

TRAIL

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



YEAR IN REVIEW

2020



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DIRECTOR'S MESSAGE

"It was the best of times, it was the worst of times," so said Charles Dickens in *A Tale of Two Cities*. Indeed, nothing better sums up what awaited the inception of the Centre for Technology, Robotics, Artificial Intelligence & the Law (TRAIL) in December 2019 than the events of 2020.

As the newest of NUS Law's research centres, TRAIL was tasked with the dual mandate to inform the debate on legal, ethical, policy, philosophical and regulatory questions associated with law and technology, and to collaborate with research centres around the world on interdisciplinary research. TRAIL was poised to bring together like-minded academics from not just the Faculty of Law, but also the School of Computing, in a unique platform to allow all of us to cooperate and share our expertise across the NUS campuses. Its founding in the last year of the decade of the 2010s could not have come at a better time, as we were at the cusp of the explosion of interest in legaltech, fintech and cryptoassets, and heightened concerns about cyberattacks, data protection and the regulation of artificial intelligence.



IN PARTICULAR, WE WERE HONOURED BY THE VISIT OF HIS EXCELLENCY MR MARC ABENSOUR, AMBASSADOR OF FRANCE TO SINGAPORE, AND DELEGATES FROM THE FRENCH EMBASSY IN SINGAPORE, TO TRAIL IN JANUARY 2020, AND WE LOOK FORWARD TO DEEPENING OUR FRIENDSHIP WITH THE FRENCH GOVERNMENT AND RESEARCH INSTITUTES.

Alas! 2020 will be most associated with the devastation to human society brought about by the COVID-19 pandemic. Physical human interactions were shut down, schools and conferences closed, engagements minimised and concerns about our well-being mounted as the virus took its toll. Yet, as a testament to the tenacity of the human spirit and the ubiquity of technology, we adapted and soldiered on. Work from home became the norm, and classes and seminars were replaced with webinars and Zoom meetings. While certain sectors of the economy languished, the technology economy powered on, delivering on the latest in mRNA vaccines, implementing electronic health tracking and tracing, and supplying goods and services through electronic commerce, delivery services and digital platforms.

In many ways, it is technology that enabled us to weather, and will enable us to hopefully ride out, this pandemic. And in the same spirit, work at TRAIL has continued apace, despite the disruption caused by the pandemic. In December 2019, in an almost prescient fashion, we hosted the Asian Privacy Scholars Network Conference where scholars addressed, among others, the need to balance the commercial and public sector use of personal information with the need to protect, using both legal and technical means, the interests of users and individuals. In July 2020, in the midst of the pandemic, we co-hosted with the Centre for Asian Legal Studies a roundtable discussion with scholars from Singapore, Taiwan and South Korea about the privacy concerns arising from contact tracing for public health purposes.

On the research front, in a nod to the importance of technology, many TRAIL members contributed towards the Singapore Academy of Law Journal's Special Issue on Law and Technology, with a wide variety of articles that included cryptocurrencies, ride-sharing, electronic evidence and algorithmic justice. TRAIL even spearheaded two initiatives aimed at preparing law students for a technology future, by conducting the first-ever Faculty Law and Technology Curriculum Review that studied the need and extent for curriculum changes to address the increased use of technology in legal practice, and held a series of Law and Technology Primer webinars that gave NUS Law students a crash course in the fundamentals of technology and its implications for the law and legal practice. And notwithstanding the pandemic, we are continuing to reach out to, and actively collaborating with, our counterparts all around the world.

In particular, we were honoured by the visit of His Excellency Mr Marc Abensour, Ambassador of France to Singapore, and delegates from the French Embassy in Singapore, to TRAIL in January 2020, and we look forward to deepening our friendship with the French government and research institutes.

The limits of space prevent me from sharing with you the full details of what we have collectively done last year. You can however read all about our work, our papers and our research that we have done in 2020 in this Year in Review Report, which is a testament to all our research and the indefatigable spirit of our Academic Fellows from the Faculty of Law and the School of Computing.

For 2021, TRAIL has planned a flagship series of seminars known as the Seminars on Law and Technology (SLATE) in partnership with the Singapore Academy of Law, to bring novel ideas relating to law and technology to a wider legal audience. Through its delivered papers and hybrid mode of presentation, we are positioning SLATE as a serious academic and multidisciplinary platform for discussing law and technology issues in an interactive and participative environment for speakers, commentators and participants alike, with participation of our Academic Fellows from both schools.

This has been a trying and busy first year for TRAIL! In many regards, TRAIL has stayed true to its focus on robust research work and the building of ties and links to other researchers and research institutions. The TRAIL Exco is grateful to the Deanery for its continued support for the work that we are doing and for its patience as we forge ahead to build our own identity. With plans being put in place for SLATE and as our research projects mature, we hope to advance the law and technology work done by all of TRAIL and our Academic Fellows and slowly but surely establish our research footprint amongst the international community.



