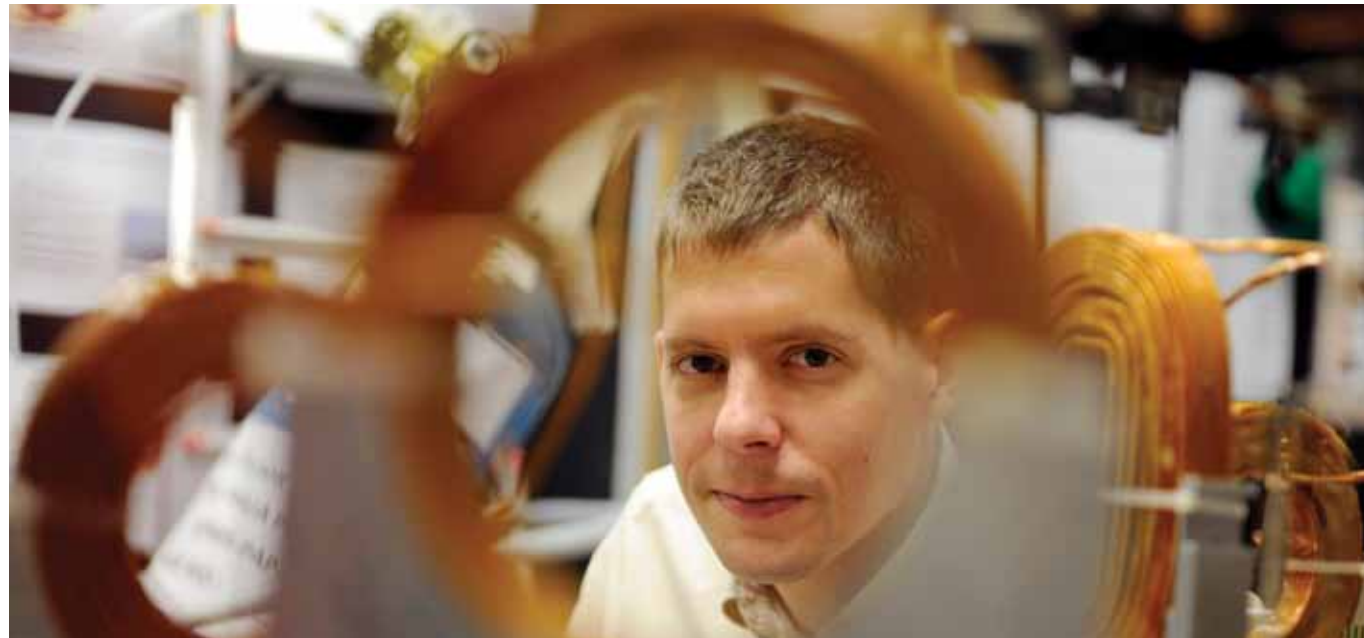


# Imagine this

Through teaching, research and personal expression, faculty members and students of NTU excel in creative pursuits.

TEXT AND PHOTOS BY JEAN QINGWEN LOO



**Purpose-built:** At the laboratory for Atom Optics & Quantum Information Processing, much of the equipment has been purpose-built by Asst Prof Dumke and his team to conduct experiments in laser cooling and quantum optics.

## ASST PROF RAINER DUMKE

School of Physical & Mathematical Sciences; College of Science

### ATOMIC NTU

As a child, Asst Prof Rainer Dumke loved to dismantle his toys so that he could see how they worked. Years later, it is this same curiosity that drives his research enquiries at the Division of Physics & Applied Physics at NTU's School of Physical & Mathematical Sciences (SPMS).

Asst Prof Dumke is one of a select group of young researchers under the Nanyang Assistant Professorship initiative. Launched in 2007, the initiative funds cutting-edge research to enhance the university's next wave of cross-disciplinary projects. Since coming to SPMS last year, Asst Prof Dumke has been busy teaching and leading his research group (Atom Optics & Quantum Information Processing) on new experiments in laser cooling and quantum optics.

