THE UNIVERSITY HAS MANY DISCIPLINES, OF COURSE, BUT MANY TIMES THERE ARE WALLS ABOVE THEM.

AND OUR INTERDISCIPLINARY GRADUATE SCHOOL OF NTU IS MEANT TO BREAK DOWN THESE WALLS. 

PROFESSOR BERTIL ANDERSSON
PRESIDENT, NTU SINGAPORE

CONDUCTING RESEARCH THE INTERDISCIPLINARY WAY OFFERS OPPORTUNITIES FOR IDEAS TO TRANSLATE INTO PRACTICAL SOLUTIONS FOR SINGAPORE AND BEYOND. 

PROFESSOR BO LIEDEBERG
DEAN
INTERDISCIPLINARY GRADUATE SCHOOL

ABOUT NANYANG TECHNOLOGICAL UNIVERSITY

A research-intensive public university, Nanyang Technological University (NTU) has 33,500 undergraduate and postgraduate students in the colleges of Engineering, Business, Science, and Humanities, Arts, & Social Sciences. It has a new medical school, the Lee Kong Chian School of Medicine, set up jointly with Imperial College London.

NTU is also home to world-class autonomous institutes – the National Institute of Education, S Rajaratnam School of International Studies, Earth Observatory of Singapore, and Singapore Centre on Environmental Life Sciences Engineering – and various leading research centres such as the Nanyang Environment & Water Research Institute (NEWRI), Energy Research Institute @ NTU (ERI@N) and the Institute on Asian Consumer Insight (ACI).

A fast-growing university with an international outlook, NTU is putting its global stamp on Five Peaks of Excellence: Sustainable Earth, Future Healthcare, New Media, New Silk Road, and Innovation Asia.

NTU’s main campus at Yunnan Garden has been named one of the Top 15 Most Beautiful in the World. It also has a campus in Novena, Singapore’s medical district.
DOCTOR OF PHILOSOPHY
(FOR RESEARCH IN SUSTAINABLE EARTH)

As humankind and life forms evolve, their relationship with the environment also changes. Sustainability and the earth’s ability to meet the needs of both current and future generations is a growing global concern. As a case in point, Singapore expects the clean-tech sector to contribute 18,000 jobs and S$3.4 billion to gross domestic product by 2015.

Through a holistic approach, the Sustainable Earth thrust, also identified as the “peak of peaks”, empowers research on clean water, alternative energy, clean technologies, urban systems and geological risks.

COMPLEXITY INSTITUTE
The Complexity Institute at Nanyang Technological University came into existence in April 2014, with the goal of becoming a global centre for complexity research. Located in Singapore on the campus of Asia’s fastest rising young university, the Institute is organised to facilitate transdisciplinary team-based science and will study how interactions within a system and its environment generate dynamical patterns of behaviour. Learn more about Complexity Institute at www.complexity.ntu.edu.sg.

EOS (EARTH OBSERVATORY OF SINGAPORE)
EOS was founded in 2009 to conduct fundamental research on earthquakes, volcanic eruptions, tsunamis and climate change in and around Southeast Asia. Multidisciplinary research teams of international stature will blaze new paths through the fascinating mysteries of this dynamic, thin shell of our planet. Through research and outreach activities, EOS increases awareness of geohazards to help ensure a more sustainable human presence in Southeast Asia. Learn more about EOS at www.earthobservatory.sg.

ERI@N (ENERGY RESEARCH INSTITUTE @ NTU)
At the heart of ERI@N lies the goal of improving efficiency of current energy systems while maximising synergistic effects of alternative energy sources. To this end, researchers at ERI@N have the opportunity to interact and together promote relevant energy solutions and policies for the future. Ongoing collaborations with industry players such as Bosch GmbH [Photovoltaics], Vestas Technology R&D Singapore [Wind], and Rolls-Royce [Marine Engineering & Power Systems Research] and partnerships with universities such as the University of Cambridge and the Technical University of Munich help foster a research environment dedicated to the goal of sustainability. Learn more about ERI@N at http://erian.ntu.edu.sg.