Associate Professor Daniel Seng
Director, TRAIL

LAUNCH OF TRAIL @ 8TH ASIAN PRIVACY SCHOLARS NETWORK CONFERENCE

TRAIL was launched on 5 December 2019 at the 8th Asian Privacy Scholars Network (APSN) Conference which NUS Law hosted at its Bukit Timah Campus. Convened by Professor David Tan, about 100 participants attended this two-day conference that was jointly presented by TRAIL and the EW Barker Centre for Law & Business.

Senior Minister of State for Law and Health Mr Edwin Tong SC, an alumnus of NUS Law, launched TRAIL on the first day of the conference. Speaking at the APSN Conference, Senior Minister of State Mr Tong said, “The increasingly rapid pace of technological developments in fields like artificial intelligence, predictive analytics, Internet of Things and autonomous vehicles means the law has to respond even more quickly. The launch of TRAIL today signifies the commitment of Asia’s top law school to research excellence, and I am confident that the centre can work with different partners locally and globally to produce valuable legal solutions and policies which benefit society.”

The theme “Privacy, Confidence & Data Protection in the 21st Century” attracted forty papers presented by scholars and practitioners from 17 jurisdictions. The kaleidoscope of papers covered a broad range of topics that included interrogation of conceptual frameworks, practical analyses of personal data protection legislation such as the EU *General Data Protection Regulation (GDPR)* and other national regulatory regimes, health data management, privacy issues at the Tokyo Olympics, privacy and the Hong Kong protests, and the surveillance economy.



Mr Edwin Tong, Senior Minister of State for Law and Health, receives a token of appreciation from CLAIR, a robot built by Associate Professor Daniel Seng (Photo: NUS News)



Conference Convenor, Professor David Tan and APSN Secretary, Professor Anne Cheung (HKU Law) opening the conference



Professor Megan Richardson from Melbourne Law School, who delivered the first keynote address on Day 1, advanced an account of five disruptive moments in the development of the common law, and the inherent disunity in the judicial conceptions of privacy over the decades. Mr Yeong Zee Kin, who delivered the second keynote address on Day 2, is the Assistant Chief Executive (Data Innovation and Protection Group) of the Infocomm Media Development Authority of Singapore (IMDA) and Deputy Commissioner of the Personal Data Protection Commission (PDPC). He shared how the “regulatory sandbox” had assisted the government in its policy formulations, and mooted the Model AI Governance Framework and the Trusted Data Sharing Framework. Selected papers from the Conference will be published in the *Singapore Journal of Legal Studies*.



Professor Megan Richardson (Melbourne Law School) delivering the first keynote address on Day 1



Deputy Commissioner of the Personal Data Protection Commission of Singapore, Mr Yeong Zee Kin, delivering the second keynote address on Day 2



A full house on Day 2 at the Plenary Session



Conference participants from over 20 countries



Associate Professor Daniel Seng, Director of TRAIL, outlining the mission of the new centre



Professor Rolf Weber at the Plenary Session



Mr Tan Ken Hwee (Chief Transformation and Innovation Officer for the Singapore Judiciary)



Dr Edy Santoso at Parallel Session 1A





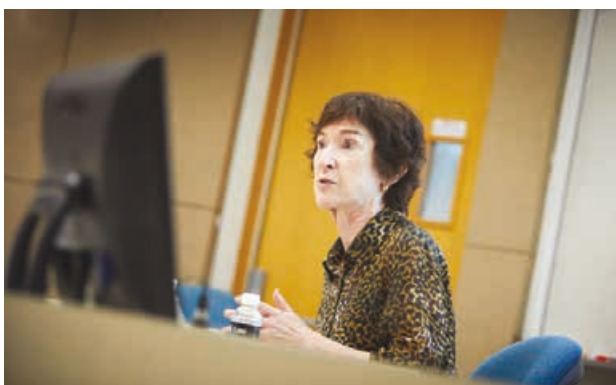
Members of APSN Secretariat (L-R): Professor Graham Greenleaf, Professor David Tan, Professor Sinta Dewi Rosadi, Associate Professor Gehan Gunasekara, Professor Colin Bennett and Professor Kiyoshi Murata



