**Experiment 1 (PSO)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameters of CFSs | | | | | | | | | | |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 1 | -14231.2453082239 | 8033.28195569293 | 0.377038280898083 |  |  | 4 | 21615.6792480866 | -2065.66524658915 | 5.15933168862928 |  |
| 2 | -60.9025536844924 | 479.679155112718 | 1.75440927306212 |  |  | 5 | 377.772631243274 | -10804.7921567929 | -2.70383214627052 |  |
| 3 | -15147.5675463246 | 809.100134219540 | 6.58852037194692 |  |  | 6 | 5958.90803458233 | 3699.21113261658 | 3.64966604869457 |  |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 7 | -11929.3674484542 | -11852.0889454436 | -7.56925459954588 |  |  | 10 | 5004.02067332205 | 1688.43410501967 | 0.595383566166191 |  |
| 8 | -294.858837308521 | -1216.14344987551 | -4.53722790948316 |  |  | 11 | 128.476148669331 | 3608.95008342547 | 10.7216737536870 |  |
| 9 | 1027.00508604548 | -24.2355780795790 | -4.67555131415045 |  |  | 12 | -3089.76060568101 | -150.610739015697 | 0.946919870111663 |  |

Parameters of T-S neurons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | | | |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -0.00582201645746847 - 0.0124553025410176i |  | -2.03341573507565e-195 - 5.68979509710862e-195i |  | 1.48579229636425e-66 + 1.69179108003445e-65i |
| 2 |  | -0.0156700958318703 - 0.00483501346491905i |  | -3.71119222330544e-193 - 1.03844594839456e-192i |  | -4.71029153901387e-64 - 3.96626394581820e-63i |
| 3 |  | 0.00312508840192749 - 0.00561462436511734i |  | 1.08178115608517e-193 + 3.02698214355291e-193i |  | -3.25846446880319e-64 + 3.40013820528898e-63i |
| 4 |  | 0.00730975505072227 + 0.000756846653426781i |  | -5.76025572248509e-193 - 1.61180393155468e-192i |  | -2.90165175120018e-63 - 7.62028955135971e-63i |
| 5 |  | -0.00320507523826355 - 0.000699110921615851i |  | 8.23324866123890e-194 + 2.30378358234125e-193i |  | 1.62894018626625e-63 - 2.17791329670250e-63i |
| 6 |  | 2.64394777118975e-71 + 2.21925576640056e-71i |  | 0.00258428092783314 + 0.0133001075053422i |  | 1.60479810573758e-71 + 9.17564770618996e-72i |
| 7 |  | -2.76923222201997e-69 - 1.42278135528363e-69i |  | -0.000703141121556359 - 0.00144023173513697i |  | -1.79740589039573e-69 - 4.05149069738308e-70i |
| 8 |  | 5.90868812819290e-70 + 5.06146458479326e-70i |  | -0.000632536518807642 - 0.00132912120136200i |  | 3.01811706808291e-70 + 1.98130474540018e-70i |
| 9 |  | -1.57246423177103e-69 - 1.08854615227962e-69i |  | -0.00132137178763674 - 0.000934862532283768i |  | -9.92029617002417e-70 - 4.36288718460201e-70i |
| 10 |  | -5.03200547350425e-69 - 4.17344313690179e-69i |  | -0.00160898205429114 - 0.00162765997848471i |  | -3.05947911377541e-69 - 1.71394295756352e-69i |
| 11 |  | -0.00159695765180205 + 0.00534834268112904i |  | -2.15692730517386e-284 - 6.10003174377457e-284i |  | -0.00555514995544139 - 0.00483127071814953i |
|  |  |  |  |  |  |  |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | 4.01162022021506e-14 + 2.42000091015184e-14i |  | 1.97575110436454e-146 + 8.46283633093712e-147i |  |  |
| 2 |  | 8.46368841180416e-13 + 1.92727306786263e-12i |  | -2.02347235812203e-144 - 7.53765210609176e-145i |  |  |