This latest work builds on his research at the University of Hanover in Germany, the National Institute of Standards and Technology in the United States, and the Max Planck Research Group in Germany. "I am very keen on exploring the fundamental processes in nature, and hope to develop technologies so that more people can appreciate them in the future."

Asst Prof Dumke's current research interest in atomic physics is focused on the quantum nature of atomic matter which becomes visible at temperatures of absolute zero (-273 degrees Celsius). The utilisation of such quantum mechanical behaviour has great potential applications ranging from spacecraft and submarines to oil exploration. "In atomic physics, the nice thing is that we can use relatively simple equations to predict

the behaviour of a system exactly, so that there isn't too much error in it," he says. "The satisfaction comes from seeing for ourselves if the theory really works with each different case."

*I am very keen on exploring the fundamental processes in nature, and hope to develop technologies so that more people can appreciate them in the future.*



**Viewfinder:** Honing his craft at ADM, Joel has recently completed a series of works on foreign workers in Singapore, and is busy preparing for a solo exhibition.

## JOEL YUEN

School of Art, Design & Media; College of Humanities, Arts, & Social Sciences

### REFINED VISION

Joel Yuen always makes it a point to begin his artistic projects with nothing more than simple notes scribbled on paper. This is his way of planning a cohesive body of work, and he puts great effort into refining his ideas, often over many months.

A third-year student at NTU's School of Art, Design & Media (ADM) who specialises in photography and digital imaging, Joel draws inspiration from sources ranging from American photographer Gregory Crewdson (known for his intricately staged photographic tableaux) to Renaissance paintings steeped in issues of religion and morality. "These works excite me a lot," says the award-winning fine-art photographer, whose own images explore the modern-day iteration of such timeless subjects.

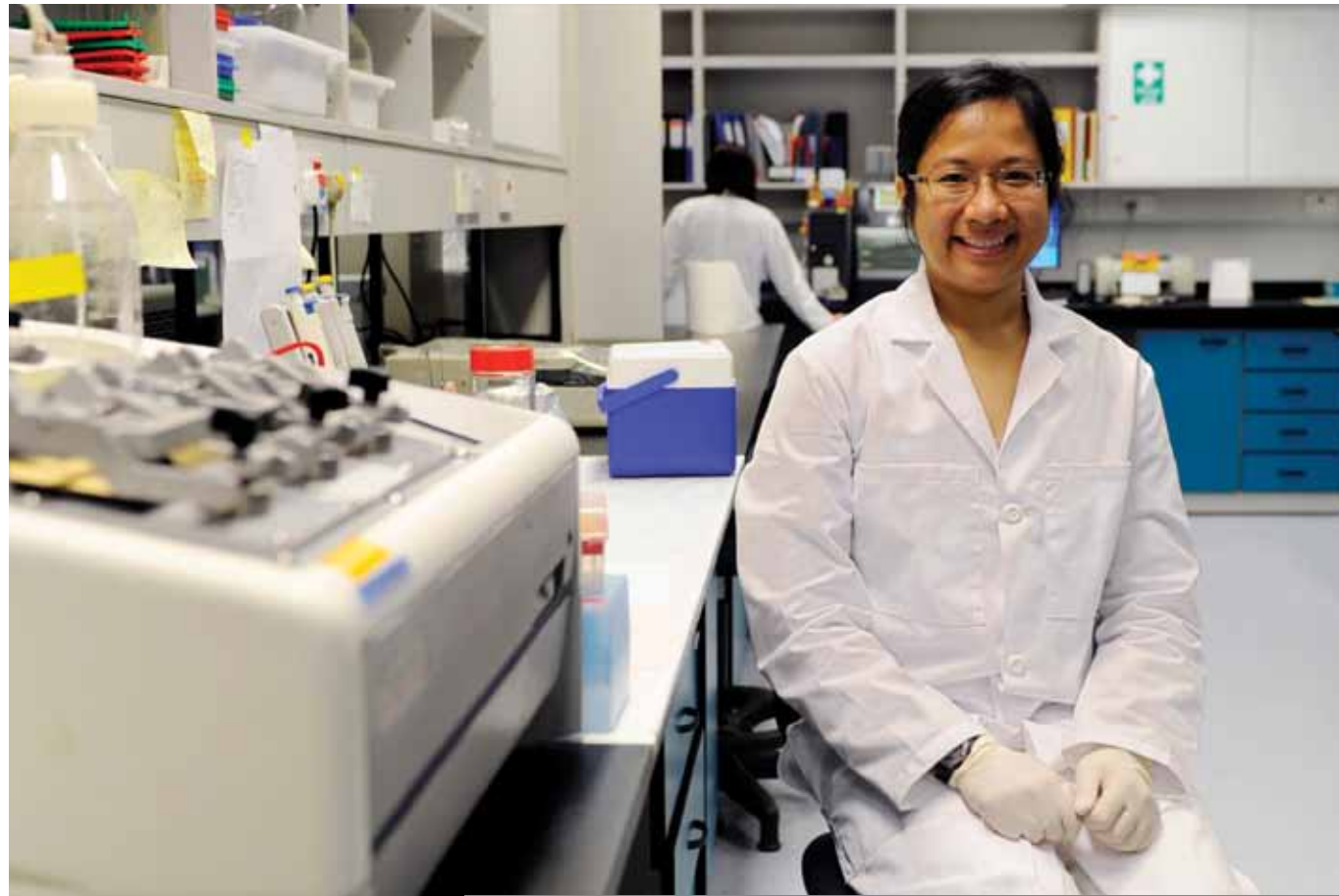
Joel's exploration of the bond between humanity and wildlife led to the creation