Professor Colin Bennett at Parallel Session 1B



Dr Carolyn Johnston at Parallel Session 1C



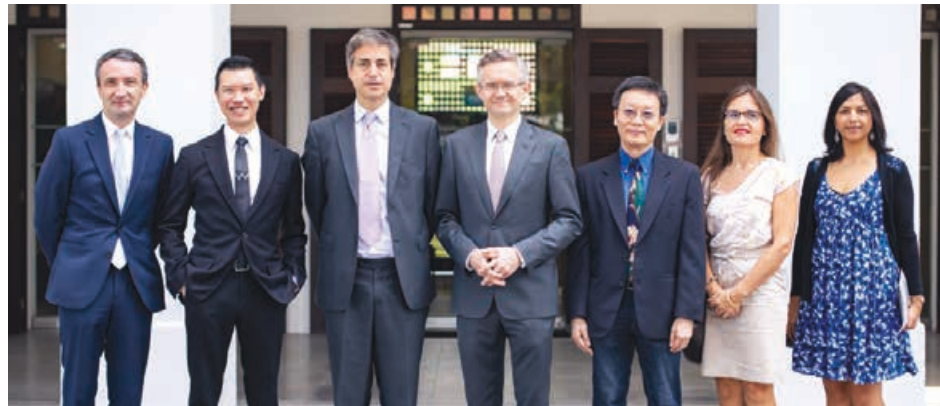
Dr Elizabeth Coombs at Parallel Session 1C



Ms Roshni Peeti at the Plenary Session

VISIT BY HIS EXCELLENCY MARC ABENSOUR

NUS Law was honoured to host His Excellency Mr Marc Abensour, Ambassador of France to Singapore, and delegates from the French Embassy in Singapore on 14 January 2020. His Excellency was given a tour of the historic Bukit Timah Campus and TRAIL. We were heartened to see His Excellency's keen interest in artificial intelligence and the law and hope to develop new collaborations in the near future between Singapore and France.



(L-R): Anthony Chaumuzeau (Counsellor for Culture, Education and Science), Professor David Tan (Vice Dean (Academic Affairs) & Deputy Director (TRAIL)), His Excellency Mr Marc Abensour (Ambassador of France to Singapore), Professor Simon Chesterman (Dean, NUS Law), Associate Professor Daniel Seng (Director, TRAIL), Ms Ariana Trichon (Deputy Head of Mission), Ms Chamira Lessigny (Attaché for Science and Higher Education, Embassy of France)

His Excellency receives a token of appreciation from CLAIR, a robot built by Associate Professor Daniel Seng and his team at TRAIL







01



03

- 01 Professor Simon Chesterman (Dean, NUS Law) sharing the history of NUS Law
- 02 Associate Professor Daniel Seng (Director, TRAIL) sharing insights and data on recent research projects by TRAIL
- 03 Professor Simon Chesterman presenting a token of appreciation to His Excellency Marc Abensour

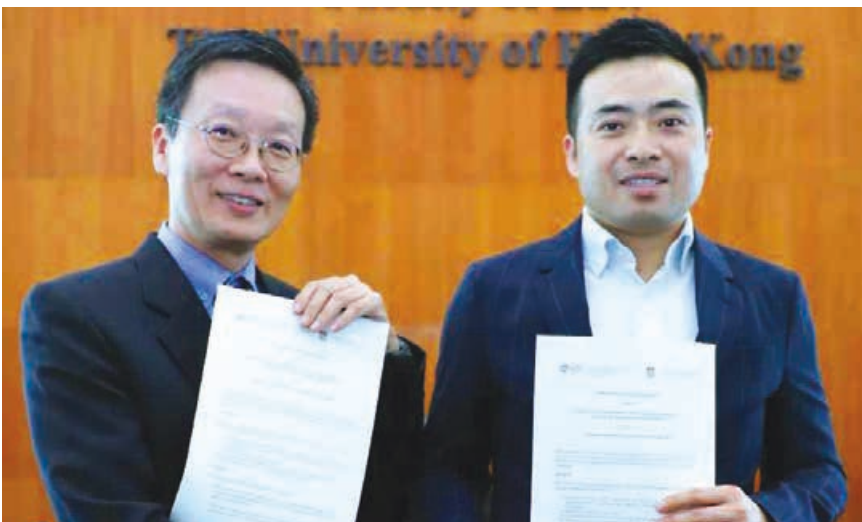
ESTABLISHING LINKS WITH MELBOURNE AND HONG KONG

Ahead of the official launch, TRAIL has already signed co-operation agreements with the Centre for Media and Communications Law as well as Intellectual Property Research Institute of Australia at the Melbourne Law School, and the Law and Technology Centre at the University of Hong Kong.

Under the MOUs, TRAIL will seek to facilitate visits by faculty members, doctoral students and research fellows from Melbourne Law School and HKU Law School for research and/or teaching purposes on a reciprocal basis. The centres also plan to cooperate in other scholarly endeavours in the areas of national, international, transnational and comparative law relating to technology, robotics and artificial intelligence.



Professor David Tan with Professor Megan Richardson (Director, IPRIA, Melbourne Law School) and Associate Professor Jason Bosland (Co-Director, CMCL, Melbourne Law School)



Associate Professor Daniel Seng with Associate Professor Sun Haochen (Director, Law & Technology Centre, Faculty of Law, University of Hong Kong)

WORKS IN 2020

I BOOKS AND PAPERS

FEDERATED LEARNING – PANACEA OR PUFF?

