

NUS CTIC Newsletter

LETTER FROM THE MANAGEMENT

Welcome to the fifth issue of CTIC's Newsletter!

As we navigate a future increasingly defined by technological advancements, the human dimensions of digital trust, resilience, and maintaining a balanced relationship with technology are more critical than ever. With a vision of Singapore as a Smart Nation, where technology enhances and empowers, we are dedicated to securing our digital environment.

We are thrilled to launch the Living Well Digitally Platform that is powered by the Digital Wellbeing Indicator Framework – the most comprehensive framework to measure digital wellness in our everyday lives! Additionally, we have embarked on the five-year Information Gyroscope (iGYRO) programme, aimed at tackling the growing challenges of mis-, dis-, and mal-information (MDM) in the complex terrain of our digital world.

These are indeed exciting times, and we look forward to your continued support. Best wishes for a successful and enriching academic year 2024/2025!

Warm regards,
Mong Li and Audrey

RESEARCH HIGHLIGHTS



Our interdisciplinary team from the iGYRO Programme comprises a diverse group of experts, including young scholars from various backgrounds

Information Gyroscope (iGYRO) Digital Information Resilience: Restoring Trust and Nudging Behaviours in Digitalisation

Under the leadership of Distinguished Professor Chen Tsuhan and CTIC Director Prof Lee Mong Li, we have launched the five-year [Information Gyroscope \(iGYRO\)](#) programme. Our initiative is focused on interdisciplinary projects that integrate computing, social sciences, and policy analysis to deepen our understanding of the digital information ecosystem.

Our research aims to address the shortcomings of current technical interventions by adopting a holistic approach that highlights the importance of consumer behaviour within the digital information pipeline. We have already made significant advancements with innovative methodologies, conceptual frameworks, and systems.

Looking ahead, we will continue to develop new capabilities and strategies to enhance digital resilience among online users and promote behaviour that builds trustworthy information.



From (left) Soh Kai Xin, Asst. Prof Zhang Renwen, Park Yuhyun (DQ Institute), A/P Natalie Pang, Madam Rahayu Mahzam, Prof Audrey Yue, Prof Chen Tsuhan, and Prof Lee Mong Li

Living Well Digitally: Identifying, Testing and Measuring Framework Indicators Towards Digital Readiness, Inclusion and Safety

We partnered with DQ Institute to develop the [Digital Wellbeing Indicator Framework \(DWIF\)](#) which extends beyond basic measures of screen time, digital access and literacy skills, to look at how the use of technology impacts our everyday lives. DWIF is the world's first holistic framework to measure digital wellbeing across five domains of digital life and three levels of digital citizenship.

The Infocomm Media Development Authority (IMDA) has recognised DWIF as its flagship framework for evaluating digital wellness. On 17 April 2024, Madam Rahayu Mahzam, Minister of State for the Ministry of Digital Development (MDDI) and Information, and the Ministry of Health (MOH), graced the launch of the [Living Well Digitally Platform](#). Additionally, on 16 June 2024, we hosted our inaugural Introduction to Digital Wellbeing Workshop in collaboration with the National Library Singapore (NLB) at Woodlands Regional Library.

MEDIA SPOTLIGHTS



狮城有约 | 科技一点通：文字生成视频模型Sora

Prof Anthony Tung shares the opportunities and challenges OpenAI Sora bring to the advertising and film industries. He also explains the process of watermarking to identify AI-generated content. 8world News, 05 April 2024.



Taking Point Deepfakes Part 1 - How Real Are They?

In 2023, Singapore has seen a whopping 500% increase in deepfakes. Prof Terence Sim joins Talking Point's host Steven Chia to demonstrate just how easily AI can be misused to create a convincing partial and full-body deepfake video. CNA, 10 March 2024.



We Have Weapons Against AI-Powered Deepfakes But Fighting Truth Decay Won't Be Easy

Prof Simon Chesterman discusses the impact of AI-powered false information on vulnerable individuals, public institutions and the bonds of trust which hold our society together. The Straits Times Opinion, 15 January 2024.

AWARDS

74th ICA's Health Communication Division Top Paper Award (20-24 June 2024)

Congratulations to Asst. Prof Ozan Kuru and Wu Yuanyuan for their award-winning paper, "Unpacking the Relationship between Alternative Health Media Use and Vaccine Misinformation: The Roles of Medical Folk Wisdom Beliefs and Trust in Health Authorities"!

74th ICA's Political Communication Division Top Paper Award (20-24 June 2024)

Congratulations to Asst. Prof Subhayan Mukerjee and his team for bagging this award for their paper, "Partisan, Unreliable, Digital-Born, & Mass-Oriented Media are More Likely to Thrive on Social Media: A Comparison between Twitter, Facebook, YouTube, & the Web".

13th IJCNLP-AACL Area's Chair Award (1-4 November 2023)

Homerun for Dr Pan Liangming, A/P Kan Min-Yen and team! The rise of gen-AI and the need for accurate QA ultimately resulted in this remarkable win for their paper, "[Attacking Open-Domain Question Answering by Injecting Misinformation](#)"!

PARTNERSHIPS



(Left) Prof Mohan Kankanhalli, NUS, with (right) Joanna Ding, Voicecode Technology

Advancing Digital Security with Voicecode Tech

We have partnered [Voicecode Technology](#) to address the growing challenges in digital security, specially in the realm of multimedia forensics. By focusing on the detection of forged images, consistency checks between audio and video streams, and multimodal identity verification, we aim to develop advanced solutions that enhance digital trust and security. Our one-year agreement was signed on 03 May 2024.



