


## Chapter 7

# The Future of Advertising: Influencing and Predicting Response Through Artificial Intelligence, Machine Learning, and Neuroscience

**Elissa Moses**

*Columbia University, USA & BrainGroup Global, USA*

**Kimberly Rose Clark**

 <https://orcid.org/0000-0003-4712-0475>

*Dartmouth College, USA & Bellwether Citizen Response, USA*

**Norman J. Jacknis**

*Columbia University, USA & Intelligent Community Forum, USA*

### **ABSTRACT**

*This chapter summarizes the role that artificial intelligence and machine learning (AI/ML) are expected to play at every stage of advertising development, assessment, and execution. Together with advances in neuroscience for measuring attention, cognitive processing, emotional response, and memory, AI/ML have advanced to a point where analytics can be used to identify variables that drive more effective advertising and predict enhanced performance. In addition, the cost of computation has declined, making platforms to apply these tools much less expensive and within reach. The authors then offer recommendations for 1) understanding the clients/customers and users of the products and services that will be advertised, 2) aiding creativity in the process of designing advertisements, 3) testing the impact of advertisements, and 4) identifying the optimum placement of advertisements.*

DOI: 10.4018/978-1-7998-6985-6.ch007

## INTRODUCTION

This chapter explores the resources and climate for creating more impactful advertising through the potential use of Artificial Intelligence (AI) and Machine Learning (ML) in three parts:

1. **The Vision:** Why is AI/ML important to advertisers? What might it be able to deliver now and, in the future, given what is known about the impact of advertising on brain and behavior?
2. **The Theory:** What evidence do we have concerning the key variables that we can use to inform and optimize our advertising (measurable image and sales driving) and, in turn, predict performance? How are academics and marketers creating data bases and conducting meta-analyses to determine the most powerful drivers for implementing AI/ML?
3. **The ‘Know How’:** What are the tools and methods of AI/ML that show the greatest potential for identifying drivers and predictors of advertising excellence?

## MAIN FOCUS OF THE CHAPTER

### The Vision

Since the golden age of advertising in the 1960’s through the 2000’s, before rapid paced digital ads became communications currency, it has been held sacred that “*advertising is an art, never a science.*” There has long been the romantic notion of the copywriter facing the *tabula rasa* or blank page, perhaps brimming with ideas or tormented to find the right balance of art, entertainment and salesmanship. This paved the way to high salaries, prestige and awards at Cannes when inspiration and craft hit the bullseye to work advertising magic.

This conventional wisdom has recently been challenged as several factors collided to invite change:

1. **Neuroscience and Behavioral Science** have developed better practical and affordable methods for measuring critical processes that drive consumer behavior such as Attention, Cognitive Processing, Emotional Response and Memory Encoding.
2. **Key Performance Indicators (KPIs)** are now accessible within large data bases that have been amassed. These KPIs can now be linked to effective advertising within brands and categories, particularly nonconscious emotional factors, giving us clues about the characteristics that produce effective advertising in market.
3. **Artificial Intelligence and Machine Learning (AI/ML)** have advanced to a point where analytics can be used to identify variables that drive more effective advertising and predict enhanced performance. In addition, the cost of computation has declined making platforms to apply these tools much less expensive and within reach.

Insights and discoveries by academics and market researchers have identified the critical drivers of effective advertising and software has been developed to crank out “acceptable” digital ads. Is it only a matter of time before advertising will be routinely created, at least in part, by algorithm? We are rapidly developing heuristics and principles for best practices and for advanced evaluation and prediction of efficacy.

14 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/the-future-of-advertising/284978](http://www.igi-global.com/chapter/the-future-of-advertising/284978)

## Related Content

---

### Universal Sparse Adversarial Attack on Video Recognition Models

Haoxuan Liand Zheng Wang (2021). *International Journal of Multimedia Data Engineering and Management* (pp. 1-15).

[www.irma-international.org/article/universal-sparse-adversarial-attack-on-video-recognition-models/291555](http://www.irma-international.org/article/universal-sparse-adversarial-attack-on-video-recognition-models/291555)

### Spatio-Temporal Denoising for Depth Map Sequences

Thomas Hachand Tamara Seybold (2016). *International Journal of Multimedia Data Engineering and Management* (pp. 21-35).

[www.irma-international.org/article/spatio-temporal-denoising-for-depth-map-sequences/152866](http://www.irma-international.org/article/spatio-temporal-denoising-for-depth-map-sequences/152866)

### Rank-Pooling-Based Features on Localized Regions for Automatic Micro-Expression Recognition

Trang Thanh Quynh Le, Thuong-Khanh Tranand Manjeet Rege (2020). *International Journal of Multimedia Data Engineering and Management* (pp. 25-37).

[www.irma-international.org/article/rank-pooling-based-features-on-localized-regions-for-automatic-micro-expression-recognition/267765](http://www.irma-international.org/article/rank-pooling-based-features-on-localized-regions-for-automatic-micro-expression-recognition/267765)

### Big Data and Knowledge Resource Centre

Sukhada Dinesh Pandkarand Soochitra Dhananjay Paatil (2021). *Big Data Applications for Improving Library Services* (pp. 90-106).

[www.irma-international.org/chapter/big-data-and-knowledge-resource-centre/264126](http://www.irma-international.org/chapter/big-data-and-knowledge-resource-centre/264126)

### Multivariate Sustainability Profile of Global Fortune 500 Companies Using GRI-G4 Database

Mónica Jiménez-Hernández, Purificación Vicente-Galindo, Nathalia Tejedor-Flores, Adelaide Freitasand Purificación Galindo (2021). *Handbook of Research on Applied Data Science and Artificial Intelligence in Business and Industry* (pp. 55-84).

[www.irma-international.org/chapter/multivariate-sustainability-profile-of-global-fortune-500-companies-using-gri-g4-database/284974](http://www.irma-international.org/chapter/multivariate-sustainability-profile-of-global-fortune-500-companies-using-gri-g4-database/284974)