Daniel Seng and Reza Shokri
December 2019

This joint paper between Associate Professor Daniel Seng with Assistant Professor Reza Shokri from the NUS School of Computing explores the development of federated learning and differential privacy from both a computing as well as a legal perspective. Federated learning was first described as a novel framework for AI model development that uses aggregated data to enable the creation of highly customised data models without compromising user privacy, and its potential was recognised in the form of significant support from both industry titans such as Google as well as privacy regulators, like the Privacy and Data Protection Commission (PDPC) in Singapore.

However, the paper argues that despite its strengths, federated learning still contains a number of technical weaknesses, and is no substitute for strong data protection laws. By examining extant data protection regulations, the paper shows that aggregated, pseudonymised or anonymised data permitted by these regulations for use in federated learning will still reveal personal data that may compromise individual privacy. In addition, technical attacks on the models generated by federated learning may also result in the exposure of personal or sensitive information.

DETECTING AND PROSECUTING IP INFRINGEMENT WITH AI: CAN THE AI GENIE REPULSE THE FORTY COUNTERFEIT THIEVES OF ALIBABA?

Daniel Seng
December 2019

This paper explores the use of automated systems in detecting and prosecuting intellectual property rights infringement by trademark and copyright holders in online environments and marketplaces. While automated takedowns have been touted as the answer to the scourge of online counterfeiting, such takedowns occur with little to no independent oversight, raising issues of automated overreach in the case of innocent sellers. Drawing upon prior experiences with the Digital Millennium Copyright Act, this paper argues that rightholders need to move away from adversarial relationships with online marketplaces, and instead work with online marketplaces to improve the precision of automated takedowns, thus reducing the impact on innocent resellers and other third parties in the process.

Originally presented at the Artificial Intelligence & Intellectual Property Conference (jointly organised by SMU, the Chinese University of Hong Kong, and the Max Planck Institute for Innovation and Competition), this paper has been published in a compendium, *Artificial Intelligence and Intellectual Property*, by Oxford University Press in February 2021. In the interim, the article was also made available on SSRN, and is the subject of a special report by the *World Trademark Review*, the global industry newsletter that covers the commercial and international practice of trademark law.

I BOOKS AND PAPERS



SINGAPORE ACADEMY OF LAW JOURNAL SPECIAL ISSUE ON LAW AND TECHNOLOGY

Guest Editor: Daniel Seng

The Singapore Academy of Law Journal (SACLJ) *Special Issue on Law and Technology* is TRAIL's first flagship project with Associate Professor Daniel Seng as the Guest Editor. In contrast to prior *SACLJ Special Issues* focusing on a clearly definable area of jurisprudence, the protean nature of "law and technology" made conceptualising the direction of this Special Issue all the more difficult. Nonetheless, this turned into an opportunity to showcase the breadth and depth of forward-thinking expertise accessible to TRAIL, whether via its Academic Fellows and research staff or through its international contacts.

A total of 21 proposals in the form of abstracts were received and the final *SACLJ Special Issue* comprised a total of twelve accepted papers: eight featured TRAIL's leadership, Academic Fellows, and research staff, with the other four papers coming from Stanford University, Drexel University, Tallinn University of Technology and Sichuan University.

The *SACLJ Special Issue* can be roughly divided into four parts. The first deals with the overall theme of what to regulate and how, featuring two papers from Professor Simon Chesterman, and Professors Tanel Kerikmäe and Katrin Nyman Metcalfe of Estonia. The second deals with topical issues in law and technology, such as cryptocurrency (Joseph Lau), employee privacy (Benjamin Wong), data as property (Hu Ying), competition theory on digital platforms (Kenneth Khoo), and privacy and enterprise risk management (Paul Flanagan et al @ Drexel University). The third deals with systemic issues that technology poses in legal dispute resolution, such as electronic evidence (Daniel Seng and Stephen Mason), artificial intelligence in judicial decision making (Shaun Lim), and document assembly and litigants in person (Helena Whalen-Bridge). The last features blue-sky thinking about the future of law in a technological world: the possibility of human law becoming augmented with observations and experiments on big data (Zhang Ni @ Sichuan University) and the need for design thinking paradigms in creating future laws (David Johnson @ Stanford University).

The *SACLJ Special Issue* was published in April 2021, and will also form the basis of TRAIL's series of Seminars on Law and Technology (SLATE).

CASE COMMENTARY: QUOINE PTE LTD v B2C2 LTD

Daniel Seng
July 2020

Quoine Pte Ltd v B2C2 Ltd [2020] SGCA(I) 2 was a novel case dealing with mistake in automated transactions, with implications for the practice of modern finance such as algorithmic high speed trading. In the wake of the decision, Associate Professor Daniel Seng was approached by the Supreme Court of Singapore to write a commentary.

