1. Where do most researchers move to?

* Country

people move to US most. The total number of records (distinct *orcid\_id*) in the dataset “*person*” is 1,627,845. The total number of searchers who have moving records is 167,979, accounting for 10.32% of the total. Among the researchers with a moving record, there are 37,501 searchers moved to US, accounting for about 22.32%. The United Kingdom has the second highest number of records, with 17,504 records, accounting for approximately 10.42%. The third is Australia, with 9574 records, accounting for about 5.7%. The fourth is Germany, with 7,214 records, accounting for about 4.3%. The fifth is Canada, with 6203 records, accounting for about 3.7%. Researchers moving to US account for more than one fifth, and the top five countries account for about 46.44%, which is close to half of the total number of moved people.



For further analysis, we identified the top 30 countries where researchers moved to the most in five years (2013-2017).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Country** | **2013** | **2014** | **2015** | **2016** | **2017** | **Sum** |
| US | 4671 | 5055 | 5268 | 5047 | 15037 | 35078 |
| GB | 3233 | 3327 | 3324 | 3018 | 5481 | 18383 |
| BR | 834 | 980 | 914 | 868 | 5523 | 9119 |
| CN | 1186 | 1390 | 1513 | 1629 | 3129 | 8847 |
| DE | 1612 | 1590 | 1607 | 1515 | 2157 | 8481 |
| AU | 1305 | 1340 | 1408 | 1369 | 2556 | 7978 |
| ES | 1032 | 1182 | 1300 | 1230 | 2512 | 7256 |
| FR | 1079 | 1086 | 1105 | 1000 | 1492 | 5762 |
| CA | 928 | 936 | 973 | 995 | 1553 | 5385 |
| IN | 483 | 456 | 481 | 462 | 3329 | 5211 |
| PT | 675 | 761 | 776 | 816 | 1866 | 4894 |
| IT | 632 | 786 | 734 | 616 | 1465 | 4233 |
| CH | 710 | 754 | 802 | 732 | 811 | 3809 |
| JP | 562 | 598 | 638 | 589 | 1323 | 3710 |
| NL | 607 | 670 | 652 | 659 | 846 | 3434 |
| SE | 591 | 666 | 660 | 555 | 834 | 3306 |
| KR | 567 | 602 | 545 | 527 | 1055 | 3296 |
| CO | 339 | 398 | 426 | 458 | 1243 | 2864 |
| MX | 331 | 371 | 406 | 377 | 1174 | 2659 |
| DK | 468 | 494 | 495 | 452 | 744 | 2653 |
| TR | 346 | 391 | 355 | 285 | 1248 | 2625 |
| ZA | 302 | 314 | 372 | 338 | 993 | 2319 |
| BE | 422 | 442 | 450 | 399 | 519 | 2232 |
| MY | 449 | 372 | 336 | 310 | 528 | 1995 |
| IE | 256 | 276 | 322 | 374 | 459 | 1687 |
| SG | 368 | 380 | 418 | 394 |  | 1560 |
| SA | 402 | 398 | 371 | 320 |  | 1491 |
| AT | 263 | 271 | 321 | 307 |  | 1162 |
| HK | 245 |  | 289 | 320 |  | 854 |
| ID |  |  |  |  | 605 | 605 |
| CL | 222 |  |  |  | 371 | 593 |
| EC |  | 264 | 289 |  |  | 553 |
| IR |  |  |  |  | 512 | 512 |
| RU |  |  |  |  | 481 | 481 |
| FI |  |  |  |  | 379 | 379 |
| NZ |  |  |  | 279 |  | 279 |
| TW |  | 263 |  |  |  | 263 |
| **SUM** | **25120** | **26813** | **27550** | **26240** | **60225** | **165948** |

Changes in the number of scholars in move to US from 2013 to 2017. Based on the data, US is still the country where the most researchers move to each year.

* Region

People move to California, US most. The total number of records (distinct *orcid\_id*) in the dataset “*person\_affiliation*” is 1,627,845. The total number of searchers who have moving records is 1,069,720, accounting for 65.71% of the total. Among the researchers with a moving record, there are 31,163 researchers moved to California, accounting for about 2.91%. The second is Massachusetts, with 21,679 records, accounting for about 2.02%. The third is New York, with 21,654 records, accounting for about 2.02%. The fourth is London, with 17,456 records, accounting for about 1.63%. The fifth is San Paulo, with 17,364 records, accounting for about 1.62%. Among the top 10 regions where researchers moved to most, 8 are in US; UK and Brazil both has only one.

