

# TRAIL

CENTRE FOR TECHNOLOGY, ROBOTICS, ARTIFICIAL INTELLIGENCE AND THE LAW | NUS FACULTY OF LAW



YEAR IN REVIEW

2024

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# DIRECTORS' MESSAGE

The pace of technological development and innovation, especially in the Artificial Intelligence (AI) space, is proceeding unabated. The increasing adoption of large language models (LLMs) that enables the deployment of generative AI (Gen AI) applications can be seen everywhere. In the legal sector, Gen AI has also made forays, with the issuance in December 2023 of the UK AI: Guidance for Judicial Office Holders, that allows judges to use GenAI tools to write legal rulings, and the Singapore Supreme Court Registrar's Circular No 1 of 2024: Guide on the Use of Generative AI Tools by Court Users, that approves the use of GenAI by court users such as lawyers and self-represented persons.

At TRAIL, we remain fully engaged in the conversation about the myriad of issues arising from the use and abuse of AI in general and LLMs and Gen AI in particular. We started the year with a seminar at NUS Law by our Co-Director Daniel Seng and Professor Ernest Lim on "Intellectual Property Protection in the AI Era" and the "Legal Implications of AI Covering Different Areas of Private Law" respectively. In August, Co-Director David Tan chaired a seminar hosted by the Singapore Academy of Law on "AI & Copyright: Understanding Authorship, Infringement and Fair Use". And in September this year, TRAIL and the EW Barker Centre for Law and Business (EWBCLB) teamed up to host the book launch for *The Cambridge Handbook of Private Law and Artificial Intelligence*. Edited by Professors Ernest Lim and Phillip Morgan, the book also boasts of contributions by TRAIL academic fellows on a wide variety of issues that looks at the interface between AI and private law.

The engagement outside of Singapore this year included David's presentation on "AI Learning and Copyright Law: Developments in Singapore" at the Annual US-Asia Comparative Copyright Law Symposium at Waseda University in Tokyo,

and Daniel's presentations on "Legal Challenges associated with the Hallucinations of Large Language Models" at the Thirteenth Chong Hui Lecture Series at Fudan University, Shenzhen University and South China University of Technology.

The year 2024 was not all about Gen AI. TRAIL is also collaborating with international partners on thought leadership in outer space! In August of this year, TRAIL, EWBCLB and the Institute of Air and Space Law, of the Faculty of Law, McGill University, jointly organised a conference with the theme "New Horizons in Air and Space Law: Treaties, Technologies, and Tomorrow's Challenges." Hosting academics from all around the world, government officials, regulators, practising lawyers, in-house counsels and the broader aerospace community, the two-day conference sought to facilitate discussions that encompassed the entire gamut of legal and policy issues associated with our aviation and outer space. Reflecting Singapore's National Space Office's aspirations to position Singapore as a regional space hub, it is therefore fitting that Gen AI tools were used to reimagine our future as an integrated air and spaceport. We generated this cover image using a number of Gen AI applications, including DALL-E for the main image. However, it is also worth pointing out that in this Gen AI image, the air-spacecraft is missing its left wing wheel and that its left engine is positioned differently from its right engine, undoubtedly because of the hallucinated deployment of some hybrid air-space breathing engine!

We also remain engaged with the other issues of law and technology. In September, we continued our Seminars on Law and Technology (SLATE) series with SLATE VI. Entitled "Data Objects as Property?", Professor Kelvin Low discussed the issues posed by the conceptualisation of property law as applied digital files, including a recent academic attempt to

do so by postulating a three-layer model of digital files to enable "ownership" of such digital files. While Professor Low debunked many of these approaches, especially for their failure to address the underlying technical workings of computing and the perils that these extensions of property will pose to legal development, this has nonetheless not stopped the UK Law Reform Commission from proposing the legal recognition of cryptoassets as property. And in December, Daniel spoke at the Internet Governance Forum 2024, organised by the United Nations, at the session on "Legalisation of Data Governance", where he shared the Internet Governance approach in Singapore, tracing its evolution from the Broadcasting Act of 1994 to the Online Criminal Harms Act of 2023.

As 2024 ends, we continue work on our wide range of multidisciplinary research projects, such as The Digital Millennium Copyright Act Project which uses LLMs to analyse takedown notices; and The Privacy Risks to Sensitive Personal Data presented by AR/VR Headsets with Eye-Tacking Capabilities Project, a collaboration between NUS Law and the School of

Computing, which analyses the risks posed by the use of eye tracking information on virtual reality headsets and their potential abuse to infer sensitive personal information about headset users such as their sexual, religious and political inclinations. The latter project seeks to do so in a manner that fully complies with the Personal Data Protection Act of 2012. Finally, there's The Inferences from LLMs and Copyright, a collaboration with the Singapore University of Technology and Design, which analyses the impact of the use of copyrighted works on the training of LLMs.

Thank you for your support in 2024! We look forward to 2025, where we will be able to present some of the results of our research. In addition, we have also planned an exciting programme of seminars and conferences that will continue this dialogue on law and technology. We hope to see you in Singapore in August where the Director General of the World Intellectual Property Organization will be joining us at a two-day conference titled "Intellectual Property and Technology in the 21st Century: Challenges in the Next Decade".



**Associate Professor Daniel Seng**  
Co-Director, TRAIL



**Professor David Tan**  
Co-Director, TRAIL

TRAIL is also delighted to host a number of our Academic Fellows when they were in Singapore this year:



*Prof Daryl Lim and Prof David Tan*  
Lunch-26 Aug 2024



*Associate Prof Ettore Maria Lombardi and Prof David Tan*  
Lunch-11 Apr 2024

# SINGAPORE TAKES THE LEAD IN CONFERENCE ON AIR & SPACE LAW

Two research centres at the Faculty of Law, National University of Singapore, joined forces with McGill's Institute for Air and Space Law to co-organise a two-day conference titled "New Horizons in Air and Space Law: Treaties, Technologies, and Tomorrow's Challenges" at the law school's Bukit Timah Campus from 1-2 August 2024.

While Singapore's global status as an aviation hub is well-cemented, its spacefaring capabilities are more modest. In 2013, the Economic Development Board established the Office for Space Technology and Industry to spearhead the development of small satellite capabilities and new sensor technologies. By 2020, the office received an expanded mandate to serve as Singapore's national space office to develop the nation's space industry, space policy, space talent and workforce as well as to grow

international partnerships and strengthen global space governance.

In his keynote speech, Deputy Attorney-General Lionel Yee highlighted the legal framework in aviation established by the Convention on International Civil Aviation, and the legal framework in outer space, established through various multilateral treaties, including the Outer Space Treaty.

In discussing whether the legal frameworks in aviation and outer space possess sufficient flexibility and robustness to adapt to our constantly changing times, Deputy Attorney-General Yee said: "Legal rules and norms must evolve in tandem with technological advancements and must be adaptable to new challenges to remain relevant and effective. While it would be impossible for us to gaze into the crystal ball



(L to R) Prof David Tan, Deputy Attorney-General Lionel Yee, Prof Donal Hanley & Jack Nelson



Deputy Attorney-General Lionel Yee delivering his keynote address on Day 1



Plenary session moderated by Prof Donal Hanley

to establish a set of comprehensive rules and norms for the future, what we can do is to build flexible and robust legal frameworks with mechanisms to facilitate the adoption and amendment of rules and norms."

Prof Donal Hanley, Associate Director of McGill's Institute for Air and Space Law, commented: "The conference will be a unique forum for exploring the challenges, changes, and innovations in the rapidly evolving fields of air and space law. With its diverse and international participant base and series of keynote presentations from leading experts, we expect to foster engaging discussions and groundbreaking research."