While the commentary generally concurred with many ancillary aspects of the decision, it disagreed with the Court of Appeal's holding that the operative mistake in *Quoine Pte Ltd v B2C2 Ltd* did not go to a term of the contract and therefore was not a unilateral mistake at common law. The commentary contends that contrary to the Court of Appeal's decision, the mistake was made in relation to the price of the cryptoasset, which in the circumstances ought to have been considered a material term of the contract. In support of this proposition, the commentary refers to existing industry practice in stock markets as to cancellation of erroneous trades. It further contends that the determinism or otherwise of the trading algorithm in question is largely irrelevant to whether a mistake has arisen, especially in the circumstances where no sharp practice was found and the benefiting party was the first to raise doubts about whether the transactions were valid.

The commentary was subsequently featured as an expert commentary in the first volume of *A Compendium of Singapore - China International Commercial Cases Curated for their Relevance to the Belt and Road Initiative*. This was a curation of international commercial cases from Singapore and China, chosen for their relevance to the Belt and Road Initiative, compiled by the Singapore Judicial College and the Chinese National Judges College, and jointly published by the Singapore Supreme Court and the Supreme People's Court of the People's Republic of China in November 2020.

WORLD TRADEMARK REVIEW FEATURE: AI AND INTELLECTUAL PROPERTY RIGHTS INFRINGEMENT

Daniel Seng
November 2020

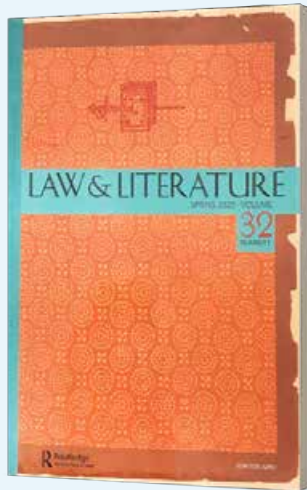
Prior to the formal publication of the "Detecting and Prosecuting IP Infringement with AI" paper, a reporter from the *World Trademark Review* chanced upon a copy on Associate Professor Daniel Seng's SSRN page. The paper was subsequently the subject of an article published in November 2020 (<https://www.worldtrademarkreview.com/anti-counterfeiting/artificial-intelligence-insufficient-prevent-counterfeits-online-marketplaces-study-claims>), which augmented insights from the paper with correspondence between Associate Professor Daniel Seng and the reporter.

COPYRIGHTING COPYWRONGS: AN EMPIRICAL ANALYSIS OF ERRORS WITH AUTOMATED DMCA TAKEDOWN NOTICES

Daniel Seng
March 2020 – March 2021

This instalment of Associate Professor Daniel Seng's specialist Digital Millennium Copyright Act research focuses on errors made by copyright owners and reporting agents in submitting takedown notices to service providers and intermediaries. Updated with data from the latest iteration of the DMCA repository hosted by the Berkman Klein Centre for Internet and Society at Harvard, the paper has been published by the *Santa Clara High Technology Law Journal*, a leading forum for multidisciplinary discourse on emerging issues at the intersection of technology, law, and public policy that is widely read by the Silicon Valley technology and legal communities and has been cited by the U.S. Federal Circuit.

I BOOKS AND PAPERS



DE(RE)CONSTRUCTING NARRATIVES IN INTELLECTUAL PROPERTY LAW: TRANSFORMATIVE PLAY, CULTURE JAMMING, AND POSTSTRUCTURAL DISRUPTIONS

David Tan
March 2020

Professor David Tan published his inaugural professorial lecture in the peer-reviewed journal *Law and Literature*. The central thesis is that objects of intellectual property (IP), in particular copyrighted works, trademarks and the celebrity personality, represent far more than a bundle of legal rights. They are invariably associated with a set of cultural narratives and semiotic meanings which are ultimately consumed. The article discusses how the encoded narratives in certain objects of IP may be read as polysemous texts that invite playful semiotic recodings and suggests how audiences who engage with works of copyright, trademarks and celebrities via such textual signification may avail themselves of a number of legal defences under the current legal regime.

SINGAPORE ACADEMY OF LAW ANNUAL REVIEW OF SINGAPORE CASES

David Tan, Susanna Leong
June 2020

Professors David Tan and Susanna Leong co-authored the "Intellectual Property" chapter of the Singapore Academy of Law Annual Review of Singapore Cases 2019 which covered key decisions of the Singapore Court of Appeal and High Court in the areas of copyright, trade marks and patent law. Cases reviewed comprised: *I-Admin (Singapore) Pte Ltd v Hong Ying Ting*; *Burberry Ltd v Megastar Shipping Pte Ltd*; *Sunseap Group Pte Ltd v Sun Electric Pte Ltd*; *Millennium Pharmaceuticals, Inc v Drug Houses of Australia Pte Ltd*; *Scotch Whisky Association v Isetan Mitsukoshi Ltd*.

