Highlights from NISTH

A look into what NISTH's been up to from December 2019 to January 2020.

Director's Message

A very Happy New Year to everyone! May 2020 and the year of Rat brings good health, good luck and much happiness throughout the year.

NISTH hosted several major events in 2019 such as the Institute's Official Launch, the NTU Global Digital Art Prize (GDAP) and the Young Global Leaders-NTU Executive Education Program 2019 which paved ways for more NGOs and industry collaborations and external partnerships.

Since my arrival in NTU, we have been developing a 5-year plan and the NISTH vision and story. Our main focus will be to become an interdisciplinary research institute of Science and Technology for Humanity. We look forward to bring more research programmes, lecture series, education and outreach on that foundation in the upcoming year.

We greatly appreciate and look forward to your continued support. Thank you.

Professor Vanessa Evers
Director, NISTH

COMING SOON:
NISTH SOCIAL IMPACT FELLOWS NETWORK

NISTH focuses on societal impact and aims to understand the social context of science and technological innovation and its consequences for humanity. We believe in interdisciplinary team science, where scientists, scholars, professionals, government, NGOs and the public work together on shared goals with real impact. This has thus led to the creation of the NISTH Social Impact Fellows Network.

The network is a platform and mechanism to identify and recognise NTU scientists, experts and professionals across disciplines to tackle complex societal problems now and into the future. The digital platform is the portal for anyone seeking to engage in interdisciplinary collaborative research projects, experts or further information about projects and research resources in, or in collaboration with NTU. Stay tuned for more exciting information!

The Bioscientific Landscapes of Singapore

Dr Haesoo Park
Postdoctoral Fellow, NISTH

On a cloudy afternoon in Singapore, I stepped onto one of the underground escalators at One-North station and entered into a towering building erected out of glass panels. As I emerged from the tunnels, I turned left and walked through the translucent, automated doors into a plaza dimly illuminated by the occluded sun. I tilted my head back slightly and observed that halfway up the building, I had just exited where the words “SYMBIOSIS” fastened securely on its façade.

The Singaporean city-state is connected by a sprawling Mass Rapid Transit (MRT) system, an underground infrastructural network that operates trains for its commuters. It connects its residents to universities, banks, and government spaces that drive Singapore’s politics and economics. The One-North station, however, is special. It is the gateway to the technological and scientific research space of Fusionopolis, a twin to the arguably more famous Biopolis located just up the road that hosts most of its biomedical research. In fact, the name of the building, Symbiosis, is a reference to a biological process that has re-captured the imagination of scientists in the early 2000s as an alternative mode of change and evolution. Thus, One-North station connects the vast transportation network to the other visibly invisible infrastructure that sustains the visions of Singapore’s history, present, and future: technological and scientific knowledge.

My research at the NTU Institute of Science and Technology for Humanity (NISTH) is focused on the production of a particular type of scientific knowledge – its bioscientific knowledge. I am exploring the fields of biomedical, biological, and biotechnological research in Southeast and East Asia in the twenty-first century, an age now commonly referred to as the “postgenomic” era. It is a time filled with DNA kits by companies like 23andMe that promises to unlock the secrets of your health coded in your genes. Simultaneously, it is a time met with active challenges by the new sciences like epigenetics to the long-held notion of genes as the exclusive components of biology. These key fields are producing the knowledge of life - how to optimize, how to transform, how to harness its mechanisms – that promises the possibilities of economic transformations and new ways to govern and control.

The fieldwork in places like Fusionopolis, Biopolis, and Nanyang Technological University explores what kinds of postgenomic questions are being asked by scientists. I situate these on-the-ground investigations within Singapore’s postcolonial history and global trends in science and political economy to illuminate the assumptions informing these research choices. This work provides insights about the development of the life sciences in Singapore and beyond. It is done with the aspiration that it will prod scientists, policymakers, and historians alike to think carefully about what kinds of research – and in what ways – are being supported. And, in doing so, what are the stakes for the future of life itself.

Events in December 2019 and January 2020

CERN: an International Laboratory between Fundamental Science and Technological Innovation by Prof Luciano Maiani on 4 December 2019

The legendary Prof Maiani shared his insights on the birth of CERN (Conseil Europeenne pour la Recherche Nucleaire), its scientific successes, particularly the Large Hadron Collider and the consequent discovery of the Higgs boson and the efforts to spread scientific knowledge and to transfer Technological Innovation to Humanity.

CERN, a global leader in the research for fundamental particles today, has also been fostering the transmission of new technological ideas to society, thus earning its right of being the world wide web and the first capacitive touchscreen.

Building Capacity for Genomic Medicine in Qatar by Dr Khalid A. Fakhro on 16 January 2020

Driven by initial explorations of population genetic structure to identify disease-causing genes and loci underlying both rare and complex disorders, there have been significant advances in the high quality genome interpretation to achieve 'personalised medicine' in Qatar over the past 5 years.

In this talk, Dr Khalid covered the ambitious trajectory that the genomic enterprise has taken in Qatar in recent years, such as establishing the Qatar Genome Programme, and building capacity and a knowledge based economy. He also identified areas of opportunity for collaborators and industry partners looking to shape the evolving field of precision medicine in the Arab world.

Contact Prof Ian McGonigle at ianmcgonigle@ntu.edu.sg if you would like to get in touch with Dr Khalid.

Responsible AI: from Principles to Action by Prof Virginia Dignum and Real AI is Social AI by Prof Frank Dignum on 29 January 2020

In this joint lecture, Prof Virginia and Frank Dignum shared the technical and socio-legal initiatives and solutions that help AI practitioners align their systems with societies' principles and values when producing responsible trustworthy AI.

In addition, they explored how social contexts determine human behaviour through norms, practices, conventions and other rules of social nature in areas such as health care robots, serious games, e-coaches, agile production etc.

Prof Virginia and Frank Dignum are both from Umeå University and fellow of the European Artificial Intelligence Association (EURAI).

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