Conference convenor, Prof David Tan, said: "It may take a few lifetimes before humanity gets anywhere close to the future imagined in *Star Wars* and *Star Trek*. But it is never too early for academics, practitioners, policymakers and students to come together to discuss how we want to regulate such developments." There was also a special academic panel at the conference to discuss a landmark article that Professor Tan had published in the *Yale Journal of International Law* in 2000 on the protection of outer space as the province of all mankind when he was at Harvard Law School on the Lee Kuan Yew

Scholarship. This final session, which revisited themes from the article, featured insightful presentations from Professor Melissa De Zwart (University of Adelaide), Professor Adrien Schifano (Tokyo International University), and Hamza Hameed (Access Partnership). The discussion highlighted how, despite decades of scholarship urging better international regulatory oversight, progress remains modest. While initiatives such as the United Nations' *Guidelines for the Long-Term Sustainability of Outer Space Activities* represent a step forward, the session emphasised that solutions to current challenges will likely require careful negotiation between national agencies, commercial organisations, and industry players.

Taking advantage of the natural equatorial beauty of Singapore, participants were also taken on a tour of the Singapore Botanic Gardens, Singapore's first UNESCO World Heritage Site.

Finally, thanks to our conference sponsors, King & Wood Mallesons and Rajah & Tann Asia, for their generous support, and to all participants who contributed to the success of the conference. Peer-reviewed papers, including the Deputy Attorney-General's keynote, will be published in volume 49 of the *Annals of Air & Space Law* in 2025.



Prof David Tan with NUS Adjunct Professor Gerardine Goh Escolar, who delivered a keynote address on Day 2





# APCA ANNUAL CONFERENCE – THE LANGUAGE OF CROSSVERGENCE

This year's theme, "The Crossvergence of Asian Copyright Standards?", at the Asian Pacific Copyright Association (APCA) Annual Conference addressed the unique blend of convergence and divergence in copyright regulatory standards across the diverse jurisdictions of the Asia-Pacific region.

Held in Hong Kong from 18 to 19 November 2024 at the City University of Hong Kong (CityU), scholars gathered to discuss how different jurisdictions are shaping their copyright laws and developing theories to meet new challenges and local needs. TRAIL organised the APCA Annual Conference in Singapore in November 2022, and peer-reviewed papers from the conference were subsequently published in the September 2023 issue of the *Singapore Journal of Legal Studies*. The theme then was "Copyright in the Age of Disruption",

and Mr Daren Tang, Director General of the World Intellectual Property Organization, delivered the keynote address.

Professor David Tan, Co-Director of TRAIL, was one of the keynote speakers in Hong Kong this year. His speech "AI Authorship: The East Leading the West?" discussed the recent decision of the Beijing Internet Court in *Li v Liu* which attributed authorship of an AI-generated work to a human author, in contrast to various US Copyright Office decisions which denied the artist registration of works generated by Midjourney and other similar applications. President of APCA, Associate Professor He Tianxiang of CityU, and Professor Lee Jyh-An of Chinese University of Hong Kong who delivered the other keynote, are both Academic Fellows of TRAIL.



President of APCA, A/Prof He Tianxiang, welcoming the participants



Prof Lee Jyn-An delivering the keynote address on Day 1



Prof David Tan delivering the keynote address on Day 2



A/P He Tianxiang, Prof David Tan and Prof Lee Jyh-An

# EVENTS IN 2024

## 11TH DEVELOPMENTS IN IP LAW SERIES



Copyright – Gavin Foo shared details of the CMO scheme

The popular Developments in IP Law series moves past its first decade milestone on 23 January 2024 with the 11th edition at the Suntec City Convention Centre. The EW Barker Centre for Law & Business (EWBCLB) at NUS Law continues its partnership with IPOS International for this marquee event, which brings together academics, judges, practitioners and policymakers to discuss key intellectual property decisions and developments in Singapore, the United Kingdom, the European Union, the United States and Australia in the following areas. This year's series features: Copyright (23 January 2024); Trade Marks/Passing Off (1 February 2024); Breach of Confidence/Privacy & Data Protection (22 February 2024); Patents (29 February 2024).



Copyright – Prof David Tan reviewed the US and Singapore decisions

Professor David Tan, Co-Director of TRAIL, kicked off the first session on Copyright providing commentary on the controversial US Supreme Court decision on fair use in *Andy Warhol Foundation for the Visual Arts v Goldsmith*, and a number of Singapore High Court decisions that dealt with, inter alia, vicarious liability and the meaning of statutory licensee for the purposes of standing under the Copyright Act. The other presenters were Professor Martin Senftleben (Professor of IP Law and Director, Institute for Information Law (IVI), Faculty of Law, University of Amsterdam) who commented on developments in the European



Copyright – Justice Dedar Singh Gill joins the speakers in the Q+A session

Union and the UK, highlighting aspects of the proposed AI Act and the present ambiguous definition of “pastiche”; and Mr Gavin Foo (Head of Copyright Unit and Principal Legal Counsel, IPOS) who shared the plans concerning the implementation of the collective management organisations (CMO) scheme under the Copyright Act 2021, and the forthcoming public consultation on AI and intellectual property. Justice Dedar Singh Gill (Supreme Court of Singapore) joined the panel Q+A/ discussion which was moderated by Mr Paul McClelland (Senior Legal Counsel, IPOS International).

In the second session on Trade Marks and Passing Off on 1 February 2024, Prof Tan commented on a number of US decisions on trademark law which included the US Supreme Court decision on the Bad Spaniels parody dog toy and the Second Circuit Court of Appeals' decision on MSCHF's parody of Vans' Old Skool shoes. The other presenters were Mr Mark Lim (Director/Chief Legal Counsel, Hearings & Mediation, IPOS); Professor David Llewelyn (Managing Director, David Llewelyn & Co LLC); and The Honourable Mr Justice Mellor (Business & Property Courts of England & Wales) who, via Zoom, discussed key decisions in the UK and the European Union. Mr Gabriel Lim (Senior Legal Counsel, IPOS) moderated a lively and mirthful Q+A/discussion.



*Copyright – An audience member posing a question to the panel*



*Copyright – Prof Martin Senftleben speaking via Zoom*



*Copyright – Prof David Tan with Lau Kok Keng (Rajah & Tann Singapore) and Trina Ha (IPOS)*



*Trade Marks/Passing Off – Justice James Mellor joined the Q+A session via Zoom*



*Trade Marks/Passing Off – Prof David Tan with Aaron Thng (Amica Law LLC)*



*Trade Marks/Passing Off – Participants also had a good time catching up with friends in the legal community.*

In the third session on 22 February 2024, Mr Francis Zhang (Deputy Director (Policy), Personal Data Protection Commission) kicked off the session with an update on policy developments relating to privacy and data protection in 2023. Mr Benjamin Wong (Lecturer, NUS Law; Academic Fellow, TRAIL) commented on a number of High Court and Personal Data Protection Commission (PDPC) decisions on breach of confidence and breaches of the Personal Data Protection Act 2012 (PDPA). Professor Tanya Aplin (Dickson Poon School of Law, King's College London) shared developments in the UK and European Union in the areas of breach of confidence/trade secrets and privacy. Justice Valerie Thean from the Singapore High Court joined the speakers for a panel discussion at the end of the day, moderated by Mr Jeremiah Chew (Director, Ascendant Legal LLC).



*Trade Marks/Passing Off – A full house at Suntec City*



*Trade Marks/Passing Off – Prof David Tan comparing the Chewy Vuitton to the Bad Spaniels dog toy*



*Trade Marks/Passing Off – Mark Lim gave an update on trade mark registrations at IPOS*



*Privacy & Data Protection – Justice Valerie Thean enjoying her time on the panel*



*(L-R) Yeong Zee Kin (Chief Executive, Singapore Academy of Law), Benjamin Wong, Francis Zhang, Jeremiah Chew, Professor Tanya Aplin, Rena Lee (Chief Executive, IPOS), Mark Lim, Kok Kitt-Wai (Managing Director, IPOS International), Prof David Tan, Peh Toon Meng (Head (IP Academy), IPOS International)*



*Privacy & Data Protection – Professor Tanya Aplin discussing the EU and UK developments*



*Privacy & Data Protection – Francis Zhang explaining recent updates to the PDPA*



*Privacy & Data Protection – Benjamin Wong on the intricacies of pleadings post-i-Admin*

## BOOK LAUNCH – THE CAMBRIDGE HANDBOOK OF PRIVATE LAW AND AI

On 12 September 2024, *The Cambridge Handbook of Private Law and Artificial Intelligence*, edited by TRAIL academic fellow Professor Ernest Lim and Professor Phillip Morgan, was launched at an event at NUS Law's Bukit Timah Campus. The keynote speech for the book launch was delivered by Justice Aidan Xu @ Aedit Abdullah via a pre-recorded video.

