Detailed results for hyper parameter experiments

**vocab size**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Forex accuracy | Forex precision | Forex recall | Forex f1\_macro | Forex f1\_micro | cluster number | Eur USD accuracy | Eur USD precision | Eur USD recall | Eur USD f1\_macro | Eur USD f1\_micro |
| 0.706901 | 0.792786 | 0.367298 | 0.63598 | 0.706901 | 10 | 0.722808079 | 0.812026011 | 0.402936 | 0.660866 | 0.722808 |
| 0.710553 | 0.80476 | 0.37372 | 0.640665 | 0.710553 | 20 | 0.721144749 | 0.808796775 | 0.4103 | 0.661269 | 0.721145 |
| 0.723809 | 0.813316 | 0.401126 | 0.661315 | 0.723809 | 30 | 0.728109393 | 0.813969665 | 0.428624 | 0.672109 | 0.728109 |
| 0.729114 | 0.820076 | 0.415796 | 0.669479 | 0.729114 | 40 | 0.725787111 | 0.818140693 | 0.419441 | 0.667743 | 0.725787 |
| 0.735076 | 0.819791 | 0.432277 | 0.678953 | 0.735076 | 50 | 0.728769444 | 0.812505896 | 0.426764 | 0.672453 | 0.728769 |
| 0.730099 | 0.805697 | 0.430425 | 0.674469 | 0.730099 | 60 | 0.73307958 | 0.818422342 | 0.437765 | 0.679303 | 0.73308 |
| 0.721155 | 0.809758 | 0.408432 | 0.660012 | 0.721155 | 70 | 0.730759499 | 0.819869148 | 0.434112 | 0.675848 | 0.730759 |
| 0.723807 | 0.807714 | 0.413036 | 0.663629 | 0.723807 | 80 | 0.740377549 | 0.827902918 | 0.448757 | 0.688241 | 0.740378 |
| 0.732416 | 0.795014 | 0.457048 | 0.682007 | 0.732416 | 90 | 0.730756199 | 0.809496269 | 0.445088 | 0.678587 | 0.730756 |
| 0.730763 | 0.789675 | 0.446022 | 0.678943 | 0.730763 | 100 | 0.738704319 | 0.803780339 | 0.468916 | 0.691968 | 0.738704 |
| 0.733081 | 0.799758 | 0.450584 | 0.681747 | 0.733081 | 110 | 0.729757321 | 0.805247239 | 0.446914 | 0.678015 | 0.729757 |
| 0.733729 | 0.783998 | 0.474429 | 0.687417 | 0.733729 | 120 | 0.737038789 | 0.805328616 | 0.468949 | 0.690221 | 0.737039 |
| 0.734748 | 0.807338 | 0.446914 | 0.682306 | 0.734748 | 130 | 0.731418451 | 0.805438168 | 0.454304 | 0.680944 | 0.731418 |
| 0.729428 | 0.802964 | 0.441451 | 0.676561 | 0.729428 | 140 | 0.738363292 | 0.801962577 | 0.478982 | 0.693171 | 0.738363 |
| 0.73904 | 0.808631 | 0.460651 | 0.690272 | 0.73904 | 150 | 0.746319113 | 0.80364535 | 0.501877 | 0.704592 | 0.746319 |
| 0.740358 | 0.790213 | 0.492752 | 0.697133 | 0.740358 | 160 | 0.742332402 | 0.802695542 | 0.497339 | 0.700638 | 0.742332 |
| 0.738378 | 0.803584 | 0.463436 | 0.690037 | 0.738378 | 170 | 0.744003432 | 0.802969959 | 0.49362 | 0.701401 | 0.744003 |
| 0.734723 | 0.796317 | 0.472602 | 0.688488 | 0.734723 | 180 | 0.740033223 | 0.81222673 | 0.471685 | 0.692951 | 0.740033 |
| 0.736723 | 0.801623 | 0.462535 | 0.687306 | 0.736723 | 190 | 0.743662406 | 0.797885288 | 0.507389 | 0.703611 | 0.743662 |
| 0.744994 | 0.803418 | 0.497323 | 0.703399 | 0.744994 | 200 | 0.739681195 | 0.811216767 | 0.481718 | 0.695784 | 0.739681 |

