

# Ryan Whalen

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## CURRENT POSITIONS

Associate Professor – University of Hong Kong, Faculty of Law, 2022-Present

University of Hong Kong, Faculty of Science, 2022-Present (by courtesy)

Founding Director – HKU Centre for Interdisciplinary Legal Studies (CILS)

## FORMER POSITIONS

Assistant Professor – National University of Singapore, Faculty of Law, 2020-2021

Assistant Professor – University of Hong Kong, Faculty of Law, 2017–2020

Assistant Professor – Dalhousie University School of Information Management, 2016–2017

## VISITING & FELLOWSHIP POSITIONS

AI & Society Fellow – Microsoft Research, 2024-25

Fellow – Information Society Law Centre (ISLC) at the University of Milan, 2023-2025

Visiting Scholar – Becker–Friedman Institute for Economics at the University of Chicago, December 2018

Visiting Scholar – RCUK Centre for Copyright and New Business Models in the Creative Economy (CREATe) at the University of Glasgow, Summer 2018

Law & Science Fellow – Northwestern University School of Law, 2014–2016

## PUBLICATIONS

*Clearing Dense Drug-Patent Thickets*, NEW ENGLAND JOURNAL OF MEDICINE (with Bernard Chao, Aaron S. Kesselheim, and S. Sean Tu) (2024).

*Diversity, Networks, and Innovation: A Text Analytic Approach to Measuring Expertise Diversity*, NETWORK SCIENCE (with Alina Lungeanu, Y. Jasmine Wu, Leslie DeChurch, and Noshir Contractor) (2023).

*Quantitative Methods in Comparative Law*, in ELGAR ENCYCLOPEDIA OF COMPARATIVE LAW (Jaakko Husa, Jans Smits, Catherine Valcke eds.) (2023).

*The Ghost in the Patent System: An Empirical Study of Patent Law's Elusive "Ordinary Artisan,"* IOWA LAW REVIEW (2022) (with Laura Pedraza-Fariña).

*Defining Legal Technology and its Implications*, 30 INTERNATIONAL JOURNAL OF LAW AND INFORMATION TECHNOLOGY 1, (2022).

*Innovating Under Uncertainty: The Patent-Eligibility of Artificial Intelligence after Alice Corp. v. CLS Bank International*, RESEARCH IN LAW AND ECONOMICS (2022) (with Raphael Zingg).

*How Many Latours is Too Many?: Measuring Brand Congestion in Bordeaux Wine*, JOURNAL OF WINE ECONOMICS (2021) (with Christopher Buccafusco & Jonathan S. Masur).

*A Network Theory of Patentability*, 87 UNIVERSITY OF CHICAGO LAW REVIEW 63, (2020) (with Laura Pedraza-Fariña).

- Patent Similarity Data and Innovation Metrics*, 17 JOURNAL OF EMPIRICAL LEGAL STUDIES 3, (2020) (with Noshir Contractor, Leslie DeChurch, and Alina Lungeanu).
- Semantically-Based Patent Thicket Identification*, 49 RESEARCH POLICY 2, (2020) (with Mateusz Gątkowski, Marek Dietl, Lukasz Skrok, and Katharine Rockett).
- COMPUTATIONAL LEGAL STUDIES: THE PROMISE AND CHALLENGE OF DATA-DRIVEN RESEARCH (editor), Edward Elgar (2020).
- Constitutional Amendment Versus Constitutional Replacement: An Empirical Comparison*, in ROUTLEDGE HANDBOOK OF COMPARATIVE CONSTITUTIONAL CHANGE (Xenophon Contiades & Alkmene Fotiadou eds.) (2020) (with David Law).
- Research Funding’s “Endorsement Effect” on Scientific Boundary Work and Research Production: Government Legitimization of Alternative Medicine*, 46 SCIENCE AND PUBLIC POLICY 1, (2019).
- Boundary Spanning Innovation and the Patent System: Interdisciplinary Challenges for a Specialized Examination System*, 47 RESEARCH POLICY 1334, (2018).
- Priority Queuing on the Docket: Universality of Judicial Dispute Resolution Timing*. FRONTIERS IN PHYSICS (special research topic—Law as a Natural Phenomenon: The Empirical Investigation of the Legal Universe between Complexity, Biology, and Computation) (2018) (with Satyam Mukherjee).
- Complex Innovation and the Patent System*, 17 CHICAGO–KENT JOURNAL OF INTELLECTUAL PROPERTY 1 (2018).
- Common Law Evolution and Judicial Impact in the Age of Information*, 8 ELON LAW REVIEW 3 (2017) (with Brian Uzzi & Satyam Mukherjee).
- Legal Networks: The Promises and Challenges of Legal Network Analyses*, 2016 MICHIGAN STATE LAW REVIEW 539 (2016).
- Second Order Obviousness: How Information & Communication Technologies Facilitate Invention and Why the Law Should Care*, 97 THE JOURNAL OF THE PATENT & TRADEMARK OFFICE SOCIETY 597 (2015).
- Judicial Gobbledygook: The Readability of Supreme Court Opinions*, 125 YALE LAW JOURNAL FORUM (2015).
- Will the Agencies Ever Go Marching In? Public Rights in Federally-Funded Inventions* (Note), 109 NORTHWESTERN UNIVERSITY LAW REVIEW (2015).
- Bad Law Before it Goes Bad: Citation Networks and the Life Cycle of Overruled Precedent*, NETWORK ANALYSIS IN LAW, Radboud Winkels ed., ESI Law, Science & Technology Series (2013).
- The U.S. Government as an Interagency Network*, 4 INTERAGENCY JOURNAL 69 (2013).
- Modeling Annual Supreme Court Influence: The Role of Citation Practices and Judicial Tenure in Determining Precedent Network Growth*, COMPLEX NETWORKS, A. Evuskoff et. al eds., Springer Verlag Studies in Computational Intelligence Series (2013).