| 3 |  | 1.90989655622866e-11 + 1.24683205273695e-11i |  | 6.20023809087639e-145 + 2.12696183992256e-145i |  |  |
| 4 |  | 5.23697281424083e-13 + 2.89796449998845e-12i |  | -1.26349261940459e-144 - 5.09850677056655e-145i |  |  |
| 5 |  | 5.01854556540217e-12 + 9.26627063601382e-12i |  | -3.76976924168079e-144 - 1.61049179194378e-144i |  |  |
| 6 |  | -0.00477163109033451 - 0.000673058233484430i |  | -2.52197744736644e-197 - 7.12628944430885e-197i |  |  |
| 7 |  | 0.0207309372203165 - 0.00271127258680477i |  | -4.60286744493964e-195 - 1.30062089669427e-194i |  |  |
| 8 |  | 0.000276088906247581 + 0.00272457317740655i |  | 1.34169694477001e-195 + 3.79119995219245e-195i |  |  |
| 9 |  | 0.00442505400723933 + 0.00995967165815418i |  | -7.14425229006914e-195 - 2.01873374203182e-194i |  |  |
| 10 |  | 0.00297647225132503 + 0.00615332275258376i |  | 1.02114226236871e-195 + 2.88541649555512e-195i |  |  |
| 11 |  | 7.38175978370526e-72 + 8.92990343573012e-72i |  | 5.86142891394705e-72 + 3.31409500436419e-72i |  |  |

**Experiment 1 (ABCO)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameters of CFSs | | | | | | | | | | |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 1 | -144.879819860569 | -23.1947833159984 | 107.702101262740 |  |  | 4 | -142.002481775883 | -22.3253418311421 | 104.065403919125 |  |
| 2 | -144.879819860569 | -23.1947833159984 | 107.702101262740 |  |  | 5 | -142.002481775883 | -22.3253418311421 | 104.065403919125 |  |
| 3 | -144.879819860569 | -23.1947833159984 | 107.702101262740 |  |  | 6 | -142.002481775883 | -22.3253418311421 | 104.065403919125 |  |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 7 | -112.308099874222 | -31.5349515834486 | 60.4358627864983 |  |  | 10 | -117.268463045223 | -35.6152447270688 | 57.1512540113364 |  |
| 8 | -112.308099874222 | -31.5349515834486 | 60.4358627864983 |  |  | 11 | -117.268463045223 | -35.6152447270688 | 57.1512540113364 |  |
| 9 | -112.308099874222 | -31.5349515834486 | 60.4358627864983 |  |  | 12 | -117.268463045223 | -35.6152447270688 | 57.1512540113364 |  |

Parameters of T-S neurons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | | | |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -4.33741619321654e-05 - 0.000276606636725447i |  | -0.000708487654060056 - 0.0445434983574480i |  | 0.00197540767746248 - 0.000723759028683912i |
| 2 |  | 0.00102440185131378 - 0.00653932491989259i |  | 0.00377046826597962 + 0.00538572275046406i |  | 0.00225250510799977 + 0.00435749175039946i |
| 3 |  | -0.00509497502840142 - 0.00468121848224500i |  | -0.00115697558491429 - 0.0147548936516228i |  | -0.00303684958506733 - 0.000803729990079447i |
| 4 |  | -0.000775014697863220 - 0.00633071185060436i |  | 0.000861335858357926 + 0.000121814812861056i |  | 4.96052803344684e-05 - 2.28836632067030e-05i |
| 5 |  | -0.00266515848875812 - 0.000842353403672551i |  | -7.74066032979313e-06 - 6.14920806232714e-06i |  | 0.00317866595142202 + 0.0106984043092803i |
| 6 |  | -9.79382541252022e-05 + 9.37820699258486e-05i |  | -0.00200292588101337 + 0.00221947014492298i |  | 0.00118357655373764 + 0.00162348353535276i |
| 7 |  | 0.000836398907199125 + 0.00258578935738075i |  | -0.000287003223335603 - 0.0196004940507856i |  | -0.00165705423188858 - 0.00153221079418676i |
