**Appendix 5: Results of Non-Negative Matrix Factorisation and Bertopic**

Both models were set to return the 30 most representative words of the 16 most representative topics. Alphanumeric characters and stopwords were removed, and text was lowercased. The Non-negative Matrix Factorisation model was implemented through the Sci-Kit Learn library in Python 3. The vectoriser used was TfidfVectorizer and random state was set in 42. Bertopic was carried out through its library in Python 3. Random state in UMAP was set in 42 and lemmatisation was dismissed since it proved to be detrimental for the interpretation of the results.

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| --- | --- | --- | --- | --- |
| **Topics** | **Non-negative Matrix Factorisation** | | **Bertopic** | |
|  | Most representative words | Approximate Description | Most representative words | Approximate Description |
| 1 | china, uk, africa, relation, eu, pakistan, friendship, province, 2020, look, effort, continue, stand, friend, south, anti, india, trade, far, launch, high, taiwan, relationship, asean, speed, measure, poverty, business, europe, firmly | International partners | chinese, year, china, xinjiang, people, food, carbon, new, world, province, covid19, day, years, development, panda, beijing, festival, national, water, spring, 2020, green, president, tea, time, beautiful, solar, xi, 10, energy | Cultural commemorations & sustainability |
| 2 | covid19, fight, virus, outbreak, novel, epidemic, pandemic, control, health, support, help, effort, spread, expert, battle, response, solidarity, prevention, measure, time, 10, disease, coronavirus, contain, amid, covid, global, experience, defeat, combat | COVID-19, measures to tackle the spread | usa, covid19, chinese, china, world, countries, war, people, cooperation, peace, hongkong, international, global, president, interests, virus, xi, said, wang, development, foreign, yi, relations, win, human, taiwan, community, rights, un, military | Undetermined |
| 3 | foreign, wang, yi, minister, state, councilor, fm, interview, visit, xinhua, press, conference, africa, relation, meeting, meet, affairs, phone, policy, exclusive, diplomatic, ministry, hold, attend, speech, ministers, 2020, situation, prime, twosessions | Agenda | poverty, global, development, world, china, countries, covid19, economic, economy, cooperation, xi, usa, people, president, chinese, new, country, international, said, jinping, growth, work, shared, future, community, year, public, pandemic, foreign, efforts | Economic development |
| 4 | cooperation, international, community, share, future, win, work, build, solidarity, mankind, global, africa, strengthen, multilateralism, common, promote, mutual, support, un, uphold, challenge, need, continue, enhance, covid, relation, 19, stand, road, health | International cooperation | women, people, africa, chinese, covid19, china, xinjiang, countries, cooperation, world, usa, work, wang, foreign, yi, international, debt, great, virus, global, labor, development, wuhan, state, said, year, rights, forced, african, good | Undetermined |
| 5 | year, new, 2020, percent, billion, yuan, million, poverty, happy, plan, past, trillion, growth, gdp, 2021, increase, 10, old, ago, wish, ox, ciie,trade, total, end, month, 40, reach, 000, quarter | New year, economic achievements | chinese, covid19, china, tiktok, people, wuhan, world, uk, new, cooperation, video, xinjiang, fight, 19, president, economic, usa, virus, said, covid, global, xi, international, countries, foreign, time, health, jinping, medical, support | COVID-19, cooperation |
| 6 | president, xi, jinping, xijinping, speech, summit, deliver, meeting, video, link, general, un, g20, phone, opening, address, remark, highlight, message, assembly, text, attend, stress, session 75th, anniversary, war, beijing, keynote, conversation | Xi Jinping | 5g, satellite, china, million, mars, bridge, freight, new, Europe, covid19, probe, tourism, space, world, year, trade, global, train, 000, orbit, beijing, day, stations, chinese, system, nucleic, launch, beidou, acid, navigation | Technology |
| 7 | vaccine, good, develop, trial, public, covid19, global, clinical, phase, dose, Sinopharm, Sinovac, use, health, covax, approve, provide, receive, affordability, news, accessibility, safe, available, research, candidate, million, china, ensure, distribution, effective | COVID-19, vaccines | cases, confirmed, year, billion, new, million, total, yuan, hubei, deaths, percent, 2020, poverty, china, feb, trillion, covid19, mainland, number, population, trade, 20, cured, reported, 000, province, rate, according, xinjiang, 11 | COVID-19, updates |
