APPLICATION 2019 NBER YOUNG SCHOLARS WORKSHOP ON ECONOMICS OF AI

Personal details and contact information

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I am a final-year PhD candidate in Competition Economics. In my research I use theoretical and computational methods to look at novel competition concerns. I have a particular interest in the effects of digitalization, big data and AI on competition.

EDUCATION

PhD Competition Economics, Tinbergen Institute and UvA *2016 – 2020*

PhD in theoretical and computational Competition Economics. Supervised by prof. dr. Maarten Pieter Schinkel. See my personal website for all current project. Summer schools attended: Market Engineering in Empirical IO and Finance (CEMFI 2017), Fundamentals of Reinforcement Learning and Multiagent Learning (EASSS 2018), various courses on competition economics (CRESSE 2018), Statistical Learning with Python (AU Summer University 2019), Machine-Learning Tools for Economists (CEMFI 2019)

MPhil Economics, Tinbergen Institute *2014 – 2016*

Key coursework: Industrial Organization, Econometrics and Finance. Tinbergen Institute is the joint institute for research and education in economics, econometrics and finance of the University of Amsterdam, VU University Amsterdam and Erasmus University Rotterdam.

MSc Political Economy of Europe, LSE *2013 – 2014*

Specialization: Political Economy of Europe's Economic and Monetary Union. Extracurricular activities included acting as programme representative and being treasurer of the LSE Student Union's European Society.

BSc Economics and Business, University of Amsterdam *2009 – 2013*

Specialization: Economics, with a minor in Law and Economics. Extracurricular activities included being councilmember in the faculty and central student council, organizing a four-week research project to Brazil and organizing a study trip to Greece.

EMPLOYMENT

Bluebook Trainee Chief Economist Team (CET), DG Competition *Oct 2018 – Feb 2019*

Provided methodological support in a major antitrust case and a Phase II merger investigation. Acted as spokesperson of all trainees at DG Competition.

Consultant and Project Manager, De Kleine Consultant *Jan 2017 – Dec 2017*

De Kleine Consultant (The Young Consultant) is a non-profit, student-run consultancy that provides strategic advice to organizations with a positive social impact but low financial means. Received coaching and training from McKinsey, BCG, Bain and other major consultancies.

Summer Intern, Frontier Economics *Jun 2015 – Aug 2015*

Two-month internship in economic consultancy. Provided analyst support on projects related to EU merger clearance, cartel allegations and damage estimation.

FURTHER INFORMATION

Language skills: Dutch (native), English (C2 European language level)
Programming skills: EViews, Excel VBA**,** LaTeX, MATLAB, Python, Stata

Statement of research interest and motivation

More and more, prices are set by algorithms instead of humans. In my doctoral research I show how advances in AI can empower algorithms to learn by themselves to keep prices high and collude (Klein, 2019). This can be achieved without any human intent or instructions to collude, making it difficult to frame as an infringement of antitrust laws (Harrington, 2018).

During the first NBER Economics of AI Conference in 2017, Carl Shapiro and Hal Varian described algorithmic collusion as 'economist catnip': interesting and fun, but perhaps not of first order importance (Shapiro and Varian, 2017; Agrawal, Gans and Goldfarb, 2019, p. 12). I argue that, while indeed interesting and fun, algorithmic collusion is more than just economist catnip. My research shows that autonomous and legal algorithmic collusion is possible and that there is scope for more advanced algorithms to deal with any practical limitations. In my view, this provides ground for competition authorities to remain vigilant and for academics to develop a further understanding.

I am a doctoral student in Competition Economics at the Tinbergen Institute and University of Amsterdam. In my research I use theoretical and computational methods to look at novel competition concerns. During my PhD I have developed a strong and active interest in the effects of digitalization, big data and AI on competition. My research is currently focused on algorithmic collusion, but my interest extends to algorithmic price discrimination, the growing dominance of online platforms, the competitive risks to online privacy and other implications of AI on markets.

I have been able to present my research at several conferences and seminars. Additionally, I am an invited panel member at the upcoming CCP annual conference, which this year has as topic "Machine Learning and AI as Business Tools". Next to rigorous Economics course work, I have followed or will follow several summer school programs aimed at solidifying my knowledge on machine learning. My expectation is that the NBER Young Scholars Workshop and subsequent conference can greatly contribute to my engagement with the debates on Economics and AI. In particular, my hope is that these events allow me to engage with other researchers working on the Economics of AI and to broaden my perspective.

References

Agrawal, A., Gans, J. and Goldfarb, A. (Eds.) (2019) *The Economics of Artificial Intelligence. An Agenda*, NBER Research Conference Report, U of Chicago Press, Chicago, Illinois

Harrington, J.E. (2018) "Developing Competition Law for Collusion by Autonomous Price-Setting Agents", *Journal of Competition Law and Economics*, 13(3), pp. 331-363

Klein, T. (2019) "Autonomous Algorithmic Collusion: Q-Learning Under Sequential Competition", Amsterdam Center for Law and Economics Working Paper No. 2018-05

Shapiro, C. and Varian, H. (2017) "Machine Learning, Market Structure & Competition", presentation prepared for NBER Conference on Economics of Artificial Intelligence 2017