**PUBLISHED PROCEEDINGS, CONFERENCE PRESENTATIONS & INVITED TALKS:**

- 2024 “21<sup>st</sup> Century Copyright Reform: Incentives in an Age of Plenty” Presented at the Information Society Law Center, University of Milan.
- Invited Speaker at the Beijing Ministry of Justice Forum on Sci-Tech Governance
- 2023 “The Intersections of Mark Distinctiveness, Price, and Quality in Wine Marketing” Presented at the American Association of Wine Economics, Stellenbosch University, South Africa (with Chris Buccafusco and Jonathan Masur).

- “Generative AI & the Law: C3PO or Robocop Esquire?” Presented at HKU Law & Technology Centre.
- “Success in First Time Partnerships: Optimal Expertise Diversity” Presented at DRUID 2023, Nova School of Business and Economics, Lisbon.
- “Legal Network Centrality Measures” Presented at the Maastricht University Law & Tech Lab Legal Network Analysis Workshop Series.
- “Success in First Time Partnerships: Optimal Expertise Diversity” Presented at the Taiwan Symposium on Innovation Economics and Entrepreneurship (with Noshir Contractor, Leslie DeChurch, Alina Lungeanu, and Neelam Modi).
- 2022 “The Innovation Glass Ceiling” Presented at the Junior Intellectual Property Scholars Association, and the Intellectual Property Scholars Conference (with Tara Sowrirajan, Sourav Medya, and Brian Uzzi).
- “A Deep Learning Approach to Quantify the Innovativeness and Future Impact of New Technology and Science” Presented at NBER Summer Institute 2022 (with Sourav Medya, Tara Sowrirajan, and Brian Uzzi).
- “The Innovation Glass Ceiling” Presented at the Tel Aviv University Law & Technology Workshop (with Tara Sowrirajan, Sourav Medya, and Brian Uzzi).
- “The Pink Tax in Patenting and Innovation” Presented at the International Conference on Computational Social Science (with Tara Sowrirajan, Sourav Medya, and Brian Uzzi).
- “Defining Legal Technology” Presented at Machine Lawyering Conference, Chinese University of Hong Kong
- 2021 “Patent Law Year in Review” Invited presentation at the Singapore Intellectual Property Office (IPOS)
- 2020 “Predicting Patentability” Invited presentation at the 9<sup>th</sup> Taiwan Symposium on Innovation Economics and Entrepreneurship (with Sourav Medya and Brian Uzzi).
- “Patent Similarity Data and Innovation Metrics” Invited presentation at the Innovation Information Initiative (I<sup>3</sup>) technical working group workshop.
- Can AI Predict Innovation Quality, International Conference on Computational Social Science (IC2S2) 2020, (with Brian Uzzi and Sourav Medya).
- Mapping Changes in the Expertise Diversity of Patent Teams, International Network for the Science of Team Science Conference, 2020 (with Noshir Contractor, Leslie DeChurch, Alina Lungeanu, and Jasmine Wu).
- Presented “Patent Similarity Data—Enabling More Nuanced Data-Driven Innovation Research” at the American Association of Law Schools (AALS), Washington, DC.