of "Anatomical Fantasies of Meat", a series of meticulously composed photographs of animal flesh in abstract forms. The series represents his response to how we have mishandled God's gift of Nature to us, serving as a reminder of both human ingenuity and bestiality. In 2008, these startling images won the UOB Painting of the Year Award, generating acclaim and much debate within art circles.

Since this honour, Joel has taken part in the inaugural Singapore International Photography Festival and is now busy furthering his studies at ADM while preparing for his first solo exhibition at the Esplanade. More importantly, he has developed the confidence to pursuing art full-time. "Studying at ADM has grounded me well, and allowed me to express my artistic ideas through photography," explains Joel. "I have also learnt here that taking photographs is the only way I can express what I want to say."

*Studying at ADM has grounded me well, and allowed me to express my artistic ideas through photography.*

■ IMAGINE THIS



**Out of the classroom, into the lab:** Abigail is currently completing her final-year project at the National University Hospital.

**ABIGAIL HUANG**

School of Biological Sciences; College of Science

**LIVING SCIENCE**

If anyone embodies the benefits of reading, it is Abigail Huang.

After all, it was a book she read in secondary school while deciding between the arts and science streams that led her to discover biological science. Written by James Watson, *The Double Helix*, which explores the scientific discovery of DNA, left Abigail in awe. “It showed me that science wasn’t simply about memorising dusty old textbooks, but that it could be exciting and alive,” she says.

Today, the final-year student at NTU’s School of Biological Sciences (SBS) is working on her final-year project at the National University Hospital, investigating genes that are thought to make us more susceptible to coronary artery disease. “From this research, we hope to be able to warn people earlier to change their

diets, and also to design new drugs and treatments,” she explains.

A Nanyang Scholar and regular on the Dean’s List, Abigail is upfront about her passion for science and cites Nobel Chemistry Laureate (1958, 1980) Frederick Sanger’s work on protein sequencing as her inspiration. So deep is Abigail’s love of biology that she even treats laboratory reports – the bane of many a student – as an opportunity to express her affinity for the subject through writing.

When Abigail isn’t in the laboratory or taking classes at SBS, she keeps busy by heading the sound crew at her church, dabbling in creative writing and, of course, going back to reading, her first love. “Books have always helped me to set my priorities in life,” she says. “A good book not only shows us the truth of things, it also reminds us of their beauty.”

“Books have always helped me to set my priorities in life. A good book not only shows us the truth of things, it also reminds us of their beauty.”