A number of contributors to chapters in the book provided short summaries of their central theses. They include Associate Professor Daniel Seng (Co-Director of TRAIL), Professor Anthony Casey (University of Chicago) and Professor Jeannie Paterson (Melbourne Law School). The Q+A session was moderated by Justice Anselmo Reyes (Singapore International Commercial Court).

AI appears to disrupt key private law doctrines, and threatens to undermine some of the principal rights protected by private law. The social changes prompted by AI may also generate significant new challenges for private law. It is thus likely that AI will lead to new developments in private law. This edited book is the first dedicated treatment of the interface between AI and private law, and the challenges that AI poses for private law. It brings together a global team of private law experts and computer scientists to examine issues such as whether existing private law can address the challenges of AI and whether and how private law needs to be reformed to reduce the risks of AI while retaining its benefits.



Dean Andrew Simester giving the welcome speech



Prof Ernest Lim explaining the key themes



Prof Tony Casey discussing self-driving cars



Prof Kelvin Low highlighting issues relating to property and personhood



(L-R) Prof Tony Casey, Prof Tan Cheng Han, Asst Prof Hu Ying, Prof Ernest Lim, Prof Jeannie Paterson, Justice Anselmo Reyes, Prof Kelvin Low, A/P Anke Moerland, Justice Hri Kumar, A/P Daniel Seng



Prof Jeannie Paterson examining consumer law



Prof Tan Cheng Han explaining agency law



A/P Daniel Seng discussing information intermediaries



## SAL x TRAIL – GENERATIVE AI & COPYRIGHT

On 22 August 2024, as a prelude to the Global Forum on Intellectual Property (GFIP) that was scheduled at Marina Bay Sands the following week, the Singapore Academy of Law (SAL) and TRAIL partnered to organise a seminar that brought together practitioners, policymakers and academia to discuss some of the salient challenges facing copyright law brought about by the rapid development of AI.

Titled “AI & Copyright: Understanding Authorship, Infringement and Fair Use”, the seminar focused on the Singapore Copyright Act 2021 with comparative analysis of statutory and judicial positions in the US, EU, UK and China.

Professor David Tan, Co-Director of TRAIL, assembled a veritable panel of well-known intellectual practitioners to share their views: Dr Stanley Lai SC (Head (IP Practice), Allen & Gledhill LLP); Mr Lau Kok Keng (Head (IP, Sports & Gaming Practice) Rajah & Tann Singapore LLP); Mr Tony Yeo (Managing Director (IP Practice), Drew & Napier LLC) and Ms Trina Ha (Chief Legal Counsel, Intellectual Property Office of Singapore (IPOS)).

With over sixty participants, the seminar explored when authorship could be attributed to a human individual who entered the text prompts for generative AI applications such as ChatGPT and Midjourney to produce text and images, whether the input of works for large language models (LLMs) to analyse and learn was an infringing use, and whether the computational data analysis and fair use exceptions provided a safe harbour for these tech companies who are constantly refining these AI applications.



*Prof David Tan sets a light-hearted tone for the panel discussion*



*(L-R): Mr Lau Kok Keng, Ms Trina Ha, Prof David Tan, Mr Tony Yeo and Dr Stanley Lai*



*Dr Stanley Lai speaking on AI authorship*



*Ms Trina Ha explaining what IPOS has done and is doing in this area*



*Mr Lau Kok Keng offering his perspectives on infringing input of works for machine learning*



*Mr Tony Yeo giving a crash course on exceptions and limitations*

## ANNUAL US-ASIA COMPARATIVE COPYRIGHT LAW SYMPOSIUM IN TOKYO

Building on last year's success, the Second Annual US-Asia Comparative Copyright Law Symposium was held on 14 December at the Masaru Ibuka Auditorium, International Conference Center, Waseda University. A Roundtable discussion followed on 15 December, featuring an in-depth, unscripted, and open dialogue session comprising presentations by scholars from the United States, India, Japan, Singapore, Chinese Taipei, Hong Kong and the People's Republic of China.

It was co-organised by the Research Center for the Legal System of Intellectual Property (Waseda University School of Law), Kernochan Center for Law, Media and the Arts (Columbia Law School), Hong Kong University Program on Artificial Intelligence and the Law, and the Hong Kong Global Technology and Law Academy.

Professor David Tan, Co-Director of TRAIL, presented his views on "AI Learning and Copyright Law: Developments in Singapore" on the second day of the conference. He noted that key reforms to the Singapore Copyright Act 2021 included the adoption of an open-ended fair use provision similar to that in the United States, and a text and data mining exception called the computational data analysis exception. He shared how these two provisions will impact the widespread use of works for AI learning and for works generated by AI under Singapore law.

This annual event brings together judges, top government officials, and industry leaders from tech and content sectors to explore the deepening intersections between copyright law and AI. With an increase in relevant case law around the globe, this year's discussions addressed evolving legal challenges, examining how diverse jurisdictions adapt their frameworks to protect both innovation and creators. These insights are essential for stakeholders navigating the complex and rapidly advancing digital landscape.



Day 1 at the Masaru Ibuka Auditorium



Day 2 academic roundtable discussion



Prof David Tan with Prof Jane Ginsburg (Columbia Law School)



Senior Judge Margaret McKeown of the US Ninth Circuit Court of Appeals at the academic roundtable



Ms Shira Perlmutter, Director of the US Copyright Office, at the academic roundtable



Prof David Tan with TRAIL academic fellow A/P He Tianxiang (CityU HK)



A veritable gathering of judges, policymakers and academics

## SLATE VI – DATA OBJECTS AS PROPERTY

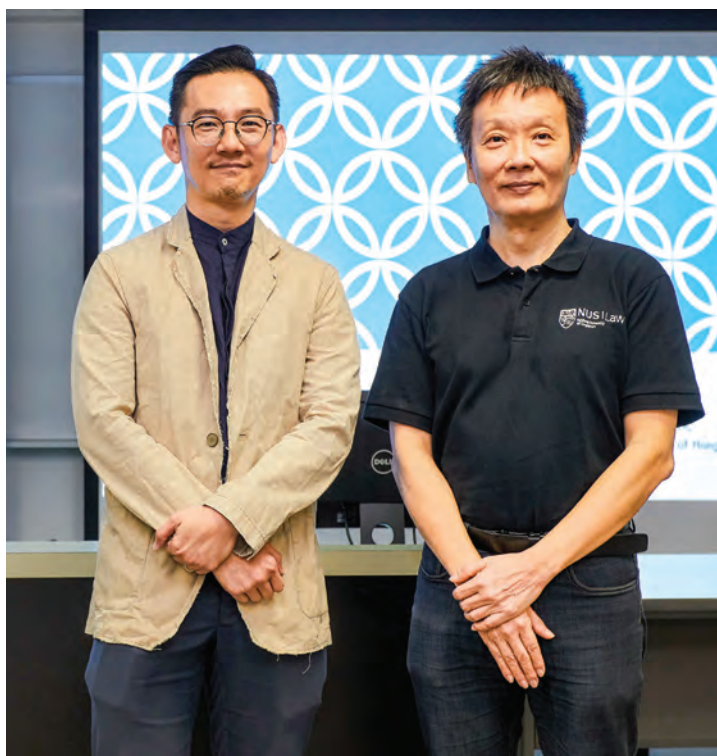
Each Seminar on Law and TEchnology (SLATE) explores a theme in the current debates surrounding the interactions between law and technology. On 19 September 2024, Professor Kelvin Low – then-Exco Member of TRAIL – led a discussion, moderated by Associate Professor Daniel Seng, Co-Director of TRAIL, on why one should not treat data objects as property.