| 8 |  | -0.00223412467791240 - 0.0289549000116595i |  | 0.000167378021633970 + 0.00206540166215144i |  | -0.00166906176322226 + 0.00203906914341988i |
| 9 |  | -0.00280920854480572 + 0.00376742434358620i |  | -0.000317197441812229 - 0.00207705664824730i |  | 6.41612755634769e-05 - 3.28505856790406e-05i |
| 10 |  | -0.00102479986918426 + 0.00147188597146459i |  | -4.50760705072031e-05 - 5.64563533523479e-06i |  | 0.000215204481875527 - 0.00196643784977297i |
| 11 |  | 1.69608452403260e-05 + 0.000168366447260140i |  | 0.00135212579622409 - 0.00211447568454328i |  | 0.00134877874780610 - 0.00653086868930352i |
|  |  |  |  |  |  |  |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -0.00246967224116587 - 0.0423805762068844i |  | 6.43202670141607e-05 + 0.00224650528340123i |  |  |
| 2 |  | -0.00473558155358168 - 0.00470364472236684i |  | -1.22262242088130e-05 + 3.60331510926497e-06i |  |  |
| 3 |  | 3.69121026759816e-05 - 0.000139001366483724i |  | -0.00119005315443337 + 0.00277039720238327i |  |  |
| 4 |  | 0.00169013628885313 - 0.00400752172146714i |  | -0.00255750548141957 + 0.000402561039991916i |  |  |
| 5 |  | -0.00253208809110157 - 0.0340410783846663i |  | 0.000168064458200068 + 0.00156155925699689i |  |  |
| 6 |  | 0.00102141630637748 + 0.0429881300272315i |  | -0.00184981970385931 - 0.00365687648742392i |  |  |
| 7 |  | -0.00105635932493227 + 0.00214456494740113i |  | -2.54983293766485e-05 + 0.000151783742070407i |  |  |
| 8 |  | 2.93102017638936e-05 - 0.000136222233330620i |  | 0.000248835208320834 + 0.00629278629921498i |  |  |
| 9 |  | 0.00146602861418756 - 0.00938020689820966i |  | -0.00128298264262586 - 0.0169278935297230i |  |  |
| 10 |  | 0.00308538432913584 + 0.000698216413848875i |  | -0.00243277378628705 + 0.0195853598894967i |  |  |
| 11 |  | 0.000638826399713135 - 0.0113206760972827i |  | 0.00101784603631913 - 0.00263329643406418i |  |  |

**Experiment 2 (PSO)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameters of CFSs | | | | | | | | | | |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 1 | 416603.527942095 | 64552.9734683289 | -22.2821080830685 |  |  | 4 | 34583.7773264252 | -6801.59460828553 | 15.8261917762202 |  |
| 2 | 366.414091463800 | 285065.354720422 | -3.51704114019200 |  |  | 5 | 566.344066264619 | 40103.1726395870 | 5.60241900085810 |  |
| 3 | -694713.348757806 | 50091.0521153487 | -1.28715203063510 |  |  | 6 | 118699.761102938 | -66840.9390898689 | 29.1979100995180 |  |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 7 | 90381.8937529232 | 49327.4331412878 | 18.2413504296027 |  |  | 10 | 336316.724514582 | -152224.452426206 | -19.1738792003044 |  |
| 8 | -90.8819815936507 | -1239.38600922329 | 17.5048262037860 |  |  | 11 | -111.993007358296 | -942.585151889571 | 31.6876268867028 |  |
| 9 | 288828.498860251 | 20855.7821694136 | -11.0194354828362 |  |  | 12 | 688797.834808049 | 94590.6063124356 | -50.9615748979657 |  |

Parameters of T-S neurons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | | | |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -0.0402066173256077 - 0.00381497281300764i |  | 6.43507168211829 + 0.519520682418595i |  | -0.0111775845716804 - 0.00326495027738343i |
