Intelligent Tourist Travel Planner

Liam Attard [0299300L]
Department of Artificial Intelligence
University of Malta
liam.attard.18@um.edu.mt

***Abstract*—orem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.**

***Index Terms*—tourism,itinerary, user-profiling.**

I. Introduction

A. Problem Definition

Producing an itinerary before a trip can be a demanding task which requires a substantial amount of research. Many times people rely on travel books, individual travel blogs and online websites to form a holiday plan, but these are not always tailored according to the traveller's preferences and opinions [1].

An adequate automated trip planner application would consist of two parts,

1) the retrieval of user preferences
2) the generation of a custom itinerary

Numerous systems are available and therefore building a working prototype is both possible and feasible [1]–[12]. Although these systems automate the process of producing the itinerary, they require a lot of end-user data and preferences to form a personalised itinerary. Can the user preference gathering be automated?

Given the amount of information a single user holds online, it is possible to automate and help the process of gathering personal preferences [13]. A deep learning model could be trained to classify a person's social media profile to determine what the user wants from a trip. This information alongside other parameters such as the user's budget and trip length could give out a very accurate personalised holiday plan.

B. Motivation

The immense amount of data generated by each user online [14] was the main motivation behind using such an advantage in creating a system that benefits tourists by implementing something easy to use which does not bombard them with a lot of extra questions. Although planning itineraries can be a complex problem [10], if the users allows the system to gather preferences based on their social media profile, a personalised itinerary could be generated possibly reducing the ammount of preferences to ask the tourists.

C. Why the Problem is non-trivial

User Profiling has been an essential part of Personalized advertising since advertisers can pick out customers more accurately.

D. Aims and Objectives

II. Background Research and Literature Review

A number of works both on image classification and on automatic trip itinerary generation have been carried out throughout the years.

A. User Profiling/ Travel Pref.

B. Automatic Trip Planners

References

[1] M. De Choudhury, M. Feldman, S. Amer-Yahia, N. Golbandi, R. Lempel, and C. Yu, "Automatic construction of travel itineraries using social breadcrumbs," in *HT'10 - Proceedings of the 21st ACM Conference on Hypertext and Hypermedia*, 2010, pp. 35–44. [Online]. Available: http://www.munmund.net/pubs/ht_10_long.pdf

[2] K. Sylejmani, J. Dorn, and N. Musliu, "Planning the trip itinerary for tourist groups," *Information Technology and Tourism*, vol. 17, no. 3, pp. 275–314, sep 2017. [Online]. Available: https://link.springer.com/article/10.1007/s40558-017-0080-9

[3] H. T. Chang, Y. M. Chang, and M. T. Tsai, "ATIPS: Automatic travel itinerary planning system for domestic areas," *Computational Intelligence and Neuroscience*, vol. 2016, 2016.

[4] K. Sylejmani, J. Dorn, and N. Musliu, "A Tabu Search approach for Multi Constrained Team Orienteering Problem and its application in touristic trip planning," in *Proceedings of the 2012 12th International Conference on Hybrid Intelligent Systems, HIS 2012*, 2012, pp. 300–305.

[5] L. Sebastia, I. Garcia, E. Onaindia, and C. Guzman, "E-Tourism: A tourist recommendation and planning application," *International Journal on Artificial Intelligence Tools*, vol. 18, no. 5, pp. 717–738, oct 2009.

[6] G. Tumas and F. Ricci, "Personalized Mobile City Transport Advisory System," in *Information and Communication Technologies in Tourism 2009*. Springer Vienna, 2009, pp. 173–183.

[7] P. Vansteenwegen, W. Souffriau, and D. V. Oudheusden, "The orienteering problem: A survey," pp. 1–10, feb 2011.

[8] Y. Kurata and T. Hara, "CT-Planner4: Toward a More User-Friendly Interactive Day-Tour Planner," in *Information and Communication Technologies in Tourism 2014*. Springer International Publishing, 2013, pp. 73–86.

[9] I. Ramalho Brilhante, J. A. Macedo, F. M. Nardini, R. Perego, and C. Renso, "On planning sightseeing tours with TRIPBUILDER," 2014. [Online]. Available: http://dx.doi.org/10.1016/j.ipm.2014.10.003

[10] S. DUNSTALL, M. E. T. HORN, P. KILBY, M. KRISHNAMOORTHY, B. OWENS, D. SIER, and S. THIEBAUX, "an Automated Itinerary Planning System for Holiday Travel," *Information Technology & Tourism*, vol. 6, no. 3, pp. 195–210, may 2004.

[11] P. Di Bitonto, F. Di Tria, M. Laterza, T. Roselli, V. Rossano, and F. Tangorra, "Automated generation of itineraries in recommender systems for tourism," in *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, vol. 6385 LNCS. Springer, Berlin, Heidelberg, 2010, pp. 498–508. [Online]. Available: www.expedia.com

[12] D. Gavalas, V. Kasapakis, C. Konstantopoulos, G. Pantziou, and N. Vathis, "Scenic route planning for tourists," 2016.
[13] K. Buraya, A. Farseev, and A. Filchenkov, "Towards User Personality Profiling from Multiple Social Networks Prediction of Personality View project Multimedia Marketing AI View project," Tech. Rep., 2017. [Online]. Available: www.aaai.org
[14] J. Clement, "User-generated internet content per minute 2020 — Statista," aug 2020. [Online]. Available: https://www.statista.com/statistics/195140/new-user-generated-content-uploaded-by-users-per-minute/