Fiona Sijie Feng

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Current

Job Market Candidate, NYU Stern Economics

PhD Committee

Petra Moser (Chair, *Economics, NYU Stern*)	pmoser@stern.nyu.edu
Luis Cabral (*Economics, NYU Stern*)	luis.cabral@nyu.edu
Walker Hanlon (*Economics, NYU Stern*)	whanlon@stern.nyu.edu
Robert Seamans (*Management & Organizations, NYU Stern*)	rseamans.stern.nyu.edu

Research interests

Innovation and technology, machine learning & natural language processing, urban economics, law and economics, management, labour policy

Education

NYU Stern School of Business 2013-
Ph.D. Candidate in Economics

University of Melbourne 2011
Honours in Economics

University of Auckland 2007-2011
Bachelor of Arts/Bachelor of Commerce (Philosophy & Economics)

Awards & Fellowships

American Economic Association (AEA) CSWEP Summer Dissertation Fellowship, *Federal Reserve Bank of Minneapolis* 2018

Policy Research Fellowship, *Internet Association* 2017

Teaching Commendation for Rating 6.5/7, Introductory Microeconomics, *NYU Stern*

Conferences and Presentations

Transatlantic Doctoral Conference, London Business School, London, England 2018

Early Career Economists Conference, Monash University, Melbourne, Australia

Summer Internship Presentation, Federal Reserve Bank of Minneapolis, Minneapolis, USA

NBER Productivity Lunch, National Bureau of Economic Research, Boston, USA (October)

Roundtable for Engineering Entrepreneurship Research (REER) Conference, Georgia Tech, Atlanta, USA (November)

NET Institute Conference (Discussant), NYU Stern, New York, USA 2017

NBER Digitization Tutorial, Stanford University, Palo Alto, USA

Teaching

NYU Stern UG

Teaching Fellow, Competitive Analysis with Prof. Greg Kubitz (Spring 2017, Spring 2018)

Teaching Fellow, Introductory Microeconomics with Prof. Simon Bowmaker (Fall 2016, Fall 2017)

University of Melbourne

Tutor, Advanced Macroeconomics with Prof. Lawrence Uren (Semester 2, 2012)

Tutor, Intermediate Macroeconomics with Prof. Chris Edmond (Semester 2, 2012)

Tutor, Introductory Macroeconomics (Semester 2, 2011; Semester 1, 2012)

NYU Stern MBA

Teaching Fellow, MBA and EMBA Global Economy with Prof. Stan Zin (Summer 2015, Summer 2016, Summer 2017)

Teaching Fellow, Financial Crisis with Prof. Kim Schoenholtz (Fall 2014)

Papers

Measuring the Diffusion of Innovation: A Reassessment of Knowledge Spillovers Using Machine Learning (*Job Market Paper*)

Abstract: The ideas of new invention are captured by the text of a patent. Empirical measures of knowledge flows have relied on citations, which reflect the influence of other patents on an invention but not external sources of knowledge. I use unsupervised machine learning methods to convert patent abstracts (which are descriptions of the invention) to numerical vector space representations. Knowledge spillovers are measured using the similarity across patent text vectors. I find that geographic localization effects are insignificant to modest: prior to controlling technological proximity, within technology field patents from the same city are about 0.03-0.08 standard deviations more similar than patents from different cities. Including further technology controls reduces estimates from insignificant to 0.04. By contrast, citations based measures find that local patents have 0.24-0.30 standard deviations more citations from the same city compared to a non-local control. I also find evidence that differentiation may play a minor role in determining innovation for technologically proximate rivals seeking to broaden the scope of their patents, and that this motivation is more pronounced for local rivals. These findings indicate that geographic localization of knowledge spillovers (i) may not be a strong driver of agglomeration, as suggested by standard citations-based analyses; (ii) affects local innovation in a nuanced manner.

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Assessing the quality of management and business practices from employee job reviews

Abstract: Employee job reviews contain information on many firm characteristics unobservable from the outside. Job review sites such as Glassdoor and Indeed have become increasingly utilized by both job seekers and current employees to better understand workplace culture and conditions. I collect over 1.2 million job reviews from Indeed.com, matched to firm level data was procured from Compustat. I use machine learning methods (Natural

Language Processing and Random Forests) to obtain qualitative data about firms across the dimensions of worker satisfaction, management quality, and workplace quality. First, I assess which words and phrases the predict poor firm performance within an industry. Second, I derive an index of management quality based on review phrases mentioning management. Finally, I evaluate when employee job satisfaction coincides or conflicts with firm performance outcomes.

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Technology and governance: past, present, future

Abstract: The Defense Department was indispensable to funding and shaping the course of science and computing in the 20th century, and continues to provide extensive financial support for cutting edge artificial intelligence technology. How did this embedded relationship inform the research agenda for computer science? Using Natural Language Processing, I examine the commonalities and differences in the themes of DOD funded and non-funded patents and academic research over time. Then, I evaluate (i) how DOD priorities affected the trajectory of computer science research; (ii) whether current trends in DOD funded research, particularly in Artificial Intelligence, poses risks to civil liberties; (iii) what are the broader implications for the nature of governance as states around the world adopt advanced AI technologies.

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Professional Service

NYU Stern

Doctoral Student Events Committee (2015)

Doctoral Applications Reviewer (2010)

University of Auckland

Student Representative, University Central Committee, Senate and Equity (2010)

Treasurer, Auckland University Students' Association (2009-10)

Personal

Citizenship: New Zealand

Languages: English (Native), Chinese Mandarin (Fluent)

Programming languages: Python, R, Stata