| 2 |  | -0.00335157083555556 - 0.00125898206525620i |  | 2.53258659926901e-35 - 3.22439786368405e-34i |  | 0.0118375666143704 + 0.0242801999710369i |
| 3 |  | 0.0166019480676487 - 0.00247579668029775i |  | -2.44602833346654e-31 + 3.13404771492273e-30i |  | -0.00460621990744071 - 0.00803632210924268i |
| 4 |  | 0.000229999776801557 + 0.000777123271099991i |  | 3.61809584520400e-32 + 2.06806473930540e-31i |  | -0.00184060624748465 + 0.00698755816996962i |
| 5 |  | 0.00491864117232781 + 0.00502173580066015i |  | 2.40400500079183e-31 + 4.58492059680794e-31i |  | 0.00942631487628883 - 0.00760717333427451i |
| 6 |  | 0.000196320204162856 + 9.00998488717705e-07i |  | -1.16461255970880e-30 + 4.11764392573723e-32i |  | 0.00900156506960808 + 0.00130646316071550i |
| 7 |  | 2.89282889455894 - 1.05496668043309i |  | 0.0200498865478760 - 0.0479399615154296i |  | -0.00989727570291788 - 0.0208144928323054i |
| 8 |  | 0.999394193174177 - 1.07327750952126i |  | 0.00608211486609972 + 0.00752189846690522i |  | -64.8561935502104 - 295.987157084887i |
| 9 |  | -5.24957262064744 + 2.63002779472714i |  | -0.0259406661378434 - 0.00154521714561756i |  | 0.0100799674365116 - 0.0157717649274205i |
|  |  |  |  |  |  |  |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | 0.0395540312225894 + 0.0881321577528134i |  | 8.17750073370270e-29 - 5.06645176612650e-29i |  |  |
| 2 |  | -0.0599532594280398 + 0.653321371655222i |  | 1.18960836879291e-29 - 1.51907849829311e-29i |  |  |
| 3 |  | -0.621086447857948 + 0.316227911019357i |  | -6.66649174951932e-29 + 4.45359862915430e-30i |  |  |
| 4 |  | 0.000569451867486793 - 0.00304495330758099i |  | -1.29514144144354e-29 - 4.08893042876136e-30i |  |  |
| 5 |  | 6.59082044402430 - 8.01022570868713i |  | -0.00201176330347417 - 0.00110675361443165i |  |  |
| 6 |  | -71.5329351965547 + 32.1790091475576i |  | 0.0105196411658205 + 0.00304003822262684i |  |  |
| 7 |  | 44.7642382634125 - 115.108682928979i |  | 0.00989330501021019 - 0.0103497973457466i |  |  |
| 8 |  | -139.438012007605 + 94.9667895911648i |  | 0.0601288991782674 + 0.0123176131903080i |  |  |
| 9 |  | -2.18527141001359e-32 + 1.46999773260662e-33i |  | 0.0553222435594697 + 0.00786355229796020i |  |  |

**Experiment 2 (ABCO)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameters of CFSs | | | | | | | | | | |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 1 | -144.397067329412 | 101.684223633993 | -5.13771097237732 |  |  | 4 | -142.046332677654 | 114.974481397359 | -4.61299416890780 |  |
| 2 | -31.6317697979639 | 99.7153272094514 | -0.628967889824744 |  |  | 5 | -25.4443358873775 | 101.941486432733 | -3.52081939710602 |  |
| 3 | 95.1669922030168 | 102.323446531113 | -5.23648735154484 |  |  | 6 | 109.356921372801 | 100.364462989922 | -0.630919825079415 |  |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 7 | -118.877519005258 | 92.4491279535838 | -3.45632454279702 |  |  | 10 | -117.055115590607 | 104.775318228576 | -0.990158893476847 |  |
| 8 | -30.6566877430923 | 87.9462083957084 | -0.776987486731143 |  |  | 11 | -41.8670299215188 | 94.0477235011703 | -1.25585959732099 |  |
| 9 | 54.0852615284888 | 83.6878476847572 | -1.84369318767776 |  |  | 12 | 56.8648406597222 | 89.2437604760265 | -0.683081481037321 |  |

