

**Guillaume Saint-Jacques**  
Ph.D. Candidate (5<sup>th</sup> year)  
Information Technologies / Economics track  
MIT Sloan School of Management  
100 Main St, E62-355  
Cambridge, MA 02142  
*gsaintja@mit.edu*  
617 710 2246

Mountain View, 11/17/2016

Application to the 2016 NBER Tutorial on Digitization

Dear Sir or Madam,

I participated in last year's digitization tutorial and I found it to be remarkably inspiring and helpful. I would love the opportunity to participate again this year. Since last year, I have spent time working on interference in network experiments, and I believe the tutorial would help me with my research in this area. I am supplying the required information below. Please do not hesitate to contact me if I can provide any additional information.

**Areas of Interest**

- Economics of Information Technologies
- Social Network Analytics, causal inference in networks, tests for interference in networks.
- Machine Learning and Econometrics

**Advisors:**

- Erik Brynjolfsson (primary advisor, MIT and NBER)
- Sinan Aral (MIT)
- Edoardo Airoldi (Harvard, Statistics)
- Thomas Piketty (master's advisor, Paris School of Economics and ENS Paris)

**Academic Program and Coursework**

I am in my 5<sup>th</sup> year in the "Information Technologies" Ph.D. program, chaired by Prof. Erik Brynjolfsson.

**Relevant graduate Coursework and Research seminars:**

- MIT Economics micro sequence (14.121,14.122,14.123,14.124)
- MIT Economics econometrics sequence (14.481, 14.482, 14.387)
- MIT Econ Industrial Organization (minor field for my general exams, 14.271,14.272)
- Statistics and Machine learning (15.777)
- Social Networks Analytics (15.569)
- Research Seminar in Information Economics (E. Brynjolfsson)
- Social Analytics lab (S. Aral)
- Master's degree in Economics from École Normale Supérieure (Paris) and Paris School of Economics.

## Teaching

- Teaching assistant for 15.567 (Economics of Information)
- Tutor for the MIT Sloan Analytics Lab

## Tools used for research

- R with Amazon EC2 Cluster; Stata, SAS. Pandas.
- Python with Hadoop and Spark for dealing with large-scale (> 200 GB) network datasets.
- Graph\_tool and boost-lib for smaller (~80 GB) social network datasets.
- SQL, Hive, Apache Pig

## Current Research Projects

- *Information Technologies and the Rise of the power law economy* (with E. Brynjolfsson – Accepted at the International Conference on Information Systems (ICIS 2015, refereed)
- *Information Technology and Executive Pay and Mobility* (with E. Brynjolfsson and Heekyung Kim – work in progress)
- *Phone Networks and Economic Opportunity in Southeast Asia* (with S. Aral, E. Jahani, S. Pentland – work in progress, presented at INFORMS 2016)
- A Hausman Test for Network Interference based on multiple randomization schemes (with Edoardo Airoldi – work in progress, in collaboration with the LinkedIn Network A/B testing team)
- Measuring the economic value of social network diversity at the individual level: an experimental approach (with Sinan Aral and Edoardo Airoldi – early stage)

## Reviewer for:

- Management Science
- International Conference in Information Systems
- PNAS, Statistics
- WISE (Discussant)