- 2019 Presented “Patent Similarity Data—Enabling More Nuanced Data-Driven Innovation Research” at the Intellectual Property Scholars Conference (IPSC), Chicago, IL.
- Invited speaker at the Waseda University Institute of Comparative Law Public Lecture Series.
- Presented ““Constitutional Amendment Versus Constitutional Replacement: An Empirical Comparison” at Conference on Empirical Legal Studies (CELS), Claremont, CA.
- Presented “A Network Theory of Nonobviousness” at the ETH Zurich Law & Data Science Conference.
- Presented “Constitutional Amendment Versus Constitutional Replacement: An Empirical Comparison” at Law & Society Conference, Washington DC.
- 2018 Organized international workshop on “The Emergence of Computational Legal Studies” (edited collection forthcoming).
- Invited speaker at the University of Chicago Law & Economics Speaker Series.
- “A Network Theory of Nonobviousness.” Presentation at Intellectual Property Scholars Conference (IPSC), Berkeley, California.
- Invited to present “A Network Theory of Nonobviousness” (co-authored with Laura Pedraza-Farina) at the University of Chicago – Tsinghua Young Faculty Forum in Law and Social Science.
- “Constitutional Replacement versus Constitutional Amendment: Is there a difference?” Presentation at ICONS conference, Hong Kong.
- “Research Funding’s ‘Endorsement Effect’ on Scientific Boundary Work and Research Production: Government Legitimization of Alternative Medicine” Presentation at the International Conference on Innovation Studies (ICIS) 2018, Beijing, China.
- 2016 “Measuring Recombinatorial Innovation and its Diffusion: Patent Citation Distance Measures of Knowledge Translation, Integration, Diffusion and Scope.” Presentation at the annual Academy of Management Conference, Anaheim CA (with Noshir Contractor).
- “Legal Evolution: Temporal Patterns of Precedent Citation & Judicial Opinion Impact,” presentation at the International Conference on Computational Social Science (IC2S2), Northwestern University Kellogg School of Management, Evanston IL (with Brian Uzzi and Satyam Mukherjee)
- “Explorative Knowledge Search, Innovation & Inventor Teams,” presentation at the International Conference on Computational Social Science (IC2S2), Northwestern University Kellogg School of Management, Evanston IL (with Noshir Contractor)
- "Citation Distance: Measuring Knowledge Translation, Integration, Diffusion, and Scope", Canadian Association for Information Science Annual Conference, Calgary AB (with Noshir Contractor).

- “Patent Citation Distance: Measuring Trends in Combinatorial Innovation,” presentation at INSNA Sunbelt Conference, Newport Beach (with Noshir Contractor).
- “Citation Distance: Measuring Changes in Scientific Search Strategies,” presentation at 3<sup>rd</sup> Annual ACM Big Scholar Workshop, Montreal (with Yun Huang, Craig Tanis, Anup Sawant, Brian Uzzi, and Noshir Contractor).
- 2015 Invited discussant at “Legal Quanta” symposium at Michigan State University College of Law.
- “Judicial Citations & Common Law Evolution: A Chronometric Analysis of High Court Citations,” presentation at the Conference on Empirical Legal Studies 2015, St. Louis (with Satyam Mukherjee & Brian Uzzi).
- “The Chronometric Knowledge Frontier in Patenting and Law: Investigating mid-career of inventors and effect of teams,” presentation at the Annual Conference on Complex Systems, Tempe Arizona (with Satyam Mukherjee & Brian Uzzi).
- “Natural Language Processing, Article Content, and Bibliometrics: Predicting High Impact Science,” ACM WebSci 2015, Oxford UK (with Yun Huang, Anup Sawant, Brian Uzzi & Noshir Contractor).
- “Automated Detection of Perfunctory Citations: Nuancing Impact Factors and Weighting Citation Networks to Account for Citation Heterogeneity,” INSNA Sunbelt, Brighton UK.
- “Patent Application Citations and the Examination Process: A Network-Based Date-Sensitive Method to Analyze Patent Applications,” Law & Big Data Workshop, International Conference on Artificial Intelligence and Law, University of San Diego.
- Invited discussant at “Predicting Legal Outcomes” workshop at CodeX—The Stanford Center for Legal Informatics, Palo Alto, CA.
- “Team Size, Boundary-Spanning, and Communication Clarity: Readability, Teams and Success in Patent Applications,” Presented at InGroup, Carnegie Mellon University, Pittsburg, PA, (with Hilla Brot, Brian Uzzi, & Noshir Contractor)
- “Boundary Spanning Patent Applications, Teams and the Patent Examination Process,” Presented at the Science of Team Science, National Institutes of Health, Bethesda MD, (with Noshir Contractor).
- 2013 “Bad Law Before it Goes Bad: Citation networks and the life cycle of overruled Supreme Court precedent.” Presented at the Workshop on Network Analysis in Law at International Conference on Artificial Intelligence in Law, Rome, Italy.
- 2012 “Legal Complexity: Measuring complexity within the Supreme Court precedent network and predicting network growth,” invited talk at Argonne National Laboratory – Laboratory for Advanced Numerical Simulation.
- “Organizational structure as a multiplex network: The case of the US federal government.” International Communication Association. Phoenix, AZ.
- “Reconceptualizing Precedent Depreciation: Using tree network growth to measure and compare court decisions.” International Network for Social Network Analysis. Redondo Beach, CA.
- 2011 “Government Structure as a Multiplex Network: Improving our understanding of interorganizational