Parameters of T-S neurons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | | | |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | 0.00160966009407237 + 0.000654334590559393i |  | -0.0686941376000746 - 0.00915831653523658i |  | 0.0152524949371662 - 0.0122411196757982i |
| 2 |  | 0.0205323310594120 - 0.00345409020276447i |  | 0.000588554350229554 - 0.000176397708789662i |  | 0.0804311713977762 + 0.00215394481139469i |
| 3 |  | 0.0176674932337907 - 0.0130852988611918i |  | 0.0394070403203105 + 0.0432366399475910i |  | 0.000269290232744584 + 0.000113875086035786i |
| 4 |  | 0.000878631039493401 - 0.00632190160658158i |  | 0.00567109841317628 - 0.00790973838368980i |  | 0.0134320117788045 - 0.0127334311997838i |
| 5 |  | 0.0413905349242503 - 0.00200664809583374i |  | 0.00464388586370520 + 0.0120091269959258i |  | -0.00844978548581954 - 0.00882467468071766i |
| 6 |  | 2.40160285601828e-05 + 0.000154712686298658i |  | -0.00859688297041564 + 0.00637985636369515i |  | 0.0174149532536042 + 0.00215065458091903i |
| 7 |  | 0.0187101596652594 - 0.00792990234275904i |  | -0.000130928464285386 - 0.000260730149397838i |  | 0.00603703923669471 + 0.00308014094333916i |
| 8 |  | -0.0691119185733847 - 0.0286012539142258i |  | 0.00942682438118063 - 0.00415879589054427i |  | -0.000149569761096803 - 9.86004370897252e-05i |
| 9 |  | 0.0118546884650118 - 0.00825764936522135i |  | 0.0329714785784473 + 0.00148145632773632i |  | -0.00783090609861863 - 0.0167872317283016i |
|  |  |  |  |  |  |  |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | 0.00164023471453662 - 0.0207808999203621i |  | 0.0136963759762223 - 0.00993455073198531i |  |  |
| 2 |  | 0.00492201726517996 + 0.00774396029424834i |  | -0.0231384996086332 - 0.0324819747581674i |  |  |
| 3 |  | 0.0318693120128861 + 0.0199412078766317i |  | -0.0620345699570094 + 0.0368275874709289i |  |  |
| 4 |  | 0.000265482463219818 - 0.000168856929992081i |  | 0.0255911945613463 - 0.00516627536355549i |  |  |
| 5 |  | -0.0366034467792478 - 0.0170890389916852i |  | 0.000120923624177717 + 0.000161492542652743i |  |  |
| 7 |  | -0.00931512491204551 - 0.0211108810321119i |  | -0.0329346291797146 + 0.0187963582658919i |  |  |
| 8 |  | 0.0153912136709781 + 0.00636422725225710i |  | 0.0225104216684696 + 0.00949456618080338i |  |  |
| 9 |  | 0.0261314897942989 - 0.0189792948423636i |  | -0.0321583570999414 - 0.00905866365593363i |  |  |

**Experiment 3 (PSO)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameters of CFSs | | | | | | | | | | |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 1 | -6502.93610825036 | -3691.01917500449 | 13.9310707847725 |  |  | 4 | -76628.5452824327 | -41705.6051839222 | -36.6375911683297 |  |
| 2 | -80.2212582801852 | 1154.38546537450 | -9.16265351686250 |  |  | 5 | 2033.08189416786 | 18509.9825075698 | -7.70359374424498 |  |
| 3 | -11151.9742205086 | -2447.40837302849 | -9.97411631915651 |  |  | 6 | 27711.6918026490 | 48843.9473024037 | -5.16927534491445 |  |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 7 | 17787.9508679914 | 2708.09966692009 | -41.4177496893028 |  |  | 10 | 11709.8616631223 | 3587.47135223680 | 39.3782752863895 |  |
| 8 | 24.1254196721751 | -3574.04213800133 | 6.14602019883737 |  |  | 11 | -2.48196906036134 | -16304.4322073197 | 28.2229482690427 |  |