According to Prof Low, English academics have belatedly awoken to the challenge to the law posed by the computer revolution that started in the late twentieth century. Inspired by American jurisprudence, technophile lawyers unfamiliar with the complexities of conceptualising property are liberally proposing to extend property law concepts to digital files, including a recent attempt to do so by postulating a three-layer model of digital files to enable 'ownership' at the logical layer.



Meanwhile, American academics, facing some resistance in the courts, have continued to propound the case for data property. This seminar exposes the many dangers of the concept of property within the common law, the failures of recent proposals on both sides of the Atlantic to address the underlying technical workings of computing, and the perils that such ill-considered extensions of property will pose to legal development.

The presentation was followed by a very dynamic exchange between Prof Low and members of the audience who raised questions about carbon credits, Banksy's artwork on other people's properties, bibles and works in the public domain. The discussion was moderated by A/P Daniel Seng who was also the co-author of the "Data Objects" paper.



## HOT TECH & COOL LAWYERS

On 21 March 2024, TRAIL partnered the NUS Centre for Future-ready Graduates to present a lunchtime seminar about career opportunities in technology, media and telecommunications (TMT) legal practice at the NUS Bukit Timah Campus. Students from the LLB, LLM and JD programmes had numerous questions ranging from how different was the work of an in-house counsel from a litigation lawyer, as well as how generative AI has changed the practice of law.



Professor David Tan joined NUS alums Mr Yeong Zee Kin '97 (Chief Executive, Singapore Academy of Law), Mr Steve Tan '98 (Deputy Head & Partner, Technology, Media & Telecommunications, Rajah &

Tann Singapore LLP) and Ms Elaine Tan '96 (Senior Director, Legal, Razer) on the panel.

Often punctuated with laughter, the panellists shared insights on their different pathways and their perspectives on what students can do while at university in order to better prepare themselves for a career in this rapidly evolving environment.

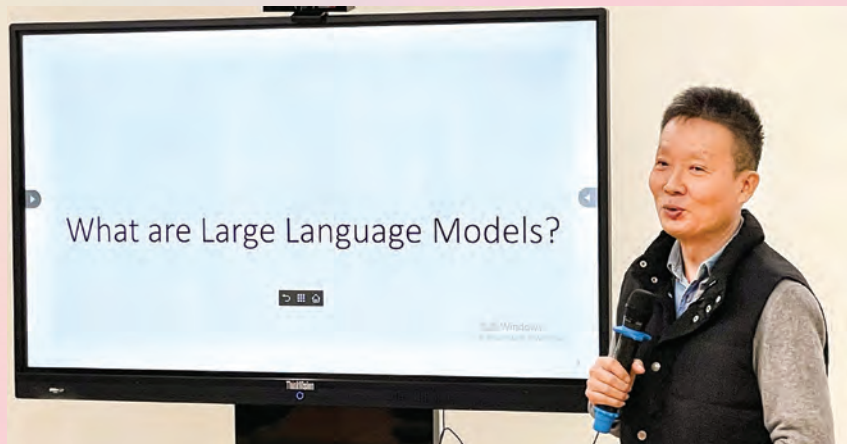


# THE CHINA LECTURES ON LARGE LANGUAGE MODEL APPLICATIONS

In the last quarter of 2024, A/P Daniel Seng, Co-Director of TRAIL, presented a series of lectures at Fudan University Law School, Shenzhen University School of Law and South China University of Technology Law School, entitled "Prospects and Legal Risks of Large Language Model Applications". In these lectures, he introduced to the audience, comprising legal and computer science academics and students, the basic concepts and working principles of large language models (LLMs). A/P Seng also focused the discussion on a key and widely debated question: whether, and to what extent, artificial intelligence can be trusted in the current context of technological development, particularly with regards to the "hallucination" problem in LLMs.

In a key section of the lecture, A/P Seng analysed the underlying causes of hallucinations in LLMs and explored the legal risks associated with such false outputs. To mitigate these risks, he discussed the necessity of disclaimers and waivers and assessed their effectiveness. After delving, with specific examples, into the possible technical solutions possible for reducing hallucinations, such as Retrieval-Augmented Generation (RAG), A/P Seng noted that the tendency for large language models to "hallucinate" is an inherent and unavoidable problem.

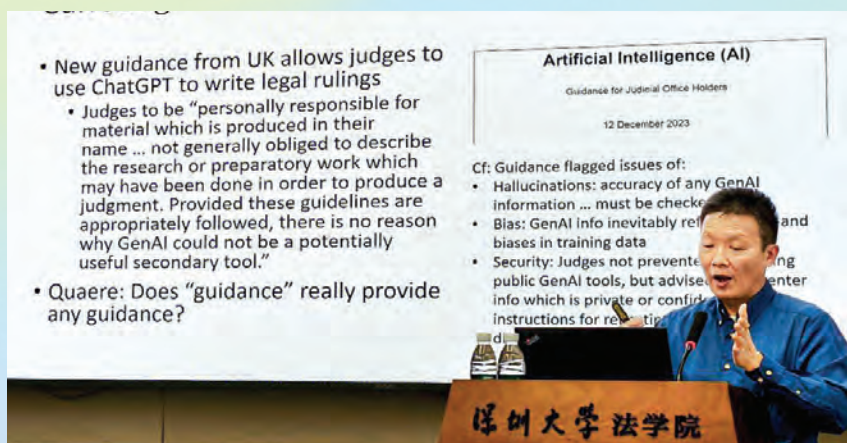
In his concluding remarks, A/P Seng stressed the importance of caution and critical thinking among lawyers, when applying AI technologies, and underscored the necessity of



At Fudan University Law School



At South China University of Technology



At Shenzhen University School of Law

ensuring that the next generation of lawyers and legal scholars be sufficiently trained to understand the application and limitations of AI technologies. At the end of all the lectures, A/P Seng engaged in an in-depth and productive Q&A session with the faculty and students of the law schools.

# UNITED NATIONS INTERNET GOVERNANCE FORUM



At the United Nations Internet Governance Forum on 15 December 2024, held in Riyadh, Saudi Arabia, Associate Professor Daniel Seng, Co-Director of TRAIL, gave an online presentation paper entitled "Internet Governance in Singapore", at the seminar on Legalisation of Data Governance. A/P Seng described how the baseline of Internet content regulation rules was first implemented in 1996, on the basis of Singapore as an open and internationally-connected society that achieved growth through trade, finance, multilateralism and multiculturalism. However, as the Internet evolved and new issues arose from the rise of online falsehoods and harmful and inappropriate content spread by mass point-to-point and point-to-multipoint communications, Singapore's governance model had to change as well. A/P Seng concluded with a brief overview of the Personal Data Protection Act 2012, the Protection from Online Falsehoods and Manipulation Act 2019 and Online Criminal Harms Act 2023.

The seminar on Legalisation of Data Governance, hosted by the Bureau of Internet Laws and Regulations, Cyberspace Administration of China, sought to bring together stakeholders from government, civil society, the technical community and the private sector to exchange insights on the current status of the development and challenges of global data applications and data governance in the various countries.

## VISIT BY CHIEF JUSTICE OF NEW ZEALAND

On 16 July 2024, TRAIL, together with the Centre for Asian Legal Studies, had the privilege of hosting Dame Helen Winklemann, Chief Justice of New Zealand, on her visit to Singapore. Dame Winklemann was very keen to find out about how we teach technology and technology-related legal issues to law students, and to get our thoughts about the impact of AI on the legal landscape. Associate Professor Daniel Seng, who represented TRAIL, explained that the initiative to teach technology and the law started upon his return from Stanford University, where he witnessed lawyers in Silicon Valley struggling to deal with technical issues in their client dealings. Upon his return, this initiative first took shape in the form of courses that taught the various aspects of the legal issues in technology ("law in tech"). As law students tried to understand law in tech issues, without the background in technology, they were unable to fully comprehend the complexity



and nuances of the issues. Hence the recent introduction of law and technology classes last year by NUS Law was an attempt to build the requisite technical foundations for the students to become better law in tech lawyers.

