Personalized Tourist Guide for People with Autism

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ABSTRACT

Cultural Heritage exploration is interesting for the development of inclusive tourist guides because it exposes visitors to different types of challenges, from steering content recommendation to visitors' interests and cognitive capabilities, to the suggestion of places that can be effectively reached and visited under different types of constraints: e.g., temporal and physical ones. In this work we are interested in the needs of people with Autism in order to support them in the exploration of a geographic area. Specifically, this paper presents a mobile tourist guide that we are developing to help people in visiting new places. The app is an evolution of PIUMA (Personalised Interactive Urban Maps for Autism), conceived to help autistic citizens in their everyday movements. It shows a map tailored to users with Autism Spectrum Disorder. In particular, it presents a personalized selection of safe Points of Interest, i.e., places that are, at the same time, interesting for the user and have "safe" characteristics from the sensory point of view, such as being quiet, scarcely crowded, or with smooth lights. In this paper, we present how we intend to extend PIUMA to support tourists.

CCS CONCEPTS

• **Information systems → Recommender systems**; **Geographic information systems**; • **Social and professional topics → People with disabilities**; • **Human-centered computing → Accessibility technologies**.

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KEYWORDS

Cultural Heritage exploration, Tourism, Recommender Systems, Autism Spectrum Disorder, Accessibility.

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1 INTRODUCTION

Cultural Heritage exploration is interesting for the development of inclusive tourist guides because it exposes visitors to different challenges, from steering content recommendation to individual interests and cognitive capabilities, to the suggestion of places that can be effectively reached and visited under different types of constraints; e.g., temporal and physical ones. In this work we are interested in the needs of people with Autism and in the development of tourist guides supporting them in the exploration of a geographic area.

Autism can be defined as a lifelong developmental disability that affects how people perceive the world and interact with others. Autism is a spectrum condition, i.e., it affects individuals in different ways. Some autistic people, for example, also have learning disabilities and cognitive issues, while others have full intellectual abilities. What is common in all people with autism is an atypical social functioning, which often results in isolation [13]. In general, they tend to avoid any novel situation since it can be perceived as stressful [27].

Moreover, people with Autism Spectrum Disorder (ASD) perceive the world differently from others, which means that they appear to react differently to sensory stimulation [1, 25, 31]. A majority of them may become overwhelmed by environmental features that are easily managed by neurotypical persons [24].

(Article begins on next page)

evaluate it in a Cultural Heritage scenario with ASD people. However, exploring Cultural Heritage poses further challenges: it means choosing where to go and what to see, given the available time and other possible constraints. Therefore, a PoI that could be very relevant from a cultural point of view could be unsuitable for an autistic person because it is very different from what (s)he is used to experience and this fact can cause anxiety. Thus, we expect it will be necessary to partially modify the recommendation algorithm, for suggesting only things to do that are somehow similar to what the people already know and like. This is interesting because it brings a totally different perspective on recommender systems evaluation, the opposite of the serendipity that is usually considered as an important goal to be reached [4]. Moreover, we are working to add personalized safe paths and tours in the city, as well as some tips and social stories to train traveling skills; e.g. how to get a train, and so forth. Finally, as future work we plan to investigate the adaptation of our approach to other needs, for example related to motor disabilities, by extending the type of features that influence item compatibility.

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