CONFERENCE AND PRESENTATIONS

SICHUAN UNIVERSITY / LESHAN UNIVERSITY: LIMITATIONS IN THE APPLICATION OF NLP TO EMPIRICAL LEGAL RESEARCH

Daniel Seng
January 2020

Associate Professor Daniel Seng was invited to give a talk on the state of research into the use of natural language processing (NLP) for empirical legal research before the Law and Computer Science faculties at Sichuan and Leshan Universities. The talk explored the research done in predictive legal forecasting, and critiqued the methodologies used and the conclusions reached by comparing them with legal standards. It also looked at the strengths and limitations of the use of neural network language models for empirical legal research, and considered what potential empirical legal research using these tools might mean for the legal industry.

SINGAPORE INTERNATIONAL COMMERCIAL COURT CONFERENCE 2020: MACHINE LEARNING AND THE LAW

Daniel Seng
January 2020

Associate Professor Daniel Seng was invited by the Supreme Court of Singapore to deliver a talk on artificial intelligence at the 2020 Singapore International Commercial Court Conference (SICCC). The talk encompassed basic applications of judicial analytics in case analysis and outcome prediction, as well as an overview of natural language processing, which provided some background for the difficulty of applying artificial intelligence in the legal context.



CONFERENCE AND PRESENTATIONS



CALS-TRAIL VIRTUAL ROUNDTABLE ON ASIAN LAW: COVID-19 AND DATA PRIVACY IN ASIA

Daniel Seng, Chang Ee-Chien
July 2020

This joint Roundtable between TRAIL and the Centre for Asian Legal Studies at NUS Law saw Associate Professor Daniel Seng moderate a panel discussion consisting of Associate Professor Chang Ee-Chien (Deputy Director, TRAIL), Hannah Yee-Fen Lim (NTU), Thomas Chen (National Chiao-Tung University, Taiwan), and Won Bok Lee (Ewha Law School, Korea), on the topic of the balance between public health and data protection. Ee-Chien spoke about the workings of Singapore's SafeEntry and TraceTogether systems, contrasting these against the contact tracing approaches of Taiwan and Korea.

COUNCIL OF EUROPE, EUROPEAN COMMITTEE ON CRIME PROBLEMS: AUTONOMOUS VEHICLES AND CRIMINAL LIABILITY

Daniel Seng, Helena Whalen-Bridge, Hu Ying
July 2020

The Council of Europe sought the input of TRAIL affiliates in relation to the proposed pan-European legal instrument that seeks to address the issue of ascribing criminal liability to autonomous vehicles (AVs). TRAIL affiliates proposed a number of inputs, including using a broad definition of "autonomy" to capture a broad range of automated tasks and activities undertaken by various processes of AVs, using evidential tools to reverse or lighten the legal burden of proof, extending the scope of criminal liability to encompass interactions between the AV mechanism and the driver as well as elements of the design and manufacturing process, and emphasising the importance of a group liability mechanism as an alternative to criminal liability.



NUS ENGINEERING: PERSPECTIVES ON ETHICS – TOWARDS AN ETHICAL LEGAL FRAMEWORK FOR TECHNOLOGICAL INNOVATION

Daniel Seng
October 2020

This presentation to the NUS Engineering School Scholars Programme focuses on how engineers should grapple with the broad impact of technological innovations and how they have to step up to public expectations in complex situations where there are conflicting ethical priorities, multiple stakeholders and no single “right” answer, from the perspective of the law. The presentation by Associate Professor Daniel Seng made the argument that even though the law lags behind technology and is slow to address the specific issues that arise from the impact of technological innovations, a framework exists in the law that guides the engineer in the discharge of his or her legal, moral and ethical responsibilities that on occasion goes beyond merely abiding by existing laws. In sum, the presentation made the point that engineers can play a role in shaping the legal and ethical frameworks to address the impact of technology on society.

NUS LAW, PROSPECTIVE LLM STUDENTS: INTRODUCTION TO IP AND TECHNOLOGY

Daniel Seng
October 2020

In an introductory webinar for prospective LLM students, Associate Professor Daniel Seng in his dual roles as Director of TRAIL and Director of the LLM (Intellectual Property and Technology Law) programme provided an overview of key and topical issues in technology law, concluding with an introduction to NUS Law’s comprehensive technology-related elective offerings.

CONFERENCE AND PRESENTATIONS



STRAITS TIMES WEBINAR SERIES: DIGITALISATION AND CYBER SECURITY

Chang Ee-Chien
December 2020

Associate Professor Chang Ee-Chien participated in the Straits Times Webinar series on Digitalisation and Cyber Security, covering ways that individuals can stay safe amidst heightened cybersecurity risks as a result of a much larger volume of online interactions and transactions in the past year. Other speakers included David Koh (CEO, Cyber Security Agency of Singapore), Associate Professor Steven Wong (Singapore Institute of Technology), and Benjamin Ang (Head, Cyber Homeland Defence, Centre of Excellence for National Security). The panel identified various simple steps, not necessarily technological, that people could take to keep themselves safe online.