relations,” Organizational Communication Mini Conference, Columbia, MO.

“The Structure of Federal eGovernment: Using hyperlinks to analyze the .gov domain,” Political Networks Conference, Ann Arbor, MI.

“Government Agency Network Discovery via Hyperlinks and Datalinks,” WebSci, Koblenz, Germany (with Ding Li, Noshir Contractor, & Deborah McGuinness).

“The Canadian Broadcasting Corporation and Online Interactivity: An Empirical Study of User Behaviour at CBC.CA,” Canadian Communication Association Annual Conference, Fredericton, NB.

## OTHER WRITING

“The What, Why, and How of Automated Patent Decision-making” *Amsterdam Law and Technology Institute Forum*, 2022.

“The Low Cost and Great Benefit of Opening Canadian Innovation Data,” *Policy Options*, Feb. 2017.

“An Innovative Canada Needs an Innovative Information Policy,” *University Affairs*, May 2016

“Context is Everything: Making the Case for More Nuanced Citation Impact Measures,” *LSE Impact of Social Sciences Blog*, January 2016

“Dear Neighbor: A Dialogue on the Kantian Ethics of Your Loud Motorcycle” *Defenestration Magazine*, November 2016

Guest Blogger, *TheFacultyLounge.com*

Occasional Blogger, *ryanwhalen.com*

## EDUCATION

NORTHWESTERN UNIVERSITY Evanston, IL

Ph.D. in Media, Technology & Society, 2016

**Dissertation title:** Knowledge Recombination, Diffusion, and Research Team Composition: Understanding 21st Century Innovation

NORTHWESTERN UNIVERSITY SCHOOL OF LAW Chicago, IL

J.D. (*magna cum laude*), 2016

*Activities* Editor-in-Chief, NORTHWESTERN UNIVERSITY LAW REVIEW  
Co-ordinator JD-PhD colloquium

NATIONAL CHENGCHI UNIVERSITY Taipei, Taiwan

M.A. in International Communication studies, 2010

**Thesis title:** *The Canadian Broadcasting Corporation and Online Interactivity: An Empirical Investigation of User Generated Content at CBC.ca*

SAINT MARY'S UNIVERSITY  
B.A (*hons – summa cum laude*) in History, 2008

Halifax, NS, Canada

CIRCOARTS  
Dip. EqI 5, Circus & Performing Arts, 2000

Christchurch, New Zealand

#### RESEARCH INTERESTS

Intellectual Property Law, Computational Legal Studies, Innovation Policy, Science & Technology Studies, Collaboration, Creativity

#### SERVICE & ADMINISTRATION

University of Hong Kong:

- HKU Institute for Data Science Steering Committee member (2024–Present)
- Founding Director of the Centre for Interdisciplinary Legal Studies (2023–Present)
- Faculty Management Committee member (2023–Present)
- Committee on Reform of Teaching Allocation member (2023–Present)
- HKU Committee on Management of Research Data and Records member (2023–2024)
- Director of the Law & Science LLB/BSc Program (2022–Present)
- Faculty Research Committee member (2017–2020, 2022–Present)
- Faculty Human Resources Committee member (2022–Present)
- Deputy Director of the Law & Technology Centre (2017–2020)
- Deputy Director of the LLM Technology & Intellectual Property (2017–2020)
- Deputy Director of the JD Program (2017–2019)

National University of Singapore

- Deputy Director, Centre for Technology, Robotics, and Artificial Intelligence and Law (TRAIL)
- Member, Faculty Curriculum Committee
- Member, Faculty Research Committee

Dalhousie University:

- Member of the School of Information Curriculum Committee
- Secretary of the School of Information Appointments and Tenure Committee
- Member of the Faculty of Management Constitutional Review Committee
- Member of the Faculty of Management Scholarly Impact Measurement Committee

Northwestern University Pritzker School of Law:

- Member of the Dean's Law & Technology committee

Peer Reviewer & Editorial service:

*Journal of Artificial Intelligence Research, Journal of Legal Studies; Research Policy; Network Science; Scientometrics; Regulation and Governance; Library & Information Science Research; IEEE Transactions on Emerging Topics in Computing; Artificial Intelligence and Law; Northwestern University Law Review; Journal of Empirical Legal Studies; Business & Politics Journal; Decision Sciences; Journal of Technology, Policy, and Management; PLOSOne; Cambridge University Press (book proposal reviews), Routledge Press (book proposal reviews), Netherlands Organization for Scientific Research (grant proposal reviews); Israel Science Foundation (grant proposal reviews); Israeli Ministry of Innovation, Science, and Technology*

(grant proposal reviews); KU Leuven Research Office (grant proposal reviews); University of Macau Research Services and Knowledge Transfer Office (grant proposal reviews).

#### SKILLS AND WORKSHOP TRAINING

Deep Learning and Applications (2023 @ Barcelona School of Economics)  
Certificate of Teaching and Learning in Higher Education (2017 @ University of Hong Kong Centre for Enhancement of Teaching and Learning)  
Virtual School of Computational Science and Engineering (VSCSE) Data Intensive Summer School (2014 @ University of Chicago)  
New England Complex Systems Institute (NECSI) Complex Systems Modeling and Networks course (2012 @ MIT)  
Interuniversity Consortium for Political and Social Research (ICPSR) Large Scale Network Analysis course (2011 @ University of Michigan)  
Programming/Scripting/Database languages: Python, R, SQL  
Languages: English (native) & Mandarin Chinese (conversational)

#### FUNDING, AWARDS AND RECOGNITIONS

“Artificial Intelligence in the Administration of the Patent System.” Hong Kong Research Grant Council, General Research Fund Grant (2024–27) (\$366,626 HKD).  
Microsoft Research AI & Society Fellowship (2024) (\$15,000 USD).  
HKU Faculty of Law Research Output Prize (2023) (\$10,000 HKD).  
HKU Global Professoriate Recruitment Grant (HKU-100) (2022-Present) (\$1 million HKD).  
“Theories, Methods, and Applications of Computational Law & Legal Studies” National University of Singapore Research Grant 2020 - \$180,000 (SGD)–Primary Investigator  
“Safe Bets and Risky Propositions: Leveraging Rich Data to Understand Scientific Diversity, Impact, and Team Potential” USA NSF Science of Science and Innovation Policy (SciSIP) Grant: 2019–2022 - \$550,000 (USD)–Research Consultant  
“Patent Landscapes: A Multiplex Approach to Solving the Prior Art Problem” University of Hong Kong Research Committee: 2018–2019 - \$150,000 (HKD)  
Early Career Mobility Grant, University of Hong Kong Research Committee: 2018 - \$50,000 (HKD)  
Joint JD/PhD Funding: Northwestern University: 2010-2016  
Robert J. Dole Institute of Politics Travel Grant: 2014 - \$750 (USD)  
Northwestern University Research Start Up Grant: 2014 - \$1000 (USD)  
NSF ICPSR Workshop Grant: 2011 - \$600 (USD)  
Achievement Scholarship: Taiwan Ministry of Education: 2009 - \$1000 (USD)  
Taiwan National Science Council Academic Travel Grant: 2009 - \$1000 (USD)



Top Student Scholarship: National Chengchi University College of Communication: 2009 - \$1000 (USD)

International Student Scholarship: National Chengchi University 2008-2009 - \$3000 (USD)

Inducted into Saint Mary's University Academic Hall of Excellence: 2008

Taiwan Scholarship Program Scholarship: 2005-2006 - \$12 000 (USD)

Achievement Scholarship: Saint Mary's University 2007-2008 - \$3500 (USD)

Alumni Association Scholarship: Saint Mary's University 2005-2006, 2007-2008 - \$2000 (USD)

Coy Family Scholarship: Saint Mary's University 2007-2008 - \$3500 (USD)

Dean's List: Saint Mary's University 2004-2008, Northwestern University Law School 2012-2014.

## TEACHING EXPERIENCE

*Legal Data Science*

*Patent Law*

*Intellectual Property & Technology Law*

*Law, Science, and Innovation*

*Introduction to Data Science*

*Information Policy*

*Data Management*