Application for Economics of Digitization Tutorial

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- **A short description of the course of graduate study pursued, including major and minor fields of study, and the years of enrollment at relevant institutions.**

  I am a 3rd year PhD student at Columbia Business School, studying strategic management/organizational theory. Prior to PhD program, I studied quantitative methods in social sciences (QMSS) at Columbia University for masters, where I focused on not just causal models but also machine learning models in approaching unstructured social science data. After I started my PhD, in addition to core courses on strategic management and organizational theory, I further benefitted from classes across different fields. From classes varying from data science to financial econometrics, my interests expanded to various methods including machine learning and field experiments.

- **A short description of general research interests, any research projects that are in process, and when appropriate, a dissertation title, short description, and listing of committee members.**

  I am generally interested in understanding the use of algorithms in organizations and the phenomenon of the spread of misinformation, based on various data formats including text and image. I currently am in the exploration phase for my dissertation topic, but I am working on the projects on the restriction of political advertisements and the virality of fake news under the guidance of my advisor Professor Bruce Kogut. I provide more detailed descriptions of my two research projects that are in progress below:

  The first project is on the economic and social impact of social media platforms in restricting microtargeting in online political advertisements. With the recent growth in the online political advertising market, platforms initially took various positions on their accountability as "arbiters of truth": Twitter banning all political advertisements while Facebook arguing for the freedom of political speech. On the other hand, Google, in November 2019, banned “targeted” political ads. Here we focus on the less studied dilemma that platforms face: pressure to self-govern for users’ trust while maintaining the highly-profitable status quo. Using the online archives of political advertising from social media platforms, we the impact of their policy changes on the advertising revenue and the market reach (e.g., ad impressions). We further estimate the social impact by the

heterogeneity in the change of ROI for presidential candidates running for the 2020 election and the change in their choice of topics, in comparison to the size of their campaign funds.

The second project is on the emotional virality of fake news on Facebook. Here we focus on the fake news publishers which utilize intensively algorithmic metrics to gauge consumer interest and readership over social media sites, such as Facebook. Based on around 82,000 articles from mainstream and fake news publishers, we find that fake news and mainstream publications compete for readers and advertising revenues by differentiating their news articles by authenticity, the choice of topics, and also the emotional content of the articles. Through the statistical analysis, we find that topic choices in articles are enduring features that differentiate news firms in general, whereas emotional virality varies over time and by major events, such as the 2016 election. These results point to the positioning strength of a small number of mainstream news publishers and the vulnerability of individual fake news providers to the competition.