ICRM (INSTITUTE OF CATASTROPHE RISK MANAGEMENT)
Established in response to the massive increase in human and economic losses due to catastrophic events of recent years, ICRM is a first-of-its-kind multidisciplinary risk management research institute that focuses on new, evolving and complex risks that Asia will face as it urbanises in an increasingly interconnected global environment. Through ICRM, researchers will work on integrated risk assessment and management of hazards, covering both natural and man-induced, to develop Asian catastrophe risk models and help governments, industries and communities better understand the fundamental characteristics of such catastrophes. Learn more about ICRM at http://icrm.ntu.edu.sg.
DOCTOR OF PHILOSOPHY (FOR RESEARCH IN NEW MEDIA)

As Singapore looks set for her transformation into a global media city, the Peak of Excellence in New Media provides a timely boost to position the country as one of the key strategic media centres in the Asia-Pacific region.

Endless opportunities await as the National Institute of Education and Ministry of Education work together to laterally translate new media research into teaching and learning pedagogies, preparing students for the 21st century workforce. Be it educational games or immersive teaching and learning environments, media data analytic or image and video processing, the New Media candidate can expect to gain hands-on, extensive exposure.

NEWRI (NANYANG ENVIRONMENT & WATER RESEARCH INSTITUTE)

A culmination of NTU’s contribution to Singapore’s Environmental and Water Technology (EWT) R&D landscape over the past two decades, NEWRI is the platform for multi- and trans-disciplinary interactions concerning environmental science and engineering. Together with NEWRI’s unique ecosystem of eight coordinated units, researchers drive environmental solutions that are innovative, and relevant to the industry and community. Learn more about NEWRI at http://newri.ntu.edu.sg.

SCELSE (SINGAPORE CENTRE ON ENVIRONMENTAL LIFE SCIENCES ENGINEERING)

SCELSE is a Research Centre of Excellence breaking new ground in understanding, harnessing and controlling microbial biofilm communities in environmental, industrial and public health settings. SCELSE’s interdisciplinary research focuses on overall community structure, function and performance of microbial biofilms as well as the mechanisms of their communication and micro-ecological interactions by using cutting edge expertise from emerging technologies in engineering and natural sciences. SCELSE aims to harness biofilms to meet the crucial challenges of securing clean water and maintaining a sustainable environment. Learn more about SCELSE at www.scelse.sg.
COSMIC (CENTRE OF SOCIAL MEDIA INNOVATIONS FOR COMMUNITIES)

Through social media innovations that improve the way people live, work and play, COSMIC strives to empower some 10 million people in the community. Specifically, those in the informal economy commonly labelled as the ‘middle of the pyramid’, who are typically underserved by technology vendors and telecom service providers. COSMIC pursues innovations in healthcare, agriculture, and community – areas that are of particular concern to those in the ‘middle of the pyramid’. Notably, COSMIC aims to understand the forces that drive the diffusion of innovations to enable the conceptualisation, design, development and deployment of novel, practical solutions for these people. Learn more about COSMIC at http://cosmic.ntu.edu.sg.

IMI (INSTITUTE FOR MEDIA INNOVATION)

Spurred by Singapore’s call to make the development of Interactive Digital Media a national priority, IMI was launched in 2008 as a world-class interdisciplinary research institute with a core focus on virtual humans and social robots. Apart from projects such as virtual reality and 3D telepresence, fashion and cloth simulation, as well as medical simulation, IMI has a unique Immersive Room that allows viewers to be completely immersed in the virtual world, and a state-of-the-art Motion Capture System. IMI offers researchers the perfect environment for invention and exploration. Learn more about IMI at http://imi.ntu.edu.sg.