| 8 | hongkong, security, national, law, affair, kong, hong, safeguard, legislation, hksar, right, internal, stability, system, interference, hk, interest, sar, administrative, basic, freedom, government, interfere, sovereignty, prosperity, resident, rule, central, decision, support | Hong Kong, national security law | covid19, vaccine, chinese, 000, masks, countries, vaccines, medical, patients, donated, phase, health, china, hospital, wuhan, clinical, anniversary, president, cases, new, xi, trials, cooperation, kits, said, people, 19, Africa, national, world | COVID-19, supply of health resources |
| 9 | usa, american, stop, politician, political, sanction, fact, official, urge, trump, right, lie, blame, pompeo, consulate, response, interest, virus, medium, way, war, journalist, oppose, issue, huawei, human, taiwan, act, china, general | Criticism to the US | covid19, chinese, people, fight, world, wuhan, china, countries, dr, president, usa, wang, zhong, health, novel, medical, fauci, youth, nanshan, 19, yi, xi, xinjiang, expert, support, virus, global, foreign, international, said | COVID-19, efforts to tackle the virus |
| 10 | case, new, confirm, report, death, hubei, number, day, covid19, mainland, total, feb, province, cure, outside, infection, suspect, consecutive, zero, import, update, drop, rate, test, newly, daily, discharge, fatality, asymptomatic, beijing | COVID-19, controversy | chinese, italy, province, lebanon, medical, ambassador, china, year, beautiful, covid19, lake, amazingchina, president, flowers, serbia, spring, supplies, people, world, tibet, city, autumn, glamorchina, minister, mountain, blossoms, view, dessert, beijing | Undetermined |
| 11 | xinjiang, lie, uyghur, right, ethnic, region, fact, human, population, uygur, autonomous, western, terrorism, truth, genocide, million, story, medium, force, group, beautiful, issue, labor, relate, visit, minority, rumor, mosque, know, education | Governance of Xinjiang confronting Western criticism | chinese, covid19, africa, minister, foreign, medical, african, vaccine, president, philippines, sinovac, cooperation, china, asean, wang, uganda, countries, ambassador, state, egypt, yi, experts, health, vaccines, councilor, relations, team, people, fight, support | COVID-19, support to African countries |
| 12 | country, develop, african, help, support, provide, need, system, assistance, medical, supply, especially, include, major, work, debt, right, offer, send, western, region, human, organization, interest, development, team, practice, common, difference, expert | International assistance and development | usa, xinjiang, affairs, internal, chinese, lies, human, law, rights, journalists, people, media, terrorism, international, china, security, stop, foreign, countries, western, hongkong, facts, interference, discrimination, national, american, political, interests, rights, covid19 | Criticism to the US |
| 13 | world, development, economic, economy, global, growth, recovery, peace, trade, market, open, opportunity, large, great, social, contribute, high, promote, opening, pandemic, major, continue, stability, business, contribution, change, ciee, investment, rest, big | International economy | president, eu, cooperation, rcep, un, covid19, support, countries, xi, chinese, china, arab, trade, uae, multilateralism, zhang, aatar, world, jinping, people, vaccine, said, development, free, council, poverty, Iraq, regional, peace, efforts | International cooperation |
| 14 | people, life, poverty, cpc, million, save, great, time, american, alleviation, lift, good, government, thank, protect, right, come, health, work, party, republic, live, dream, 100, true, human, history, center, leadership, war | Alleviation of poverty | hongkong, security, national, law, hksar, usa, system, chinese, legislation, cpc, kong, hong, people, country, electoral, international, stability, china, hk, un, rights, systems, party, development, countries, decision, support, government, foreign, prosperity | Hong Kong, national security law |
| 15 | chinese, government, company, embassy, expert, medical, student, ambassador, spokesperson, traditional, team, uk, medium, ministry, premier, fm, pakistan, festival, donate, overseas, arrive, supply, li, nation, culture, mainland, foreign, friend, local, keqiang | Undetermined | pakistan, cpec, zlj517, gwadar, cathaypak, chinese, wangxianfeng8, asimsbajwa, minister, bri, thank, sri, china, muslims, people, ambassador, mfa, mosques, pakistani, port, foreignofficepk, support, mosque, lanka, friendship, foreign, xinjiang, balochistan, covid19, cooperation | Cooperation with Pakistan and Sri Lanka |
| 16 | wuhan, hospital, medical, patient, city, 000, day, province, supply, team, mask, hubei, worker, discharge, coronavirus, makeshift, huoshenshan, send, arrive, infect, doctor, 10, donate, expert, novel, staff, build, good, treat, lockdown | COVID-19, early fight | usa, people, china, pompeo, media, Chinese, covid19, world, lies, facts, politicians, xinjiang, said, newes, blame, genocide, response, stop, countries, virus, western, twitter, thousands, state, cdc, efforts, political truth, real, fake | Discrediting Western criticism |