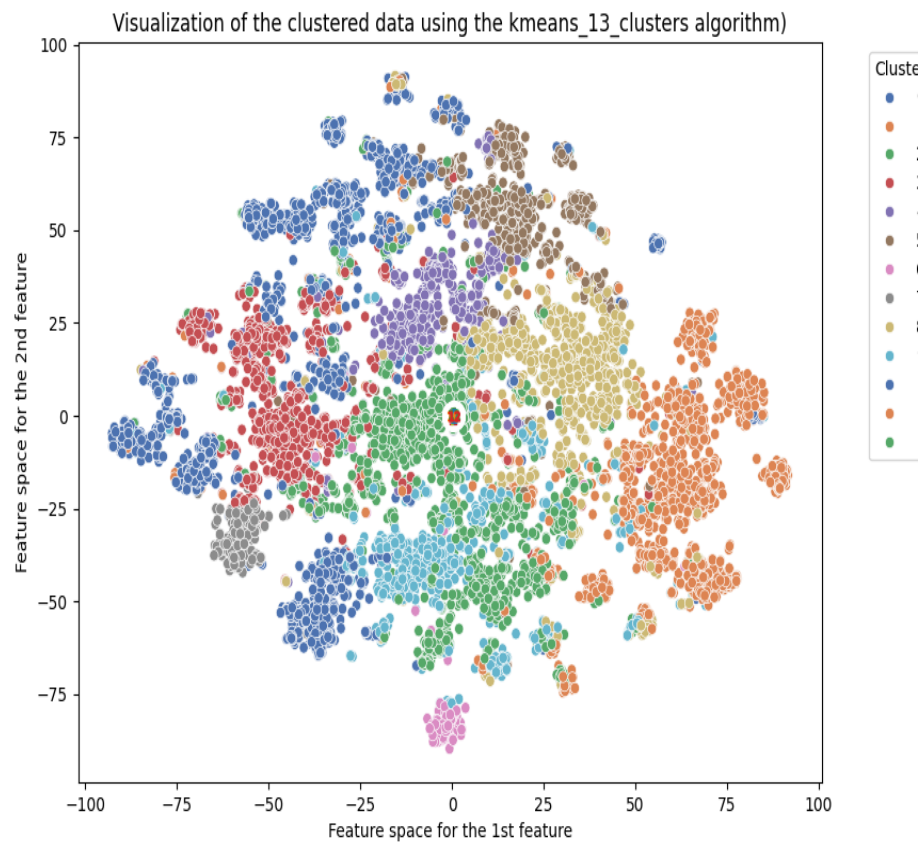


## Clusters created by the kmeans\_13\_clusters algorithm



### Cluster 0:

water 2331  
ocean 1786  
understanding 1746  
process 1678  
change 1622  
climate 1478  
provide 1236  
earth 1235  
field 1229  
surface 1163  
result 1155  
carbon 1109  
measurement 1087  
work 1087  
flow 1069  
undergraduate 1031  
particle 1026  
community 988

experiment 966

time 960

Cluster 1:

stem 5424

learning 3188

education 2809

teacher 2650

school 1670

community 1598

engineering 1568

practice 1382

course 1300

college 1292

undergraduate 1282

experience 1277

university 1264

faculty 1139

career 1127

technology 1108

teaching 1094

knowledge 1084

need 1074

mathematics 1057

Cluster 2:

technology 1275

phase 1243

small 1078

innovation 1023

business 1003

sbir 913

proposed 857

potential 787

patient 766

broader 683

cost 579

device 554

process 409

novel 384

application 383

treatment 366

high 340

method 333

advance 325

enable 325

Cluster 3:

material 5027

property 1766  
structure 1412  
chemical 1372  
energy 1294  
process 1283  
design 1161  
polymer 1160  
chemistry 1119  
application 1089  
understanding 1064  
high 1050  
manufacturing 954  
metal 953  
technology 939  
fundamental 937  
undergraduate 905  
device 893  
engineering 846  
surface 839

Cluster 4:

cell 3398  
protein 1833  
function 706  
tissue 655  
molecular 624  
understanding 616  
cellular 592  
structure 591  
process 568  
mechanism 561  
biological 547  
provide 546  
gene 538  
biology 518  
interaction 511  
virus 505  
method 492  
undergraduate 478  
approach 477  
human 463

Cluster 5:

specie 2100  
plant 1744  
change 1313  
community 1041  
ecosystem 858

understanding 843  
population 831  
gene 775  
environmental 756  
training 715  
environment 694  
human 688  
provide 649  
biology 614  
undergraduate 612  
interaction 600  
diversity 566  
researcher 563  
evolution 562  
fellow 560

Cluster 6:

robot 935  
human 360  
task 273  
control 217  
robotics 203  
environment 193  
robotic 176  
learning 174  
design 151  
work 148  
algorithm 128  
soft 128  
technology 127  
dynamic 123  
team 122  
planning 118  
worker 116  
interaction 113  
enable 111  
object 106

Cluster 7:

quantum 3070  
material 659  
physic 390  
state 390  
information 343  
technology 342  
computer 319  
property 308  
computing 289

- device 288
- pi 287
- field 278
- theory 276
- electron 250
- algorithm 249
- application 230
- fundamental 212
- interaction 201
- theoretical 201
- understanding 201

Cluster 8:

- social 2584
- community 1876
- health 1775
- public 1454
- pandemic 1380
- policy 1212
- risk 1165
- information 1121
- understanding 1086
- change 1012
- people 993
- response 928
- individual 903
- work 902
- behavior 897
- disease 858
- network 858
- provide 854
- decision 797
- analysis 786

Cluster 9:

- learning 2636
- algorithm 1522
- method 1470
- problem 1241
- network 1131
- machine 1092
- application 945
- analysis 834
- language 826
- computational 777
- information 751
- approach 737
- technique 721

- tool 675
- human 648
- neural 615
- understanding 605
- design 587
- training 573
- optimization 571

Cluster 10:

- theory 1440
- problem 951
- equation 785
- geometry 757
- mathematical 643
- pi 636
- group 625
- space 607
- application 529
- structure 475
- geometric 460
- field 455
- method 442
- question 436
- algebraic 415
- number 411
- mathematics 405
- analysis 403
- area 382
- solution 372

Cluster 11:

- workshop 1275
- conference 1212
- engineering 1111
- community 1087
- researcher 920
- university 909
- opportunity 868
- participant 868
- undergraduate 855
- field 837
- faculty 831
- group 806
- career 804
- experience 779
- professional 769
- education 767
- graduate 702

training 694  
scientific 689  
provide 650

Cluster 12:

network 1576  
design 1480  
technology 1439  
application 1368  
computing 1086  
device 1075  
user 977  
software 894  
control 877  
learning 822  
wireless 812  
security 787  
tool 771  
performance 769  
approach 767  
technique 756  
power 718  
information 694  
provide 681  
energy 670