LILY (ACTIVE LIVING FOR THE ELDERLY)

Responding to the challenges of a rapidly ageing population, LILY was established with the aim of placing Singapore in a leading position in the emerging age-friendly economy. Focused on building an age-friendly technology ecosystem, the research areas of LILY spans from ageing studies, innovative ageing-in-place concepts, human-computer interaction, intelligent agent and multi-agent systems, social signal processing, cognitive and rehabilitation game design, interactive storytelling, distributed sensing technologies, service cloud to data mining and analytics. Along with the support and collaboration of government agencies, businesses and institutes of higher learning in Asia and North America, researchers can look forward to an enriching environment for exploring cutting-edge technologies and the opportunity to make a positive difference to the society. Learn more about LILY at http://lily.ntu.edu.sg.

MAGIC (MULTI-PLATFORM GAME INNOVATION CENTRE)

Hosting game researchers and practitioners focusing on inter-disciplinary research in next generation games and related areas, MAGIC seeks to redefine gameplay through game development and innovation. The result is enhanced digital game experience tailored to meet the needs of individuals and businesses alike. Strong academic and industry partners from around the world will be involved to form a collaborative ecosystem for game research and innovation. Learn more about MAGIC at http://magic.ntu.edu.sg.

ROSE (RAPID-RICH OBJECT SEARCH LAB)

With a focus on building the largest domain object database in Asia and providing mobile object search upon media cloud, ROSE is set to open new avenues in commerce, tourism, and education by enhancing visual search technology and creating a shared platform for media cloud innovation. Not only does ROSE partners Peking University to advance the core technologies, it also works with international industry leaders to commercialise them with an aim of impacting the creation, delivery and consumption of new media content in everyday life. Learn more about ROSE at http://rose.ntu.edu.sg.
DOCTOR OF PHILOSOPHY
(For Research in Future Healthcare)

Leveraging NTU’s ongoing research at the College of Science and College of Engineering, which boasts more than 10 years of partnership with the Singapore General Hospital, the Peak of Excellence in Future Healthcare is well poised to harness the synergistic effects of engineering and medicine.

To propel this Peak of Excellence to greater heights, a key centre in Future Healthcare, namely the Nanyang Institute of Technology in Health & Medicine [NITHM] has been established, with its first intake of researchers in August 2013. Apart from Lee Kong Chian School of Medicine – a joint effort between NTU and the Imperial College London in partnership with Tan Tock Seng Hospital, NITHM will also collaborate closely with existing schools and centres in bioengineering and biomedical engineering.

Notably, NTU has developed a fully biodegradable stent used for unblocking clogged arteries in the leg, which led to a start-up worth over US$12 million in investments. Much more can be achieved by Future Healthcare candidates who are passionate about making an impact on the healthcare system and ultimately, changing people’s lives for the better.

NITHM (Nanyang Institute of Technology in Health & Medicine)
Building on the growing interest in research related to health and medicine, NITHM aims to provide a cross-disciplinary platform for engineers, scientists and clinicians to work together and develop new technologies that provide solutions to key problems in human health and medicine. Research programmes being developed within this framework include Diagnostic & Therapeutic Medical Devices, Tissue Engineering, Nanomedicine, X-Omics, Medical Imaging, Drug Discovery, and Health Systems Complexity. NITHM offers researchers a dynamic and creative environment for research, education and innovation. Learn more about NITHM at http://nithm.ntu.edu.sg.

NNIN (NTU-Northwestern Institute for Nanomedicine)
Nanyang Technological University (NTU) is collaborating with International Institute of Nanotechnology (IIN), based in Northwestern University to establish the NTU-Northwestern Institute for Nanomedicine (NNIN), the first of its kind in South-east Asia. Both universities are putting in substantive investments in this multi-million dollar research institute that will focus on the medical application of nanotechnology. Nanomedicine is a relatively new discipline that combines nanomaterials-based detection and treatment of diseases and is expected to have the most profound impact and benefit to society, thus NNIN is poised to realise significant advances. NNIN will focus on developing innovative solutions in four key areas: diabetes, cardiovascular, ophthalmology and skin therapeutics. The institute will bring together scientists from both universities working collaboratively on research projects in the areas of disease diagnostics, timed-release therapeutics, and targeted drug delivery methods, with emphasis on cardiovascular, skin, ocular and endocrinological disease. Learn more about NNIN at http://nnin.ntu.edu.sg.
SOLVING GLOBAL CHALLENGES
THE INTERDISCIPLINARY WAY