For further analysis, we identified the top 30 regions where researchers moved to the most in five years (2013-2017). From the total data of these five years, the top five regions are CA, MA, NY, TX, London. In each year, CA is still the region people move to most.

|  |  |
| --- | --- |
| Region | Number |
| CA | 31163 |
| MA | 21679 |
| NY | 21654 |
| London | 17456 |
| SP | 17364 |
| PA | 15418 |
| TX | 15394 |
| IL | 12655 |
| MD | 11892 |
| Madrid | 9492 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **region** | **2013** | **2014** | **2015** | **2016** | **2017** | **、 SUM** |
| CA | 1494 | 1555 | 1793 | 1785 | 1498 | 8125 |
| MA | 974 | 1062 | 1116 | 1102 | 977 | 5231 |
| NY | 1059 | 1106 | 1090 | 1057 | 895 | 5207 |
| TX | 868 | 1044 | 1046 | 915 | 647 | 4520 |
| London | 985 | 947 | 959 | 937 | 681 | 4509 |
| SP | 830 | 890 | 852 | 905 | 841 | 4318 |
| PA | 792 | 825 | 872 | 813 | 715 | 4017 |
| IL | 590 | 675 | 657 | 595 | 488 | 3005 |
| MD | 568 | 609 | 597 | 633 | 476 | 2883 |
| Catalunya | 430 | 551 | 571 | 511 | 400 | 2463 |
| VIC | 417 | 522 | 518 | 507 | 448 | 2412 |
| NSW | 452 | 420 | 472 | 499 | 511 | 2354 |
| NC | 440 | 462 | 546 | 506 | 388 | 2342 |
| WA | 449 | 516 | 505 | 500 | 368 | 2338 |
| FL | 437 | 493 | 561 | 472 | 372 | 2335 |
| MI | 445 | 473 | 489 | 468 | 371 | 2246 |
| ON | 446 | 446 | 447 | 474 | 412 | 2225 |
| Lisboa | 321 | 361 | 544 | 513 | 417 | 2156 |
| TN | 331 | 383 | 449 | 533 | 421 | 2117 |
| Beijing | 480 | 488 | 461 | 382 | 288 | 2099 |
| OH | 482 | 443 | 396 | 446 | 315 | 2082 |
| Île-de-France | 389 | 408 | 480 | 417 | 334 | 2028 |
| Cambridgeshire | 411 | 421 | 434 | 417 | 336 | 2019 |
| QLD | 354 | 400 | 432 | 442 | 352 | 1980 |
| Madrid | 371 | 400 | 396 | 358 | 296 | 1821 |
| Karnataka | 319 | 352 | 374 |  | 276 | 1321 |
| Oxfordshire | 352 | 397 | 354 |  |  | 1103 |
| VA | 344 | 359 |  | 359 |  | 1062 |
| MG |  |  | 370 | 358 | 297 | 1025 |
| São Paulo |  | 356 |  | 322 | 329 | 1007 |
| Guangdong |  |  |  | 364 | 333 | 697 |
| GA |  | 353 |  | 333 |  | 686 |
| NJ |  |  | 370 |  | 272 | 642 |
| RJ |  |  | 350 |  |  | 350 |
| Tamil Nadu | 344 |  |  |  |  | 344 |
| Maharashtra | 323 |  |  |  |  | 323 |
| **SUM** | **16497** | **17717** | **18501** | **17923** | **14754** | **85392** |

Changes in the number of researchers in move to the top 5 regions from 2013 to 2017.

* City

People move to London, GB/UK most. The total number of records (distinct *orcid\_id*) in the dataset “*person\_affiliation*” is 1,627,845. The total number of searchers who have moving records is 1,157,441, accounting for 71.1% of the total. Among the researchers with a moving record, there are 27,622 researchers moved to London, accounting for about 2.39%. The second is Cambridge, with 19,288 records, accounting for about 1.67%. The third is Madrid, with 12,663 records, accounting for about 1.1%. The fourth is New York, with 12,274 records, accounting for about 1.11%. The fifth is Barcelona, with 11,252 records, accounting for about 0.97%. We list the top 10 cities where researchers moved to most below.