Dame Winklemann shared the same sentiments, noting that lawyers have to become more well versed in technology to be able to advise on law in tech issues. She opined that this meant that lawyers needed to be comfortable with math, but noted wryly that lawyers (and law students) have a general aversion to mathematics. A/P Seng agreed, noting that this discomfort is also shared by Singapore law students and some apex courts, especially with statistics. In fact, without an understanding of statistics, much of our ability to understand AI and its ramifications for society would be missing.



## AI ENTREPRENEURS FROM THE PEOPLE'S REPUBLIC OF CHINA



On 18 January 2024, a group of AI entrepreneurs and C-suite managers from major Chinese State-Owned Enterprises visited TRAIL, where they were briefed on the legal issues associated with IP protection in the AI Era by Co-Director Associate Professor Daniel Seng. A/P Seng also shared with them some of the practical and technical solutions that are possible to ameliorate the legal risks associated with possible claims for IP infringement.

The delegation was given an update on salient private law issues arising from AI use by Professor Ernest Lim. After the briefing, there was an interesting exchange of views and positions where the attendees shared their experiences with managing the issues from the perspective of Chinese companies operating in China as well as in the US and EU.



# WORKS IN 2024

## SELECTED BOOKS, ARTICLES, BOOK CHAPTERS & OPINIONS

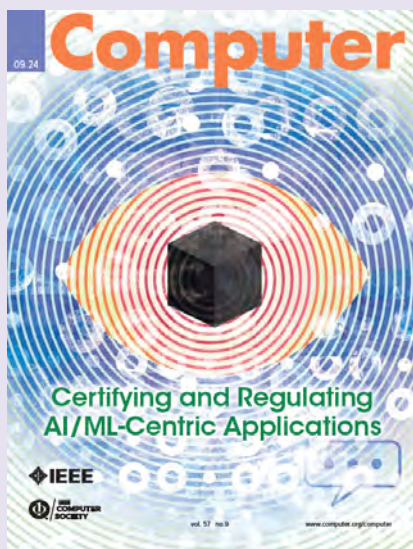


### 我们，机器人？人工智能监管及其法律局限 We, the Robots? Regulating Artificial Intelligence and the Limits of the Law

Simon Chesterman [陈西文]

(translated by You Chuanman and Fei Xiuyan with a new preface by the author) (Peking University Press, 2024)

Should we regulate artificial intelligence? Can we? From self-driving cars and high-speed trading to algorithmic decision-making, the way we live, work, and play is increasingly dependent on AI systems that operate with diminishing human intervention. These fast, autonomous, and opaque machines offer great benefits — and pose significant risks. This book examines how our laws are dealing with AI, as well as what additional rules and institutions are needed — including the role that AI might play in regulating itself. Drawing on diverse technologies and examples from around the world, the book offers lessons on how to manage risk, draw red lines, and preserve the legitimacy of public authority. Though the prospect of AI pushing beyond the limits of the law may seem remote, these measures are useful now — and will be essential if it ever does.



### The Evolution of AI Governance

Simon Chesterman and Jungpil Hahn

(co-author with Yuting Gao and Valerie Sticher)

(2024) 57(9) IEEE Computer 80 <<https://doi.org/10.1109/MC.2024.3381215>>

Many companies and a growing number of governments have guides, frameworks, or principles on their use of artificial intelligence (AI). Analysing the evolving practice of releasing such documents and the language they use offers important insights into how norms around AI are spreading and changing— and where they might go next.



## Misinformation, Disinformation, and Generative AI: Implications for Perception and Policy

Simon Chesterman and Min-Yen Kan

(co-author with Jaidka Kokil, Tsuhan Chen, Wynne Hsu, Mohan Kankanhalli, Mong Li Lee, Gyula Seres, Terence Sim, Araz Taeihagh, Anthony Tung, Xiaokui Xiao, Audrey Yue)

(2024) *Digital Government: Research and Practice* <<https://doi.org/10.1145/3689372>>

This article describes NUS's cross-disciplinary efforts in the iGyro project to deconstruct the digital information lifecycle of misinformation in its various variants. It is a holistic examination of how generative artificial intelligence (GenAI) needs to be carefully considered with respect to social sciences and policy analysis angles, with a clear grounding of the technological advances made possible by foundation models in both natural language and vision. The authors' goal is for iGyro to pioneer and actively field initiatives to build public trust through education and mitigation.

The emergence of GenAI has exacerbated the challenges of Misinformation, Disinformation, and Mal-information (MDM) within digital ecosystems. These multifaceted challenges demand a re-evaluation of the digital information lifecycle and a deep understanding of its social impact. An interdisciplinary strategy integrating insights from technology, social sciences, and policy analysis is crucial to address these issues effectively. This paper introduces a three-tiered framework to scrutinise the lifecycle of GenAI-driven content from creation to consumption, emphasising the consumer perspective. We examine the dynamics of consumer behaviour that drive interactions with MDM, pinpoints vulnerabilities in the information dissemination process, and advocates for adaptive, evidence-based policies. Our interdisciplinary methodology aims to bolster information integrity and fortify public trust, equipping digital societies to manage the complexities of GenAI and proactively address the evolving challenges of digital misinformation. We conclude by discussing how GenAI can be leveraged to combat MDM, thereby creating a reflective cycle of technological advancement and mitigation.



## I, Robot? Legal Personality for Robots and the Android Fallacy

Simon Chesterman

*The Cambridge Handbook on Law, Regulations, and Policy for Human-Robot Interaction* (Edited by Woodrow Barfield, Ugo Pagallo, and Yueh-Hsuan Weng) (Cambridge University Press, 2024) 171

Could robots be recognised as legal persons? Should they? Much of the discussion of these topics is distorted by fictional representations of what form true artificial intelligence (AI) might take – in particular that it would be of human-level intellect and be embodied in humanoid form. Such robots are the focus here, with the possibility that external appearance and its echoes in science fiction may shape debate over their “rights.” Most legal systems would be able to grant some form of personality, yet early considerations of whether they should conflate two discrete rationales. The first is instrumental, analogous to the economic reasons why corporations are granted personality. The second is inherent, linked to the manner in which human personality is recognised. Neither is sufficient to justify legal personality for robots today. A third reason, which may become more pressing in the medium term, is tied to the possibility of AI systems that far surpass humans in terms of ability. In the event that such entities are created, the question may shift from whether we recognise them under the law, to whether they recognise us.



## Good Models Borrow, Great Models Steal: Intellectual Property Rights and Generative AI

Simon Chesterman

(2024) *Policy and Society*, puae006, 1 <<https://doi.org/10.1093/polsoc/puae006>>

Two critical policy questions will determine the impact of generative artificial intelligence (AI) on the knowledge economy and the creative sector. The first concerns how we think about the training of such models—in particular, whether the creators or owners of the data that are “scraped” (lawfully or unlawfully, with or without permission) should be compensated for that use. The second question revolves around the ownership of the output generated by AI, which is continually improving in quality and scale. These topics fall in the realm of intellectual property, a legal framework designed to incentivise and reward only human creativity and innovation. For some years, however, Britain has maintained a distinct category for “computer-generated” outputs; on the input issue, the EU and Singapore have recently introduced exceptions allowing for text and data mining or computational data analysis of existing works. This article explores the broader implications of these policy choices, weighing the advantages of reducing the cost of content creation and the value of expertise against the potential risk to various careers and sectors of the economy, which might be rendered unsustainable. Lessons may be found in the music industry, which also went through a period of unrestrained piracy in the early digital era, epitomised by the rise and fall of the file-sharing service Napster. Similar litigation and legislation may help navigate the present uncertainty, along with an emerging market for “legitimate” models that respect the copyright of humans and are clear about the provenance of their own creations.

