Dear Selection Committee of the Winter Meeting of the NBER Economics of Digitization Group,

I am writing to apply to participate in the Economics of Digitization tutorial for economics graduate students. My name is David Holtz, and I am a 3rd year PhD student in the Information Technology group at the MIT Sloan School of Management, where my advisor is Professor Sinan Aral. At a high level, my research focuses on questions relevant to the design and analysis of online marketplaces. More specifically, I am interested in measuring the impact of feedback-based reputation systems on market outcomes and market structure, assessing the viability of social-based alternatives to feedback-based reputation systems, understanding the extent to which novel technologies can be used to reduce discrimination in online settings, and developing new methodologies that lead to more accurate causal inference in competitive marketplace environments (where SUTVA is often violated). The winter tutorial for economics graduate students seems like an excellent opportunity to become better acquainted with the existing research and learn directly from some of the best researchers in this emerging field. I would be thrilled to participate.

As a graduate student at MIT, a large portion of my coursework has focused on economics and econometrics. In the economics department, I have completed the introductory graduate microeconomics sequence (which includes coursework on microeconomic foundations, general equilibrium, game theory, and contract theory) and the introductory graduate econometrics sequence, as well as courses in behavioral economics, industrial organization, the economic theory of networks, and applied econometrics. Outside of the economics department, I have completed courses in machine learning, Bayesian inference, information theory, experiment design, applied network analysis, and the economics of digitization. This curriculum has enabled me to develop an expertise in my major (networks, industrial organization) and minor (causal inference) areas of focus.

I currently have a number of research projects in progress, almost all of which have the potential to serve as eventual dissertation chapters. Over the past three years, I have worked with Andrey Fradkin (a postdoctoral associate at MIT Sloan) and Elena Grewal (Head of Data Science at Airbnb) on a paper that leverages experiments conducted on Airbnb to identify factors that may lead to reduced informational content in online reviews. Last year, I made substantial progress on a project investigating the use of experiment analysis and design techniques for inference on networks to reduce test-control interference in online marketplace experiments. This work was presented at the 2016 Conference on Digital Experimentation, as well as the 2016 Workshop on Information Systems and Economics. Last year, under the supervision of Diana MacLean and Professor Sinan Aral, I completed an observational study of Facebook buy and sell groups. This study focused on measuring the extent to which network structure establishes trust (and facilitates transactions) in informal marketplaces. This work will be presented next month at the 2017 International Conference on Information Systems. I am also working with Professor Sinan Aral, along with Facebook researchers Brian Karrer and P. Alex Dow, to conduct a large-scale field experiment that introduces feedback-based reputation into Facebook's "Marketplace" product, with the aim to quantify the impact feedback-based reputation has on marketplace growth and structure. I presented on the design of this experiment at the 2017 Conference on Digital Experimentation, and will present the same work at the 2017 Workshop on Information Systems and Economics. Finally, I am in the early stages of a research project with Professor Sinan Aral studying the amount of gender discrimination in the job market for software engineers (and to what degree it can be reduced through the use of voice modulation technology in online hiring marketplaces).

As I embark on my research career, I have no doubt that attending this program would be enormously beneficial. I'm grateful for the opportunity to apply, and would be honored to attend. Thank you for your consideration.

Sincerely,
David Holtz

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