

Chapter 7

The Virtual Persona Triad: From Self-Presentation to Social Media Mining

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ABSTRACT

Each person projects behavioral patterns through actions. Even in a virtual environment we express our way of seeing, feeling, and reacting to the world. The analysis of the data generated allows the identification of pattern behaviors associated with users. Therefore, it is possible to obtain a better understanding of the user, the image he/she decided to express, and how he/she behaves in social media, which we name here the virtual persona. Machine learning techniques make it possible to develop a framework that allows to infer psychological and behavioral aspects of the virtual persona. The goal of this chapter is to introduce the virtual persona concept as a mechanism to understand social media users. Emphasis is given to the self-presentation of virtual persona, the perception of physical persona over virtual persona, and the description of three computational frameworks to study virtual persona, what we call here the virtual persona triad.

INTRODUCTION

If the current pace of technological innovation is maintained, by 2025 most of the world's population, estimated at eight billion, will be online. The mass internet adoption is leading to one of the most exciting social, cultural,

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and political transformations in history, and these effects are entirely global (Schmidt & Cohen, 2013). In this context, it is indispensable to have a better comprehension of the virtual society and how it can affect the real (physical) environment. There is an urgent need for a better understanding of the interconnected society complexity, as well as the capacity to apply such knowledge to formulate policies to solve problems (Lovari & Valentini, 2020).

Within social media, one can usually fill in a *profile* with a description of him/herself, choose some *groups* or *networks* to participate, and *interact* in various forms (e.g. by generating content, posting photos or videos, liking, etc.) with users and groups. So, it is possible to analyze the user behavior in two levels: *individual*, based on user decisions; and *collective*, based on group decisions. There is a growing opportunity to apply computational techniques to these behavioral patterns. It is possible to identify influencers, detect implicit or hidden groups, predict the sentiment of users, develop more personalized recommendation systems, understand the evolution of networks and the changes in the relationship between entities, protect users' privacy and safety, create more efficient collaborative groups, build and strengthen trust among users or between entities, or even predict social crises, political preferences and natural disasters (Gundecha & Liu, 2012).

The range of applications is extensive due to the combination of user understanding and different areas of knowledge, such as psychology, sociology, anthropology, data science, statistics, language processing, games, collaborative learning, economics, political science, marketing, human-computer interaction, engineering, and computer science. However, data from social media are unstructured or semi-structured, imposing a constant challenge for the development of research tools. In this context, *data mining* techniques can overcome the challenges posed by social data through sophisticated methods of data pre-processing and analysis (Safari, Rahmani, & Alizadeh, 2019; Rathore, Kar, & Ilavarasan, 2017).

In this chapter, the term *social media mining* is used to refer to the scope of techniques focused on mapping and analyzing data from various web services aimed at sharing and creating content by the user (Lima A. C., 2016). The goal is to structure a position on social media mining and explore its applicability in the study of the main psychological factors of users. This gives rise to what is defined here as the *virtual persona*, what role they take on the internet, and the construction they make of themselves. (Lima A. C., 2016). It is proposed that three sets of characteristics contribute to the understanding of the virtual persona: sentiment; personality; and temperament, which together form the *virtual persona triad*. Based on this concept, this chapter presents a set of frameworks that aim to help understand the virtual persona triad.

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