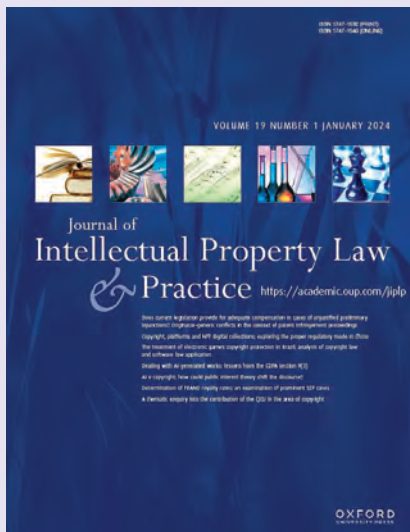


## Addressing Digital Vulnerability Through Private International Law

Gérardine Goh Escolar

*The New Shapes of Digital Vulnerability in European Private Law* (Edited by Camilla Crea and Alberto De Franceschi) (Nomos, 2024) 325

The token economy has powered the recent growth and mainstreaming of Web3 and its potential to revolutionise agreements and value exchange, leading to the birth of a novel user-led, user-owned economy. The vulnerabilities that arise in a digital habitat are a result of the borderless, mostly instantaneous, digital exchanges that take place between actors and participants in online platforms. In this chapter, the author contends that private international law questions relating to jurisdiction, applicable law and recognition will increasingly arise as more data transactions take place in the cloud and as certifications of data transactions are increasingly tokenised.



## Copyright, Platforms and NFT Digital Collections: Exploring the Proper Regulatory Mode in China

Tianxiang He

(co-author with Huan Zhang)

(2024) 19(1) *Journal of Intellectual Property Law & Practice* 18

Non-fungible token (NFT) technology heralds a transformative era for the creative industry, offering unprecedented advantages to individual creators. For a robust and sustainable NFT trading ecosystem, it is imperative to ensure rigorous copyright protection. This article posits that an NFT-ised digital copyrighted work should be perceived as a virtual property, with its intrinsic value residing in the token itself. Given that NFT transactions implicate the exclusive rights of copyright holders, they ought to be under the purview of these rights holders. Yet, it is crucial to recognise that NFTs, in isolation, are not a panacea for addressing copyright infringements related to them. Given the pivotal role of NFT platforms in facilitating these transactions, this article advocates for a holistic regulatory framework that governs the conduct of these platforms, thereby fostering the sustainable growth of the NFT ecosystem in China.



## AI Originality Revisited: Can We Prompt Copyright over AI-Generated Pictures?

Tianxiang He

(2024) 73(4) *GRUR International* 299

With the advent of large language models (LLMs) that can generate qualified content, such as images based on text prompts, the threat posed by AI creativity has become imminent. Courts and institutions in the US and China have provided different answers with regard to the copyrightability of prompt-based images. This article argues that the judicial recognition of text-to-image copyrightability at the current stage is dangerous. Not only is the practice not in accordance with our traditional understanding of originality and the author-work relationship; it also fails to consider the collateral consequences of such a finding. Perfectly regulating AI-generated content (AIGC) may be beyond the judiciary's capacity, as the solutions are provided within an ill-suited framework. It would be preferable for legislators to engage in thorough discussions with stakeholders to develop a considered regulatory plan first, which does not necessarily have to revolve around copyright.



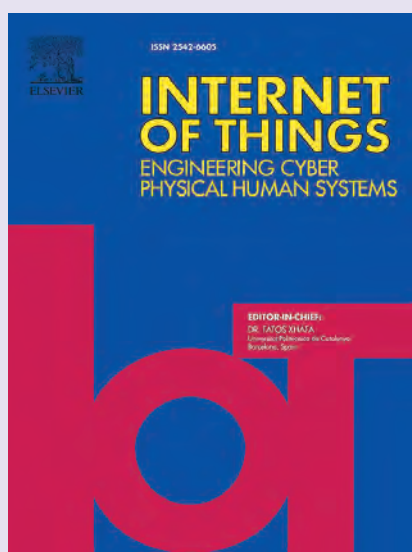
## Who is accountable for the algorithm? Assessing the effectiveness of the EU's approach towards AI liability

Tanel Kerikmäe

(co-author with Pablo Martínez-Ramil)

*Legal Issues of Digitalisation, Robotization and Cyber Security in the Light of EU Law* (Edited by Naděžda Šišková) (Wolters Kluwer, 2024) 232

Legal scholars had previously approached the issue of AI responsibility from multiple angles covering questions that range from the granting legal personality to AI systems to the definition of elements that hinder the establishment of criminal liability for AI malfunctioning. This research, while finding its grounds in prior academic discussion, incorporates technical aspects attached to the AI life cycle to break down the notion of liability; defining and delimiting the role of the multiple actors involved to introduce a comprehensive understanding of the issue at stake. Against this backdrop, this chapter assesses the effectiveness of the legal reforms undertaken by the EU to accommodate the civil liability regime to the technical reality of AI systems.



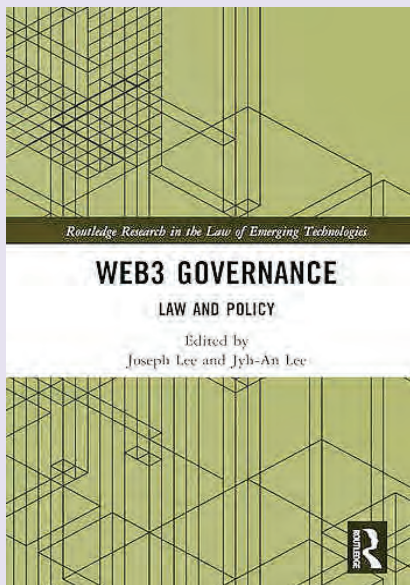
## E-Governance and Integration in the European Union

Tanel Kerikmäe

(co-author with David Ramiro Troitiño and Viktoria Mazur)

(2024) 27 *Internet of Things* 101321 <<https://doi.org/10.1016/j.iot.2024.101321>>

The article aims to analyse the global impact of e-governance in the European Union. It focuses on the long-term development of the European Union following the spillover effect described by Neofunctionalism integration theory. It also explores the potential of e-government fostering the European integration to a new level thanks to the new digital possibilities. New information and communication technologies can make a significant contribution to the achievement of good governance goals. This EU "e-governance" can make public management more efficient and more effective and attract the loyalty of the participants to the European project.



## Web3 Governance: Law and Policy

Jyh-An Lee

(co-editor with Joseph Lee) (Routledge 2024)

AI and data analytics have played a key role in the development of Web3, transforming the governance of existing digital platforms and enabling the formation of new platforms. Web3 is increasingly used for commercial and social interactions and is predicted to be the future of the internet. As a blockchain-based web, Web3 provides a platform for cryptocurrencies, NFTs, decentralised autonomous organisations, and decentralised finance. Web3 users can read, write, and even own their own version of the web which has transformed the space for commerce and social interaction, but brings inherent risks. This book identifies the principles in law and policy which can be used as the basis for the development of Web3 activities and their regulation with a focus on security, scalability, and sustainability. Though digital platforms and underlying technologies have reshaped our daily lives and business practices, they have also caused numerous legal problems. The book considers the interaction of data analytics with well-established fields of study such as financial law, tax law, intellectual property, data protection, private international law and internet law. Addressing the current knowledge gap in the legal literature on Web3 including blockchain, AI and data governance in commercial and social activities, it develops new baseline frameworks which will form the foundation for new research into data governance, FinTech and RegTech, as well as social and market infrastructure and will be essential reading for scholars in law, business studies, economics, public administration and regulation.



