Due to the revolution of advertising buying, how to optimize programmatic marketing actions and outcomes has come into a trending topic. This dissertation consists of three published studies that developed a state-of-the-art artificial intelligence system in computational advertising, which transformed the current industrial research domain into an advanced semi-auto-learning stage. Based on Artificial Neural Network, Machine Learning, and Linear Programming, the author developed an ecosystem successfully optimized key performance indicators by 60%.

Study One seeks to illustrate the potential of foundation and principle from relational argumentation and associated real-life business to advance the current programmatic marketing research stream. The importance of future research on stimulated AI based marketing system is discussed in synchrony with research questions. Study Two applied machine learning and deep learning in customer segmentation as well as content generation. A Recurrent Neural Network model is being used to generate content text based on customer targeting and a Character-level Convolutional Network is being used to estimate click-through-rate. Study Three focus on profit optimization from the advertiser's perspective. The author explores the impact of maximizing revenue and minimizing cost, model the entire process with Generative adversarial network and evaluate the final outcome with a major sponsored search engine.

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The public is welcome to attend.