I UNIVERSITY / FACULTY PROJECTS

NUS CENTRE FOR TRUSTED INTERNET AND COMMUNITY (CTIC) (PREVIOUSLY INSTITUTE OF FACT AND INTERNET STUDIES)

Daniel Seng
August 2020

When the NUS Institute of Fact and Internet Studies (IFIS) was first mooted in late 2019, Associate Professor Daniel Seng was invited to contribute a Work Package on the takedown of falsehoods under the Protection from Online Falsehoods and Manipulation Act (POFMA), on the basis of his prior expertise with similar systems under the Digital Millennium Copyright Act.

FACULTY LAW AND TECHNOLOGY CURRICULUM REVIEW: WORKING GROUP REPORT

Daniel Seng, Shaun Lim
January 2020 – October 2020

Ahead of the 2020 NUS Faculty of Law Virtual Retreat discussing possible changes to the curriculum in response to legal technology, a Working Group was formed to examine in detail the existing relationship between legal education and legal technology. The Working Group subsequently commissioned several studies, prepared by Associate Professor Daniel Seng and Research Assistant Shaun Lim, which included the following:

- A survey of compulsory module convenors on the introduction of technology components in their modules;
- An inventory of all technology law electives that the Faculty offered or was intending to offer;
- An analysis of the Faculty's student enrolment and exposure to existing elective technology modules;
- A survey of similar law and technology modules taught in other law schools;
- A survey of the availability of modules on coding and software use on online self-learning platforms; and
- Interviews with practitioners, members of the bench, and members of the legal service on the skills they thought lawyers ought to be acquiring in preparation for changes in legal practice.

Based on these studies, the Working Group concluded that while the NUS Law's present and future offerings of technology law electives were adequate and should continue to receive support, the Faculty ought to take steps towards exposing law students to new technologies used in legal practice.

The final report received broad agreement from the Faculty.

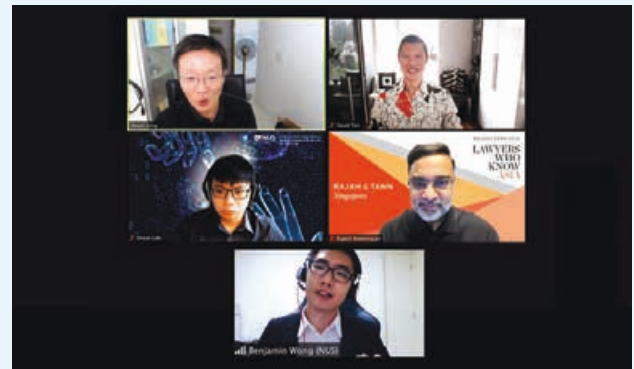
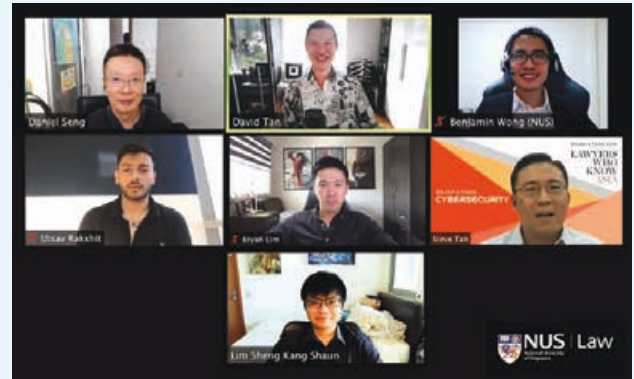
UNIVERSITY / FACULTY PROJECTS

LAW AND TECHNOLOGY PRIMER WEBINARS FOR UNDERGRADUATE STUDENTS

Daniel Seng, David Tan, Benjamin Wong, Shaun Lim

September 2020, October 2020, February 2021

Professor David Tan in his capacity as Vice Dean (Academic Affairs) launched a series of introductory webinars on law and technology for all NUS Law undergraduate students. These Law and Technology Primer webinars are designed to introduce students to issues in law and technology that builds on their compulsory modules, get them excited about doing law and technology electives, and give them an introduction to the use of technology in legal practice. The webinars were compulsory for first- and second-year LLB students, and optional for third- and fourth-year LLB students. Associate Professor Daniel Seng provided an introductory overview covering AI-generated works, autonomous vehicles and cryptocurrencies. Other speakers included Research Assistant Shaun Lim (introduction to empirical legal research), Sheridan Fellow Benjamin Wong (introduction to privacy and data protection), and Professor David Tan (overview of legal liability relating to social media which covered defamation, sedition, scandalising contempt and copyright infringement). In addition, two practitioners, Rajesh Sreenivasan and Steve Tan (both of Rajah & Tann), were invited to deliver remarks on the impact of technology on legal practice.