CTIC with (2nd from right) Prof Julian Thomas and (3rd from right) Dr Melissa Gregg

Enhancing AI-Human Decision Making with ADM+S

We are honoured to host Prof Julian Thomas and Dr Melissa Gregg from the [ARC Centre of Excellence for Automated Decision-Making and Society \(ADM+S\)](#) in December 2023.

Our fruitful meeting led to the signing of a three-year MOU on 26 April 2024 to improve AI-human decision making in areas of health and work to enhance users' digital wellbeing and resilience.



Collaboration meeting with guests from Fudan University and Zhejiang University

Partnering Fudan University on Digital Wellbeing

We have embarked on a one-year research collaboration with [Fudan University](#) to study and collect comparative data on digital wellbeing across cities in China. Drawing on our interdisciplinary expertise from urban communications to digital technologies, we will refine the [Digital Wellbeing Indicator Framework](#), and produce narratives on the state of digital wellbeing across multiple cities.

The Summer Institute in Computational Social Science (SICSS) - Singapore



Gathering of global academics furthering the study of computational social science

The [Summer Institute in Computational Social Science \(SICSS\) - Singapore](#) was back for the third year from 03 June to 10 June 2024. This one-week intensive workshop brought together 19 participants selected from a list of global applicants, and 12 worldwide experts in the fields of computer science, psychology and communications. Big thanks to Asst. Prof Subhayan Mukerjee, Asst. Prof Zhang Renwen, and team, for yet another successful run of SICSS!

Workshops on Deepfake Literacy



Spanning four weekends, 60 youths attended the deepfake literacy programme on Zoom

Four engaging online Workshops on Deepfake Literacy for high school students were conducted by A/P Maria T. Soto-Sanfiel from March to April 2024. 60 enthusiastic adolescents, aged between 14 to 17 years old, were dedicated to exploring the creation, detection, ethical considerations, and distribution of deepfakes. Learn more about the research on [Deep and Cheap Fakes: Effects on Audience's Attitudes, Knowledge and Literacy](#).

CTIC Seminar: Tackling Usage and Performance Gaps in the Digital Divide



(First row, middle) Prof Mega Subramaniam and A/P Natalie Pang with our research workshop participants

We had the honour of inviting Prof Mega Subramaniam, from the University of Maryland, to present her Marylanders Online Project, [Tackling the Usage and Performance Gaps in the Digital Divide: A Community Driven Digital Literacy Initiative](#). The two-day event from 24-25 January 2024 consisted of a seminar, a closed-door workshop tailored for policymakers, and a research-focused workshop for researchers. Both Prof Subramaniam and A/P Natalie Pang shared valuable insights that could help design public health programmes.

Workshop and Policy and Society's Special Issue on Governance of Generative AI



An intellectual powerhouse from universities around the world to tackle issues on governance of Generative AI

A throwback to the Workshop and Policy & Society's Special Issue on Governance of Generative AI, organised by Asst. Prof Araz Taeihagh. Held from 6-7 October 2023, the workshop featured speakers from NUS and beyond, bringing together insights from computer science, human-compatible AI, and public policy. This collaboration resulted in two of our publications in the prestigious Policy & Society journal, one on [Big Tech's Influence on Policy Processes](#) and the other on [Intellectual Property Rights in the Era of Generative AI](#).

MEET OUR RESEARCHERS

Meet **Prof Simon Chesterman**, our Principal Investigator! As the David Marshall Professor, Vice Provost (Education Innovation) at NUS, Founding Dean of NUS College, and Senior Director of AI Governance, he brings immense expertise to our team. He explores how regulation and policy impact 'fake news' dynamics in the iGYRO programme. He advocates for tackling misinformation by promoting digital information resilience while respecting free speech.

[Learn more](#) about his views on creating a safer digital environment and modulating intellectual property laws in an insightful interview with Prof Chesterman.



Here's **Dr Peng Qi**, our Research Fellow! Dr. Qi uses deep learning to study user susceptibility to misinformation and create tools to help individuals recognise and prevent its spread.

Mentored by Prof Lee Mong Li and Prof Wynne Hsu, Dr Qi made an impression at the recent CVPR 2024 with her presentation on [SNIFFER](#). Her research features specialised tuning that enhances general-purpose MLLMs, achieving high accuracy in detecting and explaining misinformation, which is vital for debunking false information and building trust in digital content. [Learn more](#) about Dr Qi's work and passion in our exclusive interview.



(Right) Dr Peng Qi with (middle) Prof Lee Mong Li and (left) Prof Wynne Hsu

Get to know **Dr Hao Fei**, our Research Fellow! Dr Fei focuses on multimodal large language model (MLLM) learning, reasoning, and human-interaction topics. His dream is to achieve Artificial General Intelligence (AGI) by enabling machine to possess human-level intelligence and emotion!

Since joining CTIC almost a year ago, Dr Fei already presented two groundbreaking papers at the ACL 2024 and ICML 2024 conferences. His novel [Symbolic Chain-of-Thought](#) (SymCoT) and [Video-of-Thought](#) (VoT) frameworks show advanced performance for human-level reasoning compared to current models. [Learn more](#) in an interview with Dr Fei.



Introducing **Lu Xinyuan**, our dedicated Student Research Assistant! With a commitment to truth and integrity in information, Xinyuan is passionate about creating technologies that empower individuals to navigate the digital landscape safely.

Under the guidance of A/P Kan Min Yen, Xinyuan has made significant strides in fact-checking. She developed [SCITAB](#), a benchmark for scientific fact-checking, and [QACheck](#), an LLM-based model using a question-guided multi-hop approach to emulate human reasoning. Her papers were accepted at the EMNLP 2023. [Learn more](#) in our interview with Xinyuan.



(Middle) Lu Xinyuan with (right) A/P Kan Min Yen and (left) collaborator Pan Liangming