**embedding dimension for Forex News Dataset**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| accuracy | precision | recall | f1\_macro | f1\_micro | embedding dimension |
| 0.741676 | 0.796472 | 0.492744 | 0.699389 | 0.741676 | 50 |
| 0.750966 | 0.815365 | 0.504662 | 0.709403 | 0.750966 | 70 |
| 0.740682 | 0.79467 | 0.48633 | 0.697318 | 0.740682 | 90 |
| 0.741988 | 0.792012 | 0.510183 | 0.702928 | 0.741988 | 110 |
| 0.753263 | 0.793984 | 0.531201 | 0.717146 | 0.753263 | 130 |
| 0.749624 | 0.806427 | 0.512844 | 0.710876 | 0.749624 | 150 |
| 0.744654 | 0.808258 | 0.499158 | 0.70345 | 0.744654 | 170 |
| 0.73637 | 0.793649 | 0.489983 | 0.693781 | 0.73637 | 190 |
| 0.756261 | 0.806396 | 0.524771 | 0.71903 | 0.756261 | 210 |
| 0.749975 | 0.80559 | 0.509224 | 0.709528 | 0.749975 | 230 |
| 0.754266 | 0.807578 | 0.525721 | 0.717151 | 0.754266 | 250 |
| 0.743661 | 0.797086 | 0.502827 | 0.70336 | 0.743661 | 270 |
| 0.738356 | 0.800201 | 0.486347 | 0.695198 | 0.738356 | 290 |

window size for word embedding training

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| accuracy | precision | recall | f1\_macro | f1\_micro | window size |
| 0.745658 | 0.804526 | 0.49548 | 0.703292 | 0.745658 | 1 |
| 0.739688 | 0.787681 | 0.487223 | 0.696233 | 0.739688 | 2 |
| 0.748644 | 0.806505 | 0.502777 | 0.707567 | 0.748644 | 3 |
| 0.74003 | 0.802493 | 0.481768 | 0.694779 | 0.74003 | 4 |
| 0.740359 | 0.781072 | 0.501918 | 0.698994 | 0.740359 | 5 |
| 0.73307 | 0.797931 | 0.466188 | 0.684645 | 0.73307 | 6 |
| 0.732409 | 0.792794 | 0.469875 | 0.684981 | 0.732409 | 7 |
| 0.738026 | 0.779733 | 0.502852 | 0.697257 | 0.738026 | 8 |
| 0.738698 | 0.781028 | 0.498249 | 0.696851 | 0.738698 | 9 |
| 0.741354 | 0.785854 | 0.501051 | 0.699741 | 0.741354 | 10 |
| 0.737051 | 0.797753 | 0.474395 | 0.690762 | 0.737051 | 11 |
| 0.73572 | 0.808319 | 0.468023 | 0.688003 | 0.73572 | 12 |
| 0.742679 | 0.793688 | 0.49829 | 0.700302 | 0.742679 | 13 |
| 0.736383 | 0.797383 | 0.481743 | 0.691869 | 0.736383 | 14 |
| 0.744324 | 0.801645 | 0.497306 | 0.702919 | 0.744324 | 15 |

Extended latent concepts Frequency based on 5 similar words expansion

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| accuracy | precision | recall | f1\_macro | f1\_micro | cluster # |
| 0.706901 | 0.792786 | 0.367298 | 0.63598 | 0.706901 | 10 |
| 0.710553 | 0.80476 | 0.37372 | 0.640665 | 0.710553 | 20 |
| 0.723809 | 0.813316 | 0.401126 | 0.661315 | 0.723809 | 30 |
| 0.729114 | 0.820076 | 0.415796 | 0.669479 | 0.729114 | 40 |
| 0.735076 | 0.819791 | 0.432277 | 0.678953 | 0.735076 | 50 |
| 0.730099 | 0.805697 | 0.430425 | 0.674469 | 0.730099 | 60 |
| 0.721155 | 0.809758 | 0.408432 | 0.660012 | 0.721155 | 70 |
| 0.723807 | 0.807714 | 0.413036 | 0.663629 | 0.723807 | 80 |
| 0.732416 | 0.795014 | 0.457048 | 0.682007 | 0.732416 | 90 |
| 0.730763 | 0.789675 | 0.446022 | 0.678943 | 0.730763 | 100 |
| 0.733081 | 0.799758 | 0.450584 | 0.681747 | 0.733081 | 110 |
| 0.733729 | 0.783998 | 0.474429 | 0.687417 | 0.733729 | 120 |
| 0.734748 | 0.807338 | 0.446914 | 0.682306 | 0.734748 | 130 |
| 0.729428 | 0.802964 | 0.441451 | 0.676561 | 0.729428 | 140 |
| 0.73904 | 0.808631 | 0.460651 | 0.690272 | 0.73904 | 150 |
| 0.740358 | 0.790213 | 0.492752 | 0.697133 | 0.740358 | 160 |
| 0.738378 | 0.803584 | 0.463436 | 0.690037 | 0.738378 | 170 |
| 0.734723 | 0.796317 | 0.472602 | 0.688488 | 0.734723 | 180 |
| 0.736723 | 0.801623 | 0.462535 | 0.687306 | 0.736723 | 190 |
| 0.744994 | 0.803418 | 0.497323 | 0.703399 | 0.744994 | 200 |