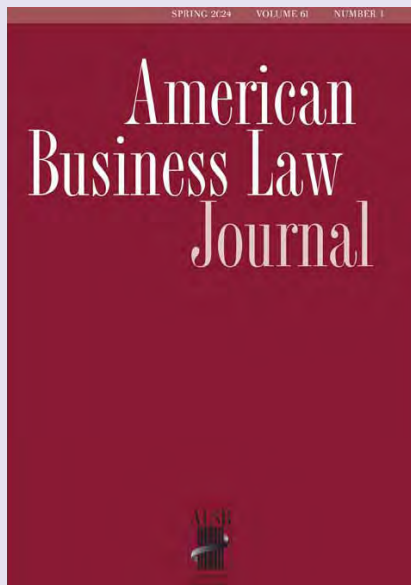
## A Tale of Two Fashion Nations: Comparative Fashion IP Laws in the United States and China

Jyh-An Lee

(co-author with Jingwen Liu)

(2024) 47 *Columbia Journal of Law & the Arts* 207

This article compares intellectual property (IP) protection for fashion designs in the United States and China. As the two largest fashion markets in the world, these countries both have controversies over the optimal IP protection against knockoffs. This study reveals that similar disputes have occurred in both countries because IP laws are not primarily designed for fast changing fashion products. Although courts in both countries have handled identical legal issues, such as separability in copyright law, distinctiveness in trademark law, and patentability for designs, their approaches are quite different. While the U.S. doctrines, such as functionality in three-dimensional trademarks and trade dress protection for product packaging, are more developed in precedents, the Chinese doctrines, such as copyrightability in garment designs, are sometimes led by industrial policies. Since the Chinese government has been determined to develop its fashion industry, these two major economies will continue to compete to be not only the largest fashion economy around the globe but also the best legal environment to foster fashion creativity. The broader implication of this Article is that IP issues in the fashion industry have demonstrated how two distinct legal frameworks, characterised by comparable regulations yet varying social and economic standings, address analogous legal challenges.



## Unwinding NFTs in the Shadow of IP Law

Jyh-An Lee

(co-author with Runhua Wang and Jingwen Liu)

(2024) 61 American Business Law Journal 31

Amid the surge of intellectual property (IP) disputes surrounding non-fungible tokens (NFTs), some scholars have advocated for the application of personal property or sales law to regulate NFT minting and transactions, contending that IP laws unduly hinder the development of the NFT market. This article counters these proposals and argues that the existing IP system stands as the most suitable regulatory framework for governing the evolving NFT market. Compared to personal property or sales law, IP laws can more effectively address challenges such as tragedies of the commons and anti-commons in the NFT market. NFT communities have also developed their own norms and licensing agreements upon existing IP laws to regulate shared resources. Moreover, the IP regimes, with both static and dynamic institutional designs, can effectively balance various policy concerns, such as innovation, fair competition, and consumer protection, which alternative proposals struggle to provide.



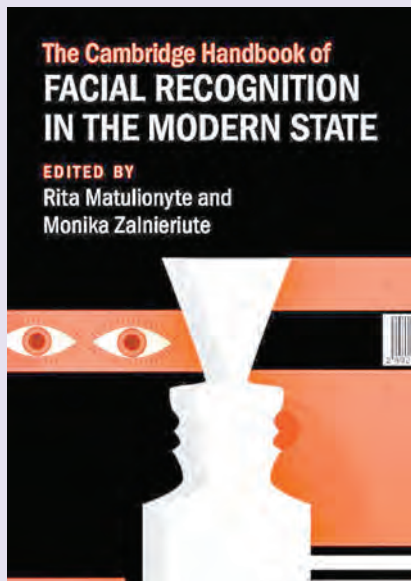
## Civil Follow Criminal or Criminal Follow Civil Procedure as Models to Deal with IP Infringement: Asian vis-à-vis Western Approaches

Jyh-An Lee

(co-author with Masabumi Suzuki, Su-Hua Lee, Byungil Kim, Xiuqin Lin, Prashant Reddy, Heng Gee Lim, and Kung-Chung Liu)

*Kreation Innovation Märkte - Creation Innovation Markets: Festschrift Reto M. Hilty* (Edited by Florent Thouvenin, Alexander Peukert, Thomas Jaeger, and Christophe Geiger) (Springer, 2024) 663

This chapter identifies yet another factor that shapes IP laws and regimes in some major Asian economies. It finds that it is the actual use or overuse of criminal punishment for protecting IP rights that distinguishes Asian IP laws and regimes from Western ones typified by Germany. After introducing the two major research questions, this article first surveys the Asian IP landscape, in the order of when IP laws were introduced into the civil law jurisdictions (Japan, Taiwan, Korea, and China), and into the common law jurisdictions (India, Malaysia, and Hong Kong) respectively. This article then examines German experiences in having the statutory principle of criminal prosecution following civil or administrative law procedure, the prosecution of IP criminal cases, and its judicial practice. This is followed by comparative study between Asian economies and Germany and critical policy analysis of IP crimes. It ends with some suggestions for Asian economies, IP leading economies, and the WTO community.



## FRT Regulation in China

**Jyh-An Lee**

(co-author with Peng Zhou)

*The Cambridge Handbook of Facial Recognition in the Modern State*  
(Edited by Rita Matulionyte and Monika Zalnieriute) (Cambridge University Press, 2024) 242

This chapter first introduces China's legal framework regulating facial recognition technology (FRT) and analyses the underlying problems. Although current laws and regulations have restricted the deployment of FRT under some circumstances, these restrictions may function poorly when the technology is installed by the government or when it is deployed for the purpose of protecting public security. We use two cases to illustrate this asymmetric regulatory model, which can be traced to systematic preferences that existed prior to recent legislative efforts advancing personal data protection. Based on these case studies and evaluation of relevant regulations, this chapter explains why China has developed this distinctive asymmetric regulatory model towards FRT specifically and personal data generally.

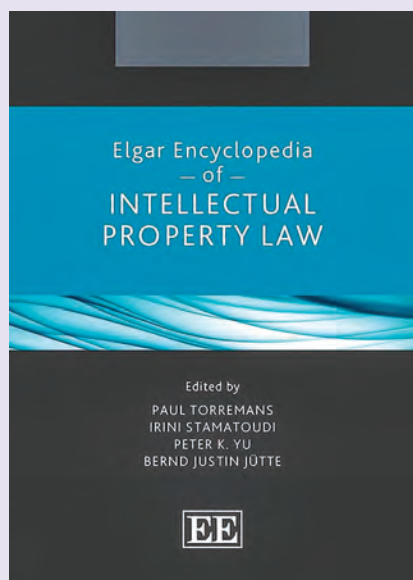


## Innovation and Artists' Rights in the Age of Generative AI

**Daryl Lim**

*Georgetown Journal of International Affairs* (July 2024) <<https://gjia.georgetown.edu/2024/07/10/innovation-and-artists-rights-in-the-age-of-generative-ai/>>

The rise of generative artificial intelligence (AI) in the music industry has sparked a significant debate among artists and AI developers. This technology, which transforms vast datasets into original content, poses significant challenges for copyright law because it often uses copyrighted material without consent, which could lead to potential infringement issues. This article explores three key vectors in this debate: legislation, scarcity, and varied global approaches to AI governance. A balanced, adaptive regulatory framework is essential to support AI innovation while protecting creators' rights, thus emphasising the need for global cooperation and fair legal standards.

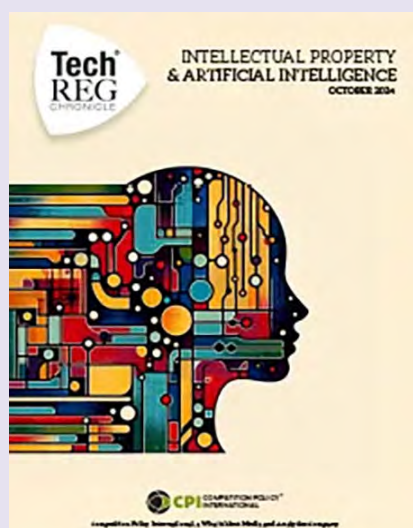


## Patent Misuse

**Daryl Lim**

*Encyclopedia of Intellectual Property Law (Edited by Paul Torremans, Irini Stamatoudi, Peter Yu and Bernd Jütte) (Edward Elgar, 2024)*

The *Encyclopedia of Intellectual Property Law* is quite simply the definitive reference work in the field. Bringing together over 300 authors from across the world, the Encyclopedia sheds light on the current global state of intellectual property law, providing unique insights into the discipline and how it is affected by globalisation and increased regional integration. In recent decades intellectual property has played a key role in our global society, facing ever growing demands and rapid change. With the steady increase of global and regional interconnectedness the practical significance of the discipline has grown, despite its territorial roots. The number of legislative activities on the national, international and European level has also increased.