**SEEKING ANSWERS IN STRANGE PLACES**

It has been 15 years since Assoc Prof David Butler first started teaching in the field of engineering, but he remains as passionate as ever about moulding students into creative engineers who can generate their own intellect capabilities. “I love nurturing people,” he explains. “It’s fun and opens up a lot of insights for everyone involved.”

Besides lecturing on manufacturing processes at NTU’s School of Mechanical & Aerospace Engineering (MAE), Assoc Prof Butler also sat on the committee of MAE’s Engineering Innovation & Design (EID) programme, in recent years conducting popular sessions on creative problem-solving – think brainstorming, mind-mapping and loads of humour packed into a classroom setting.

The sessions also include synectics, a problem-solving method that encourages students to adopt different viewpoints to finding answers. “The process can be unsettling in certain respects as students have to learn to be more flexible, and to put themselves into other people’s shoes,” he explains.

Assoc Prof Butler also teaches in the Masters of Science in Technopreneurship and Innovation programme at the Nanyang Technopreneurship Centre. When it comes to teaching, he insists it is all about having fun and trying to make students relax so that they can let their minds wander. It helps that his elective sessions attract students from across the four Colleges; this alters the dynamics of the participating groups, fostering an interdisciplinary approach to finding solutions.

And if there is one thing Assoc Prof Butler is careful to guard against in his role as an educator, it is complacency. “Over the years we may have conditioned ourselves to criticising too easily ideas that appear raw or unformed,” he explains. “Having created a good environment for creativity here, our next step must be to help students learn to share their ideas, without any pre-judgment on our part.”



**Clean machine:** In the Innovation@MAE Laboratory, Assoc Prof Butler shows us a student-developed model of EcoFroNTure, a solar car project undertaken by students from the College of Engineering. NTU’s Solar Car Racing Team will be competing in Germany in May, and in Australia in October.

**ASSOC PROF DAVID BUTLER**

School of Mechanical & Aerospace Engineering; College of Engineering

“Having created a good environment for creativity here, our next step must be to help students learn to share their ideas, without any pre-judgment on our part.”

 **IMAGINE THIS**


**WAYNE LEONG WENG ONN, LIM YI BENJAMIN  
AND SITI SALIHAH BINTE MOHD OMAR**

Visual & Performing Arts Academic Group; National Institute of Education

**Three for the future:** Arts practitioners and soon to be teachers, ready to guide the next generation of artistic talents.



### SOUL TO SQUEEZE

For three students at NTU's National Institute of Education (NIE), coming to classes is an unmitigated joy because of their abiding passion for the arts. NIE's Visual & Performing Arts Academic Group nurtures arts educators by providing them with the tools and pedagogies needed to teach younger students. Classes are conducted as seminars and studio sessions, with lots of emphasis on hands-on learning. It's an intensive programme designed to develop standout teachers with both skills and soul.

NIE undergraduate Siti Salihah binte Mohd Omar, 22, is never happier than when she is drawing and painting. An art major, she has enjoyed these pursuits from a young age and strongly identifies herself through her works. "While we may not always find the answers we are looking for through artistic expression, the process can lead us to new ideas," she explains.

A typical day for Siti involves lots of personal sketching as well as attending studio sessions. A practising artist, she also makes sure to participate in exhibitions like the Singapore Art Show, in order to learn from fellow practitioners and to showcase her growing body of work.



For theatre major Wayne Leong Weng Onn, 25, the attraction of drama is its ability to capture life in its most intimate moments, without compromising on entertainment. Wayne spends much of his time organising theatre productions, a vocation that has allowed him to delve more deeply into prevailing social issues.

The seasoned thespian is looking forward to teaching students while also playing an active role in theatrical works. "Passion is nothing without action, just as talent is nothing if we don't work to take it to the next level," he explains.

Music major Lim Yi Benjamin, 25, has been playing the *sheng*, a traditional Chinese wind instrument, for 11 years. An award winning musician who has played with numerous orchestras, he is devoted to improving his craft and sharing his love of music, performing regularly at public events. "Music is the most abstract of all the art forms because it's ethereal, intangible; there's no way to really capture it," says Benjamin.