bag of concepts results

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| accuracy | precision | recall | f1\_macro | f1\_micro | cluster number |
| 0.706901 | 0.792786 | 0.367298 | 0.63598 | 0.706901 | 10 |
| 0.710553 | 0.80476 | 0.37372 | 0.640665 | 0.710553 | 20 |
| 0.723809 | 0.813316 | 0.401126 | 0.661315 | 0.723809 | 30 |
| 0.729114 | 0.820076 | 0.415796 | 0.669479 | 0.729114 | 40 |
| 0.735076 | 0.819791 | 0.432277 | 0.678953 | 0.735076 | 50 |
| 0.730099 | 0.805697 | 0.430425 | 0.674469 | 0.730099 | 60 |
| 0.721155 | 0.809758 | 0.408432 | 0.660012 | 0.721155 | 70 |
| 0.723807 | 0.807714 | 0.413036 | 0.663629 | 0.723807 | 80 |
| 0.732416 | 0.795014 | 0.457048 | 0.682007 | 0.732416 | 90 |
| 0.730763 | 0.789675 | 0.446022 | 0.678943 | 0.730763 | 100 |
| 0.733081 | 0.799758 | 0.450584 | 0.681747 | 0.733081 | 110 |
| 0.733729 | 0.783998 | 0.474429 | 0.687417 | 0.733729 | 120 |
| 0.734748 | 0.807338 | 0.446914 | 0.682306 | 0.734748 | 130 |
| 0.729428 | 0.802964 | 0.441451 | 0.676561 | 0.729428 | 140 |
| 0.73904 | 0.808631 | 0.460651 | 0.690272 | 0.73904 | 150 |
| 0.740358 | 0.790213 | 0.492752 | 0.697133 | 0.740358 | 160 |
| 0.738378 | 0.803584 | 0.463436 | 0.690037 | 0.738378 | 170 |
| 0.734723 | 0.796317 | 0.472602 | 0.688488 | 0.734723 | 180 |
| 0.736723 | 0.801623 | 0.462535 | 0.687306 | 0.736723 | 190 |
| 0.744994 | 0.803418 | 0.497323 | 0.703399 | 0.744994 | 200 |
| 0.749293 | 0.787943 | 0.519316 | 0.711539 | 0.749293 | 210 |
| 0.741347 | 0.782619 | 0.503761 | 0.700881 | 0.741347 | 220 |
| 0.741682 | 0.807522 | 0.488157 | 0.697885 | 0.741682 | 230 |
| 0.740346 | 0.789827 | 0.497339 | 0.699046 | 0.740346 | 240 |
| 0.737716 | 0.807308 | 0.466163 | 0.688481 | 0.737716 | 250 |
| 0.736379 | 0.786246 | 0.476247 | 0.691373 | 0.736379 | 260 |
| 0.735385 | 0.793894 | 0.46804 | 0.68842 | 0.735385 | 270 |
| 0.741678 | 0.795779 | 0.489066 | 0.6986 | 0.741678 | 280 |
| 0.742007 | 0.786663 | 0.500067 | 0.701274 | 0.742007 | 290 |
| 0.743343 | 0.792751 | 0.499208 | 0.70123 | 0.743343 | 300 |