Kyle Higham

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Education

Ph.D. in Physics
Victoria University of Wellington *2019*
Thesis Title: Knowledge Diffusion and the Dynamics of Citation Accrual
Supervisors: Michele Governale, Adam Jaffe, Uli Zuelicke

Graduate Certificate in Commerce (Economics)
Victoria University of Wellington *2015*

B.Sc.(Hons.) Physics, *First Class*
Victoria University of Wellington *2014*

B.Sc. Physics and Mathematics
Victoria University of Wellington *2013*

Academic Positions

Postdoctoral Fellow / 特任助教
Institute of Innovation Research, Hitotsubashi University *May 2020–Present*
At IIR I am afforded the opportunity to pursue my own ideas and research interests. These mostly fall into the category of modernising the use of patent citation data, including the integration of network science frameworks and natural language processing to measure knowledge flow and the effects of science and innovation policy.

Postdoctoral Scientist
École polytechnique fédérale de Lausanne (EPFL) *February 2019–April 2020*
My position at EPFL involves a variety of qualitative and quantitative innovation policy research in collaboration with Professor Gaétan de Rassenfosse. This research includes exploring the future of patent systems with distributed-ledger based record systems, examining empirically the various meanings of 'patent quality', the proposal of a standard for virtual patent marking, and the future of invention and STEM education in a world where computers are able to conduct guided and efficient distant technological search.

Publications

Gaétan de Rassenfosse, Kyle Higham, Wanted: a standard for virtual patent marking, *Journal of Intellectual Property Law & Practice, Volume 15, Issue 7, July 2020, Pages 544–553*

Higham, K. W., Governale, M., Jaffe, A. B., & Zülicke, U. (2019). *Ex-ante* measure of patent quality reveals intrinsic fitness for citation-network growth. *Physical Review E, 99(6),* 060301.

Doonan, W., Higham, K. W., Governale, M., & Zülicke, U. (2019). Community structure in co-inventor networks affects time to first citation for patents. *Applied Network Science, 4(1),* 17.

Curran, B., Higham, K., Ortiz, E., & Vasques Filho, D. (2018). Look who's talking: Two-mode

networks as representations of a topic model of New Zealand parliamentary speeches. *PloS one, 13(6),* e0199072.

Higham, K. W., Governale, M., Jaffe, A. B., & Zülicke, U. (2017). Unraveling the dynamics of growth, aging and inflation for citations to scientific articles from specific research fields. *Journal of Informetrics, 11(4),* 1190-1200.

Higham, K. W., Governale, M., Jaffe, A. B., & Zülicke, U. (2017). Fame and obsolescence: Disentangling growth and aging dynamics of patent citations. *Physical Review E, 95(4),* 042309.

Working Papers

de Rassenfosse, G., & Higham, K. (2019). Decentralising the Patent System. *Available at SSRN 3446337.*

Higham, K. W., de Rassenfosse, G., & Jaffe, A. B. (2020). Patent Quality: Towards a Systematic Framework for Analysis and Measurement. *National Bureau of Economic Research (No. w27598).*

Grants and Scholarships

Victoria University of Wellington Faculty Strategic Research Grant (2018) Competitive grant to cover significant travel and conference attendance costs to present important results.

Victoria University of Wellington Faculty Strategic Research Grant (2017) Competitive grant to cover significant travel and conference attendance costs to present important results.

Te Pūnaha Matatini Ph.D. Scholarship (2015)
Ph.D. scholarship awarded by Te Pūnaha Matatini, a New Zealand government-funded Centre of Research Excellence. This fully funded my Ph.D. studies, including living costs and course fees.

Victoria Graduate Award (2014)
Competitive award for students intending to embark upon an Honours degree or a Masters degree. Awarded solely on the basis of academic merit.

Victoria Achievers Scholarship (2011)
Awarded to academically-able school leavers undertaking Bachelor's degree programme at Victoria University of Wellington. Category: Students from decile 1-3 schools and students who can demonstrate financial hardship.

Ministry of Education Language Immersion Award (2009)
Merit-based scholarship which allows recipients to undertake a fully-funded 6-month international exchange programme through AFS. I attended Asaka Kaisei High School in Koriyama, Japan.

Conference & Workshop Presentations

Patent Quality: Systematic Analysis and Measurement (**Best Presentation Award**)
11th Institute of Innovation Research Summer School
Hitotsubashi University/Online, Japan, August 2020

Disentangling Notions of Patent Quality
Summer School on Data & Algorithms for Science, Technology, and Innovation Studies
EPO, Vienna, Austria, September 2019

Disentangling Notions of Patent Quality
Oxford/SSE Workshop on Inventive Novelty
University of Oxford, Oxford, United Kingdom, September 2019

Empirically determined intrinsic node fitness in patent citation networks
NetSci 2018
Paris, France, June 2018

Fame and Obsolescence: Disentangling growth and ageing dynamics of patent citations
International Conference on Computational Social Science 2017
Cologne, Germany, July 2017

Technical Skills

Programming/Scripting Languages:

- Everyday use: Stata, LaTeX,
- As required: Mathematica, Python, R, SQL

Supervision and Teaching

Project Supervisor
École polytechnique fédérale de Lausanne *March–May 2019*

I supervised Masters students during their group project for the course "Economics of Innovation and IP", on the topic of the future of intellectual property management. This involved advising students on the content and direction of their projects, as well as the examination of oral exams and written project reports.

Summer Project Supervisor
Victoria University of Wellington *November 2017–February 2018*

I co-supervised an undergraduate student for their full-time research project over the summer trimester. This research, on the effect of community structure in co-invention networks on patent citation dynamics resulted in a paper published in Applied Network Science (Doonan et al. 2019).

Laboratory Demonstrator
Victoria University of Wellington *March 2013–November 2015*

I have been an undergraduate laboratory supervisor for various physics courses, which involved supervising and lecturing groups of up to 30 students. This work required a deep understanding of the underlying principles of both the scientific theory and experimental considerations.

Academic Commitees

Te Pūnaha Matatini Whānau
Chair *February 2017–January 2018*

I held the position of Committee Chair for the emerging scientists association affliated with Te Pūnaha Matatini (the Whānau), a complex-systems focused Centre of Research Excellence. This is a 12-month voluntary position that required nomination by my peers and confirmation by executive management. In this capacity I oversaw the Whānau committee, which coordinates Whānau activities including workshops, seminars, student conferences, specialised research retreats, and all marketing and communications necessary to promote these events and engage members. As part of this role I also sat on the Te Pūnaha Matatini Research Committee.

Peer Review Activities

I have been on the scientific program committee for the following conferences: 6th International Conference on Computational Social Science (2020).

I have conducted peer review for: Research Policy; Scientometrics; Australian Economic Review; Industrial and Corporate Change.