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
	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 **The Proximity of Ideas: An Analysis of Patent Text Using Machine Learning** (*Job Market Paper*)

Abstract: This paper introduces a measure of proximity in ideas using unsupervised machine learning. I explore knowledge relationships in innovative ideas by deriving vector space representations of patent abstract text using Document Vectors (Doc2Vec), and using cosine similarity to measure their proximity in ideas space. I illustrate the potential uses of this method with an application to localization in knowledge spillovers. In the first case, I use the standard citations approach in measuring localization, but use text similarity to select a control case patent instead of USPC class. While this improves matching on unobserved technological differences, I find that local patents still receive about 0.9-1.4 times more local citations than the non-local control. This may partially be explained by the role of patent lawyers in determining the localization patterns of citations. As an alternative to citations, I calculate the localization in idea proximity using patent text similarity. I find less evidence of localization: within a technology field, patents within the same city are 0.02-0.06 times more similar to each other than patents from other cities. These findings indicate that localization effects may indeed be smaller than standard citations methods suggest. As ideas proximity provide a different lens into knowledge relationships, I also discuss some implications and potential limitations in the use of text similarity methods.

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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