To him, music speaks to one's soul, and this is a lesson he wants to help his students discover. "Much in music is subtext; things that are left unsaid, only felt," he explains. "This is how music can touch and change us."



Passion is nothing without action, just as talent is nothing if we don't work to take it to the next level.

— WAYNE LEONG

## IMAGINE THIS



**ASST PROF VIVIAN CHEN**

Wee Kim Wee School of Communication & Information;  
College of Humanities, Arts, & Social Sciences

**Game theory:** For Asst Prof Chen, understanding our relationship with games allows us to use it as a learning tool.

### PLAYING TO LEARN

Asst Prof Vivian Chen doesn't exactly fit your typical image of a gamer, but there was a time when she played *World of Warcraft* so much that it would have put the average gamer to shame. That was all in the name of research, of course; nowadays, the lecturer in communication research at NTU's Wee Kim Wee School of Communication & Information (SCI) is busy interviewing schoolchildren for her latest project in Interactive & Digital Media (IDM).

A native of Taiwan, Asst Prof Chen's research centres on the cultural factors behind common behaviours, as well as the effects of gaming on our attitudes and behaviours. It's a complex and multi-faceted area of study. "Games are a major part of our lives now, especially among younger people," she explains. "I want to build on my work on culture and communication to better understand our modern-day fascination with gaming."

Asst Prof Chen's goal is to develop educational mobile and web-based games to help students learn more about environmental issues. Titled "Enhancing Education in Environmental Awareness," her project was one of four from NTU to receive a grant for IDM in education research from Singapore's National Research Foundation in 2008.

The project is in its early phases and Asst Prof Chen is currently working to develop a server to collect weather data around Singapore; sourcing handphones that are compatible for the game prototype; and speaking to schoolchildren to chart their attitudes towards mobile games. "Through this project, we hope to bridge the gap between formal and informal learning," she explains. "Many young students now are more likely to initiate their own learning with a hand-held device. This promotes the idea that the learning process can happen anywhere, even without the physical presence of a teacher."

“Games are a major part of our lives now, especially among younger people. I want to build on my work on culture and communication to better understand our modern-day fascination with gaming.”