INTERGENERATIONAL IMPACT

In today’s increasingly complex world, problems are often multifaceted. To effectively address these challenges, it calls upon reflective and multidimensional insights into various disciplines. Spurring innovative ideas and paramount discoveries, IGS aims to transform the world today while shaping tomorrow.

INTERESTING RESEARCH

At IGS, opportunities for meaningful research abound. Beyond a choice of the centres and institutes under Sustainable Earth, New Media and Future Healthcare, an intensive seminar culture with ample interaction opportunities characterises the research journey at IGS. Fuelling the research passion of our students, IGS adopts the same best practices as that of leading overseas institutions.

INTERRELATED FOCUSES

IGS champions research that is interdisciplinary and multidisciplinary in nature. Well aligned with NTU’s Peaks of Excellence in Sustainable Earth, New Media and Future Healthcare, IGS features research that spans from humanities to science and technology. Much unlike conventional discipline-based programmes, IGS provides a broad yet tightly interrelated learning experience.

INTERDISCIPLINARY MOBILITY

Empowered to cross the boundaries between disciplines, IGS candidates can look forward to more possibilities for breakthroughs as they undertake cross-disciplinary research and graduate studies from different schools and colleges in NTU. Solid academic progression aside, interdisciplinary research opens doors to wider career opportunities in various strategic and emerging fields that are vital in our global world.

INTERNATIONAL REPUTATION

Supported by a team of experienced professors lauded as top international researchers in their respective fields, the IGS environment is one of dynamism and intellectual stimulation. The opportunity to work alongside some of the brightest in the industry makes IGS the preferred ground for interdisciplinary research.
ADMISSION REQUIREMENTS
• Applicants must have Bachelor’s degree with minimum 2nd class honours upper or equivalent in any discipline from a recognised university.
• A good GRE test score is required for international applicants and a good TOEFL score is required for candidates whose native language is not English.
• GATE score may be accepted in place of GRE for candidates with Indian basic degrees. IELTS can also be used in place of TOEFL.

*International candidates are advised to look up important information such as student’s pass, cost of living, etc., via the International Student Support’s website at http://www.ntu.edu.sg/SAO/iss/Pages/index.aspx

PROGRAMME HIGHLIGHTS
• Interdisciplinary research to support NTU’s Five Peaks of Excellence.
• Supervision and mentoring by 3 top professors.

BENEFITS FOR SUCCESSFUL APPLICANTS
• A 4-year PhD scholarship worth about S$200,000, inclusive of 4-year tuition fees and monthly stipends.
• The actual stipend will depend on the class of honours obtained for the Bachelor’s degree.
• Singapore Permanent Residents and Non-Singaporeans will have slightly lower stipends at competitive rates.
• Opportunities for overseas research attachment in renowned universities, research institutes and companies.
• Opportunity for involvement in tutoring.

APPLICATION DETAILS
• Applications are required to be submitted online. More information on admission procedures can be viewed at http://admissions.ntu.edu.sg/graduate/R-Programs/Pages/default.aspx
• Applicants must choose a Research Centre/Institute in which they wish to conduct their research work.
• There are 2 intakes in the academic year, i.e. August & January

NTU RESEARCH SCHOLARSHIP SCHEMES
There are other scholarships schemes, such as the Nanyang President’s Graduate Scholarships and the Singapore International Graduate Awards (SINGA), available to PhD candidates. For more details on scholarship schemes, please visit http://admissions.ntu.edu.sg/graduate/scholarships/Pages/default.aspx

Please scan the QR code to view
IGS website IGS video

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