For further analysis, we identified the top 30 cities where researchers moved to the most in five years (2013-2017). From the total data of these five years, the top five regions are London, Cambridge, New York, Beijing and Boston. In each year, London is still the region people move to most.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **City** | **2013** | **2014** | **2015** | **2016** | **2017** | **Sum** |
| London | 1270 | 1247 | 1274 | 1157 | 902 | 5850 |
| Cambridge | 796 | 859 | 910 | 907 | 787 | 4259 |
| New York | 530 | 582 | 599 | 543 | 484 | 2738 |
| Beijing | 591 | 582 | 599 | 492 | 374 | 2638 |
| Boston | 471 | 524 | 547 | 554 | 463 | 2559 |
| Barcelona | 463 | 551 | 566 | 531 | 420 | 2531 |
| Sao Paulo | 468 | 471 | 476 | 482 | 474 | 2371 |
| Lisboa | 422 | 463 | 530 | 510 | 406 | 2331 |
| Madrid | 443 | 475 | 462 | 425 | 331 | 2136 |
| Melbourne | 322 | 436 | 473 | 376 | 333 | 1940 |
| Paris | 380 | 417 | 435 | 376 | 314 | 1922 |
| Singapore | 365 | 371 | 415 | 395 | 326 | 1872 |
| Oxford | 395 | 436 | 390 | 337 | 310 | 1868 |
| Manchester | 356 | 368 | 385 | 357 | 314 | 1780 |
| Bogota | 311 | 376 | 354 | 379 | 300 | 1720 |
| Porto | 296 | 346 | 309 | 374 | 325 | 1650 |
| Sydney | 299 | 276 | 331 | 317 | 402 | 1625 |
| Shanghai | 326 | 310 | 348 | 334 | 256 | 1574 |
| Rio de Janeiro | 307 | 330 | 368 | 301 | 237 | 1543 |
| Philadelphia | 306 | 289 | 358 | 324 | 248 | 1525 |
| Chicago | 264 | 322 | 315 | 289 | 233 | 1423 |
| Houston | 295 | 345 | 329 | 294 |  | 1263 |
| Brisbane |  | 290 | 312 | 332 | 262 | 1196 |
| Ann Arbor |  | 268 | 309 | 277 | 213 | 1067 |
| Los Angeles | 293 |  | 280 | 287 |  | 860 |
| Baltimore | 281 | 283 |  | 295 |  | 859 |
| New Delhi | 287 | 273 | 275 |  |  | 835 |
| Durham | 257 |  | 295 | 281 |  | 833 |
| Washington | 275 | 282 | 272 |  |  | 829 |
| Toronto |  |  | 277 | 276 | 243 | 796 |
| Bangalore |  | 279 | 286 |  | 215 | 780 |
| Pittsburgh | 283 | 285 |  |  |  | 568 |
| Stanford |  |  |  | 287 | 247 | 534 |
| Istanbul | 282 |  |  |  | 235 | 517 |
| Oak Ridge |  |  |  | 279 | 236 | 515 |
| Edinburgh | 281 |  |  |  |  | 281 |
| Birmingham |  | 268 |  |  |  | 268 |
| Stockholm |  |  |  |  | 217 | 217 |
| Dublin |  |  |  |  | 214 | 214 |
| **Sum** | **11915** | **12604** | **13079** | **12368** | **10321** | **60287** |

Changes in the number of researchers in move to the top 5 cities from 2013 to 2017.

* The most popular regions and cities in Top 10 countries between 2013 to 2017

Based on our datasets, the top 10 countries are US, UK(GB), Brazil (BR), CN(China), DE(Germany), AU(Australia), ES(Spain), FR(France), CA(Canada), IN(India).

US: region-CA, city-New York

GB: region-London, city-London

BR: region-San Paulo, city-San Paulo

CN: region-Beijing, city-Beijing

DE: region-Baden-Württemberg, city-Berlin

AU: region-VIC, city-Melbourne

ES: region-Catalunya, city-Barcelona

FR: region-Île-de-France, city-Paris

CA: region-Ontario, city-Toronto

IN: region-Karnataka, city-Bangalore

1. Is there any significant difference when answering other questions in each department/major?

For the first question, country and region are still US and CA, but the city changes to Cambridge.

Limitation: Different names for the same department. Cambridge is a city name where US and GB both have.