### TRANSFORMATIVE WORDS

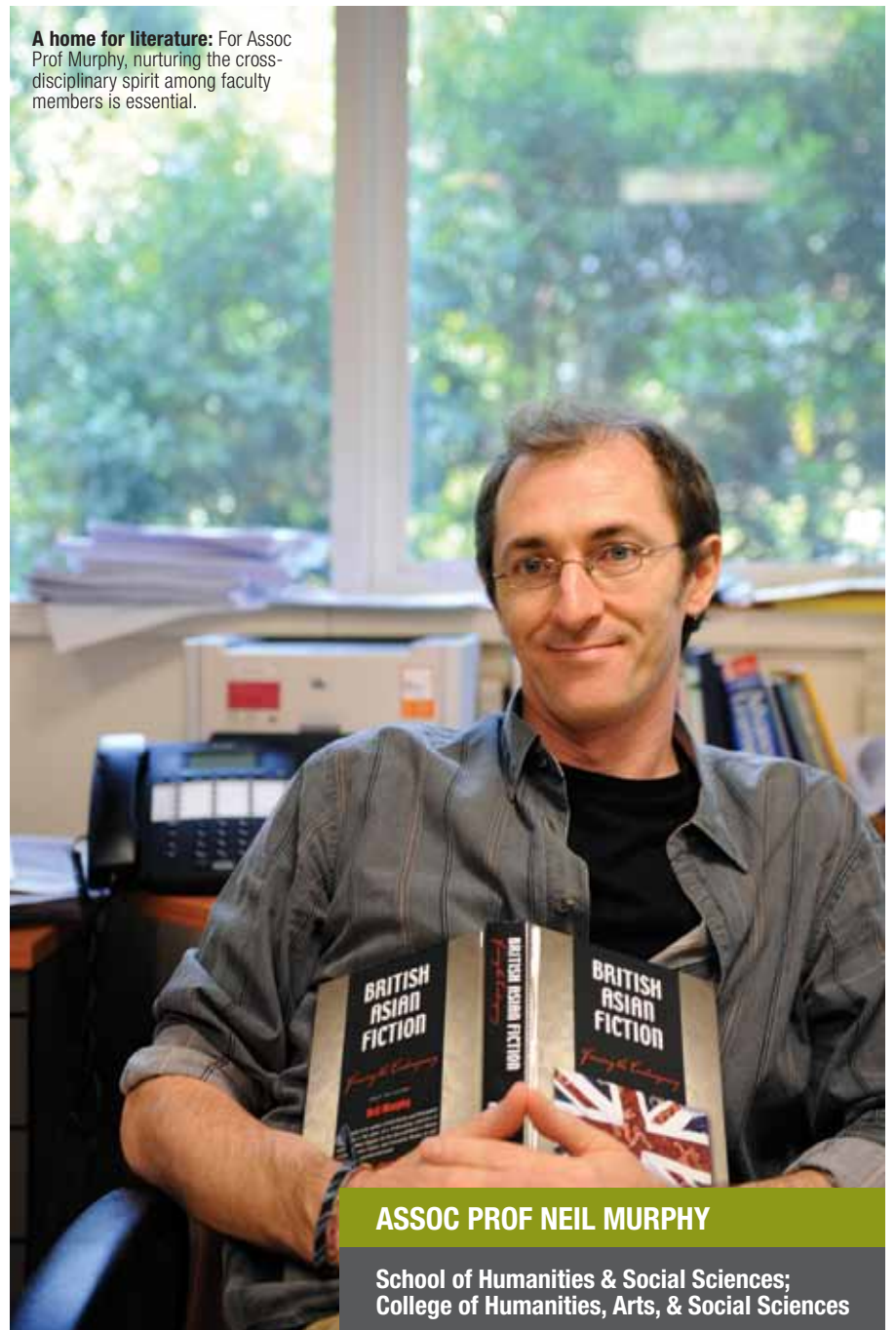
It's not every day that you get the chance to build an entirely new academic division. When that opportunity was offered to Assoc Prof Neil Murphy in 2004, the young academic, excited at the many possibilities and challenges ahead, grabbed it instantly.

NTU's School of Humanities and Social Sciences was launched in July 2005, and as Head of its Division of English, Assoc Prof Murphy has worked to mould it into a lively centre of teaching and research. "There are many different ideas about how we should position an English department in the 21<sup>st</sup> century," he explains. "We were able to start with a blank slate, and this allowed us to develop a body of enthusiastic and younger cross-disciplinary professors from around the world."

This spirit has since taken root, and the result has been an environment within which faculty members can work together to expand the frontiers of literary studies within the Asian context. The response from students has also been exceptional; this year, the Division will have over 420 undergraduates. Assoc Prof Murphy is especially encouraged by this, describing these students as "gems" who help sustain the Division's academic vibrancy. "We need to respect our students and trust in their capacity to surprise us," he says.

Assoc Prof Murphy's first love is Irish literature and this semester, he is teaching a final-year course in it that ranges from Samuel Beckett and the Pogues to *The Crying Game*. He believes that students must experience literature as a transformative experience. "Through reading, young people get to constantly engage with extraordinary authors and thinkers, many of whom challenge conventional boundaries through their work," he explains.

This allows students to develop critical discernment by going beyond established patterns of thought. "I think it is bad for a society to be reduced to a single way of looking at the world, and that is why students should be exposed to one form of art or another," says Assoc Prof Murphy. "We want to help them think for themselves." ■



**ASSOC PROF NEIL MURPHY**

School of Humanities & Social Sciences;  
College of Humanities, Arts, & Social Sciences

**A home for literature:** For Assoc Prof Murphy, nurturing the cross-disciplinary spirit among faculty members is essential.

“We need to respect our students and trust in their capacity to surprise us.”