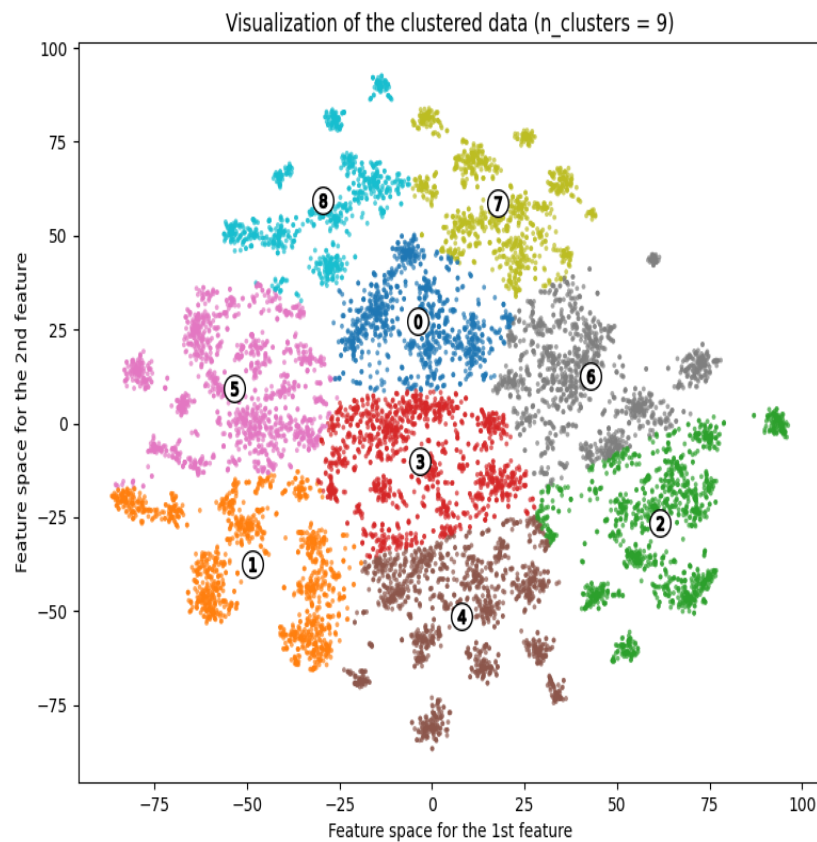


Alternative with 9 clusters:



Cluster 0:

cell 2873
protein 1643
model 1597
disease 1296
virus 1252
tissue 803
provide 789
understanding 767
method 732
human 718
used 675
approach 664
infection 633
technology 631
novel 618
process 617
work 608
result 603

health 582
function 560

Cluster 1:

quantum 3327
theory 1743
model 1491
physic 1449
problem 1205
material 1166
pi 1165
energy 1096
field 1088
group 1071
understanding 1045
particle 1005
wave 1003
flow 999
property 990
application 945
method 937
equation 932
structure 883
goal 801

Cluster 2:

stem 5514
learning 3713
education 3107
teacher 2690
engineering 2223
school 1861
community 1827
practice 1577
faculty 1547
university 1525
experience 1516
undergraduate 1474
technology 1461
college 1390
course 1363
career 1290
knowledge 1224
need 1215
professional 1212
teaching 1156

Cluster 3:

network 2244

model 1858
technology 1705
device 1075
learning 1075
application 1053
proposed 1048
design 1035
phase 1035
method 978
small 954
innovation 948
control 931
potential 892
patient 889
business 846
approach 839
sensor 819
process 796
novel 787

Cluster 4:

learning 2372
model 1665
application 1609
algorithm 1592
problem 1302
computing 1264
method 1206
design 1180
machine 1121
technique 1068
network 1036
software 1026
language 1024
technology 1021
ai 1011
information 985
human 940
robot 931
tool 913
approach 902

Cluster 5:

material 4563
property 1649
structure 1547
process 1539
energy 1453

chemical 1434
understanding 1246
design 1224
chemistry 1167
high 1153
used 1149
polymer 1132
manufacturing 1129
application 1097
model 1087
surface 1064
university 1058
field 1046
undergraduate 1042
metal 981

Cluster 6:

social 2080
community 1962
health 1206
group 1065
researcher 1038
public 1033
workshop 1028
work 969
policy 958
information 950
pandemic 940
provide 911
risk 889
conference 886
change 867
understanding 854
participant 843
model 826
experience 815
scientific 767

Cluster 7:

specie 1973
plant 1943
change 1486
community 1259
understanding 1054
gene 1015
soil 976
model 953
ecosystem 930

environmental 814
training 784
population 774
process 766
provide 762
environment 749
undergraduate 732
food 692
human 657
interaction 657
biology 630

Cluster 8:

water 2121
ocean 1707
model 1364
change 1276
climate 1210
process 1010
understanding 956
earth 909
carbon 908
ice 808
community 767
global 753
arctic 719
provide 704
surface 667
earthquake 660
used 638
result 635
membrane 605
work 571