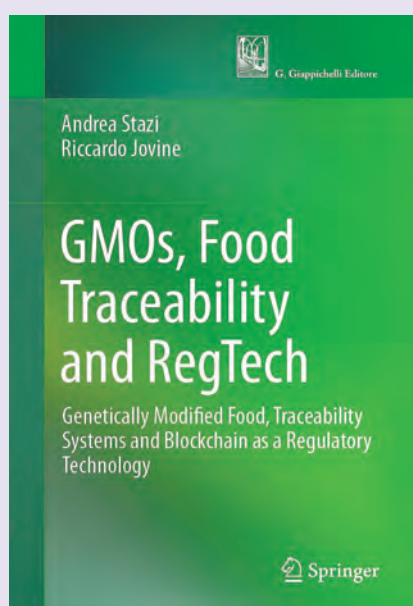


## Notification and Permission-Based Approaches for Generative AI Platforms

**Daryl Lim**

*TechREG Chronicle (Competition Policy International) (October 2024)*

This article explores the regulatory frameworks governing generative AI platforms, focusing on two primary models: notification-based systems, exemplified by the U.S. Digital Millennium Copyright Act ("DMCA"), and permission-based systems, as seen in the European Union's AI Act. While notification-based models emphasise flexibility and innovation, they may leave creators vulnerable to exploitation. Conversely, permission-based systems provide stronger protections for content creators but risk stifling technological advancement. The article advocates for a hybrid regulatory approach, blending risk-based notifications and private ordering, to balance the interests of innovation and intellectual property protection. This article charts a forward-looking path reconciling generative AI's potential with the need to respect and protect creative rights by examining key legislative frameworks.

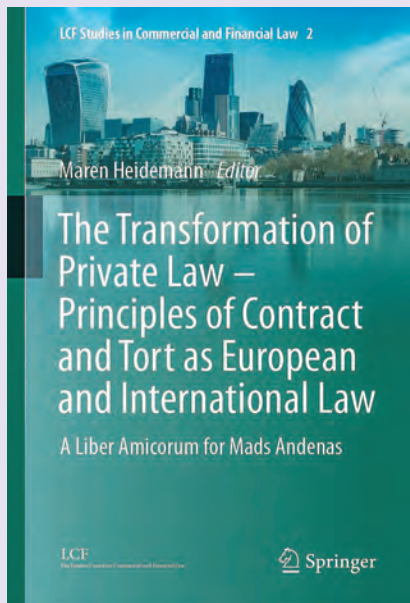


## GMOs, Food Traceability and RegTech Genetically Modified Food, Traceability Systems and Blockchain as a Regulatory Technology

**Andrea Stazi**

*(co-author with Riccardo Jovine) (Springer, 2024)*

The book deals with the regulation of GMOs within the context of multiple principles and interests, including food security, sustainable development, and biodiversity. The recognition of intellectual property rights, particularly with respect to geographical indications and patentability is also discussed. From a comparative perspective, the importance of traceability in the food industry, driven by major world powers' consumer and market protection policies, is highlighted. Finally, the use of emerging technologies, such as blockchain, as a form of "regulatory technology" for more effective and sustainable management of traceability systems within the food supply chain, is explored as a workable and forward looking solution.



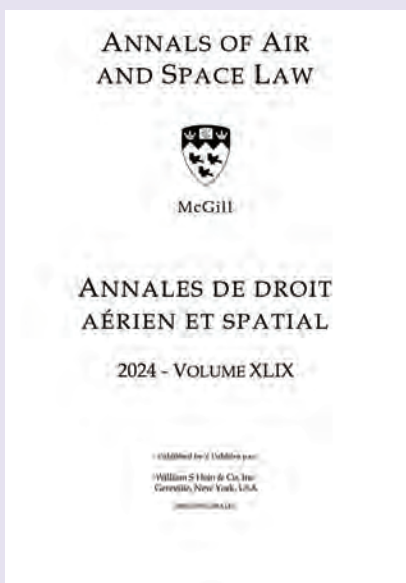
## Contract Automation from Telematic Agreements to Smart Contracts

**Andrea Stazi**

(co-author with Alberto M. Gambino)

*The Transformation of Private Law – Principles of Contract and Tort as European and International Law - A Liber Amicorum for Mads Andenas* (Edited by Maren Heidemann) (Springer, 2024)

Technology creates new opportunities for socio-economic relations, commercial exchange and overcoming national borders, allowing us to conclude and execute agreements more quickly regardless of the distance between the parties. However, technology tests the contractual institution making it necessary to adapt it to immediate, transnational, automatic uses, and to the legal issues deriving from them. This chapter aims to analyse the evolution of the relationship between technology and contract, through the *fil rouge* of contract automation, with specific regard to the telematic agreements and the next frontier of “smart contracts”.



## New Horizons in Air and Space Law: Treaties, Technologies, and Tomorrow's Challenges – Introduction from the Conference

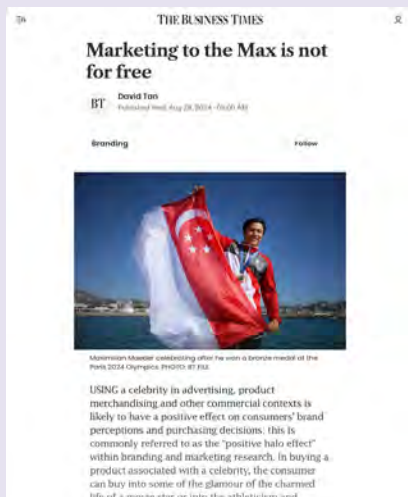
Organising Committee

**David Tan**

(with Donal Hanley and Jack Wright Nelson)

(2024) 49 *Annals of Air and Space Law* 275

TRAIL, the EW Barker Centre for Law and Business, and the Institute of Air and Space Law, of the Faculty of Law, McGill University, jointly organised a conference this year with the theme “*New Horizons in Air and Space Law: Treaties, Technologies, and Tomorrow's Challenges*.” The conference articles in this special issue of the *Annals* point toward future developments in these rapidly evolving fields. They demonstrate how traditional legal principles must adapt to new technological realities. Alexey Ilin's examination of nationality and statelessness in outer space highlights the novel legal questions arising as humans venture beyond Earth. Simon Sun and Eytan Tepper's analysis of space-based infrastructure governance offers important insights into building resilient systems in an increasingly contested domain. Joel Lisk's proposal for evolving licensing regimes addresses the need for updated regulatory frameworks in the commercial space sector. Finally, Kinga Kolasa-Sokolowska investigates the role that artificial intelligence may come to play in relation to aviation safety.



## Marketing to the Max is not for free

David Tan

*The Business Times, 28 August 2024*

This Op-Ed focuses on the possibility of illegal freeriding on an athlete's goodwill following Singaporean Maximilian Maeder's bronze medal win at the Paris Olympics. It is unlikely that a number of these brands in the ensuing weeks have obtained the permission of Maeder for either featuring his photo so prominently in a congratulatory ad or offering promotions on social media that make reference to him. Advertisers who have no prior sponsorship relationship with athletes should exercise caution when invoking the names and images of athletes in Singapore without permission. Otherwise there may be an impermissible associative use where the company has directly exploited the athlete's identity to improve brand perception or sell products.



## Copyright Fair Use in the Face of Technological Developments: Staying Ahead or Limping Behind?

David Tan

*Law Gazette (November & December 2024)*

Open-ended fair use and categorical fair dealing provisions both temper the exclusive rights of copyright owners to foster further creative expression by permitting secondary uses of copyrighted works, providing the primary mechanism to balance copyright protection with the broader public interest of fostering creative expression. A number of jurisdictions also provide definitional statutory exceptions that do not require a balancing of factors, that is, it is a permitted use of copyrighted works for specific purposes so long as particular conditions are satisfied; the text and data mining exception – called the computational data analysis exception in Singapore – is one such example. Today, the breathtaking pace of technological developments has perhaps left copyright law struggling to keep up, as traditional understandings of various copyright doctrines and legislative mechanisms are generally unable to match this speed. This two-part article discusses the fair use doctrine in Singapore in relation to internet search engines and the use of works for training generative artificial intelligence applications (e.g. ChatGPT, Midjourney, Stable Diffusion).



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