FACULTY HYBRID CLASSES RESOURCE REVIEW

Daniel Seng, David Tan, Shaun Lim
December 2020

In response to the relaxing of group limits, NUS Law decided to return to in-person teaching for Semester 2 of Academic Year 2020-2021, and a hybrid teaching model was required to accommodate them. Feedback from faculty members indicated some technical problems with hybrid teaching. Associate Professor Daniel Seng and Research Assistant Shaun Lim, with assistance from NUS IT Shared Services and support from Professor David Tan, conducted an inventory review of existing faculty audio-visual equipment to assess their adequacy for hybrid teaching, with an eye to enhancing the Faculty's overall audio-visual capabilities in the longer term.

I ONGOING PROJECTS

DIGITAL MILLENNIUM COPYRIGHT ACT EMPIRICAL RESEARCH

Daniel Seng

As the procedural mechanism of the Digital Millennium Copyright Act (DMCA), a US law which has been modelled by at least 40 other countries around the world, copyright takedown notices and their takedown requests are crucial to the functioning of the Internet. They offer both copyright owners and Internet intermediaries with a balanced mechanism that allows legitimate complaints about online piracy and infringement to be dealt with expeditiously without the need for costly judicial intercession. However, research has cast doubts on the efficacy of the takedown system. The huge volume of takedown requests hides the not-insubstantial numbers of mistakes made by content providers in their issuance of takedown requests. Many of these mistakes have led to the removal or disabling of access to legitimate sources of information. However, content providers and policy makers are pushing for revisions to the DMCA, to require even more onerous obligations to be imposed on Internet intermediaries, and to disable access to even more takedown requests.

Before any further policy changes and revisions to the DMCA could be considered, it is vital that the current takedown mechanism be completely and thoroughly assessed. In particular, as policy makers move towards evidence-based policy making, this objective evaluation will provide a critical first step in formulating laws and policies on these important issues.

One of the biggest impediments to any such analysis is the sheer size and volume of the takedown request dataset, estimated to be around 300 million each year since 2012. To undertake this exercise of analysing this huge dataset of takedown notices, specialised NLP processing tools had to be developed and a mixture of automated and manual techniques used to collate, store, translate, parse, organise, validate, extract and analyse these takedown requests.

The principal investigator for this project is Associate Professor Daniel Seng.

PERSONAL DATA PROTECTION ACT / COMMISSION CASES

Shaun Lim

Shaun Lim, Research Assistant at TRAIL, is working on a project involving the compilation and in-depth analysis of all Personal Data Protection Commission (PDPC) cases to date. Recent enforcement decisions by the PDPC appear to focus more on an objective standard of data security where a breach is almost inevitably treated as a failure to meet that objective standard; this is somewhat at odds with the plain wording of the Personal Data Protection Act (PDPA) which only requires that reasonable security arrangements be made. The project therefore aims to confirm, via a close reading of PDPC cases, whether an objective standard of data security has indeed replaced data protection. The deliverables from this project are expected to be a paper detailing empirical and qualitative trends in PDPC cases to date, prior to the 2020 amendments to the PDPA coming into force, the development of a database enabling privacy practitioners and academics to more precisely research the jurisprudential development of PDPC cases which are acquiring precedential value, as well as there being potential for a book-based commentary on said cases, perhaps in collaboration with other privacy specialists amongst TRAIL's academic affiliates.

I ONGOING PROJECTS

TEXT AND DATA MINING EXCEPTION IN COPYRIGHT LAW

David Tan

Data mining and predictive analytics is a multi-billion industry in the 21st century and can generate immense public benefit. Data analytics is an inevitable technological development of the 21st century, and more specifically predictive analytics can find patterns contained within data in order to detect risks and opportunities, and are applicable to a panoply of activities in the finance, healthcare, retailing, pharmaceuticals, automotive, aerospace and manufacturing industries.

This inevitably requires a fair balance to be struck between the remuneration for authors, and the access that should be granted to other users to enable them to copy these works in order to create new ones in advancement of the public good. Professor David Tan is working on a project with recent NUS Law graduate Thomas Lee Chee Seng to analyse Singapore's copyright and data protection regimes to examine their effectiveness as dual and complementary regulators of data mining.

The project will also identify the salient concerns shared by about a dozen stakeholders to pinpoint avenues for legal reform. More specifically, this study will be assessing how commercial text and data mining activities may be protected by the open-ended fair use defence, the proposed computational data analysis exception in the Copyright Bill 2021, and the research exception under the Personal Data Protection Act 2012. The findings are expected to be published in the *Singapore Academy of Law Journal* before the end of 2021.



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