Application to Digital Economics and AI Tutorial

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I am currently a fourth year PhD student in the quantitative track within the Marketing Division of Columbia Business School. My broad research agenda primarily centers on digital marketing and the burgeoning creator economy. In particular, my research focuses on understanding the production and promotional decisions of content creators (e.g., online influencers, gamers, advertisers) on online video platforms, and how these insights can be utilized by industry practitioners and platforms to enhance profit and welfare. My approach to research is more question-driven. As such, I investigate these topics using a combination of machine learning, structural modeling and analytical modeling methods.

My dissertation proposal, entitled "creator content production and promotion decisions on online video platforms", is reviewed by a committee comprising of Oded Netzer (chair/advisor), Olivier Toubia and Andrey Simonov. The proposal unfolds across three distinct yet interconnected projects, exploring the decisions and incentives behind creators' content design and promotion behavior in online video markets.

In the first project, I study from the perspective of individual content creators - what makes for a good thumbnail image to summarize and promote video content. By leveraging state-of-the-art text-mining, computer vision and deep learning tools, I investigate how the thumbnail of a video (relative to the video content) impact viewers' subsequent video reactions (e.g., views, watchtime percentage, engagement, preference). I draw on the expectation-disconfirmation theory to explain the role of thumbnails as a vehicle for building viewers' expectations for video content. The second project broadens the scope to consider inter-creator interactions, employing a game theory model to study the emerging phenomenon of content creator collaborations. This is when competing creators mutually decide to produce a joint content and then negotiate profit partition. I explore the conditions under which content creators should form collaborations and explain how creators should differentiate the content they jointly create from their typical content. The insights derived from the model can be used to provide guidance to content creators, policy makers, and platforms looking to develop tools to facilitate collaborations. In my third project, I expand further to look at the interactions between creators, viewers and platforms by studying the incentives driving creators' broadcasting decisions on Twitch.tv, acknowledging that different incentives could lead to different production inefficiencies within the marketplace. I collect a novel high-frequency dataset on creators' streaming habits and viewers' watching patterns to estimate the relative weights of each production motive of creators. Subsequently, I quantify the extent of market inefficiencies and propose alternative platform designs that could potentially enhance profitability and societal welfare.

Most recently, I am examining the potential of large language models, such as ChatGPT, to foster empathy with consumers. Specifically, I am interested in whether these models can be employed to semi-automate the generation of insights by identifying consumer needs, motivations, and emotions. This tutorial aligns with my broader interest in digital markets and it can offer particularly valuable insights for this recent project of mine in terms of exploring ways in which artificial intelligence can enhance and expedite decision-making processes while simultaneously considering potential ethical concerns and costs brought by the rapid advancement of these technologies. This includes discerning when to deploy these technologies and when to engage human intervention to ensure, for example, the insights generated do not fall into the uncanny valley. Engaging with fellow researchers in this field through this tutorial will be greatly beneficial for my research in general and my understanding of the advantages and disruptions that artificial intelligence may potentially introduce to digital markets.