



- (51) International Patent Classification:
G06F 16/9535 (2019.01)
- (21) International Application Number:
PCT/US2024/035816
- (22) International Filing Date:
27 June 2024 (27.06.2024)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
18/221,730 13 July 2023 (13.07.2023) US
- (63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application:
US 18/221,730 (CON)
Filed on 13 July 2023 (13.07.2023)
- (71) Applicant: **EXPEDIA, INC.** [US/US]; 1111 Expedia Group Way W, Seattle, Washington 98119 (US).
- (72) Inventor: **PARTALAS, Ioannis**; 1111 Expedia Group Way W, Seattle, Washington 98119 (US).
- (74) Agent: **CHRISTENSEN, Michael, R.**; KNOBBE, MARTENS, OLSON & BEAR, LLP, 2040 Main Street, 14th Floor, Irvine, California 92614 (US).
- (81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(54) Title: GENERATION AND APPLICATION OF EMBEDDINGS FOR LODGING ITEMS

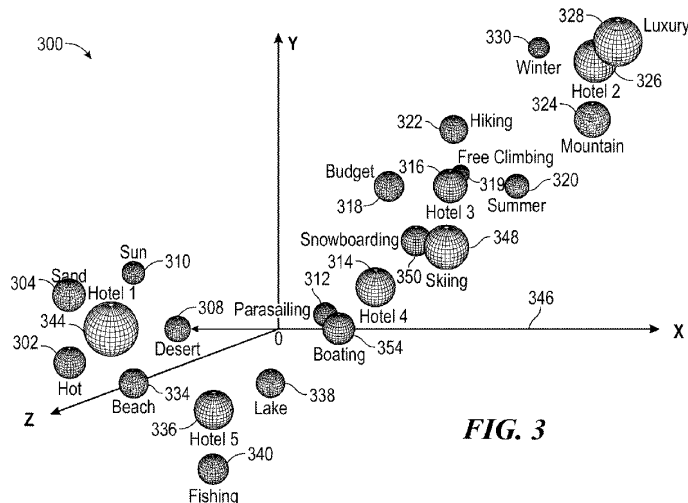


FIG. 3

(57) Abstract: Systems and methods of generating a set of vectors or embeddings that represent concepts and/or lodging items identified from review data (e.g., user reviews). Concepts and associated sentiments are identified within each review of the review data to generate labeled review data that is provided to a machine learning model that is programmed to iterate through each mention of each concept in each review of the labeled review data to update one or more embeddings corresponding to concepts and/or lodging items mentioned in each of the reviews. A multi-dimensional embedding space comprising embeddings or vectors for concepts and/or lodging items is then queried to provide results (e.g., to a user device).

[Continued on next page]

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*