| 9 | -5582.89755156088 | -4119.11114380961 | -42.4787742097113 |  |  | 12 | -5869.81780068187 | -12113.6003237234 | 16.9911290444630 |  |

Parameters of T-S neurons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | | | |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -28.9788729640571 - 23.4612105546059i |  | 0.000900012189875972 - 0.00284688250131425i |  | -0.126320796414677 - 0.0654068737744139i |
| 2 |  | -0.353957750032302 - 0.0834303664173243i |  | 0.000409580119764798 + 0.000692689877547849i |  | -0.0495464519809348 - 0.0331173788967472i |
| 3 |  | 0.0117760382068856 + 0.00819550911873854i |  | 0.0418477351999607 - 0.252654192712638i |  | -24.2540241565336 + 7.08101943421991i |
| 4 |  | 0.274045953944182 + 0.161221359586289i |  | 0.0424058875345554 + 0.0150509371912191i |  | 0.121504337569136 + 0.0394757404009703i |
| 5 |  | 0.0306308848946273 - 0.00133697859505557i |  | 0.316262909688273 + 0.498204271801311i |  | -0.0323073680228029 - 0.0239949178467798i |
| 6 |  | 0.453192809619602 - 0.188058145467098i |  | -0.106510878322810 - 0.00907113428028885i |  | -0.0894376130536690 - 0.0766655296925257i |
| 7 |  | -0.000899016944755561 - 0.000452550395074365i |  | -0.140127015799169 - 0.0367812869396044i |  | 0.0464642670315256 + 0.00211776152882048i |
| 8 |  | -0.0109515368162978 - 0.00136916868786004i |  | -0.750173788579450 - 0.321880735768331i |  | -0.684266787649881 - 1.55690015542603i |
| 9 |  | 0.00770661438774156 + 0.00277845342914664i |  | 0.173612991369803 + 0.0518925259079430i |  | -0.0240831558607591 - 0.0754797987584942i |
|  |  |  |  |  |  |  |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | 0.335470301309996 - 0.481766672637121i |  | 0.130194310534338 - 0.00428074446787764i |  |  |
| 2 |  | 0.209659557241332 - 0.172536948078021i |  | -0.0334935687517164 - 0.0188020826058496i |  |  |
| 3 |  | -0.356240861179617 + 0.0517327722973636i |  | -0.117446033053976 - 0.0900605403030527i |  |  |
| 4 |  | 0.114542779612143 + 0.0400502663135082i |  | -0.00267465757429078 + 0.0283972631955927i |  |  |
| 5 |  | -0.0312719516344488 - 0.0155964148633848i |  | -1.26268755835581 + 0.274492417888197i |  |  |
| 6 |  | 0.00358289513479376 + 0.00206928291024909i |  | -0.0466161721395521 - 0.0177043534095367i |  |  |
| 7 |  | -0.00420811925278355 - 0.0148333332247923i |  | 0.0211450925761123 + 0.00820630741285960i |  |  |
| 8 |  | 0.00452348064183974 - 0.00323635886547606i |  | 0.0106987478891715 - 0.000835263154382886i |  |  |
| 9 |  | 39.1395173524001 + 26.6282683287053i |  | 0.00610506015429071 + 0.00368079963502255i |  |  |
|  |  |  |  |  |  |  |

**Experiment 3 (ABCO)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameters of CFSs | | | | | | | | | | |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 1 | -76.9081895357745 | 62.6858795908297 | 2.21465643568971 |  |  | 4 | -143.954537126480 | 104.528281657845 | 2.57697158332707 |  |
| 2 | -4.89447160208231 | 63.4547042085665 | 8.05585874023823 |  |  | 5 | -26.6070939975901 | 109.457756966983 | 1.15182556927540 |  |
| 3 | 72.7076898689734 | 65.8643010835289 | 1.93792929366895 |  |  | 6 | 111.711766247163 | 104.070710935326 | -0.0985837349062777 |  |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 7 | -74.4350906033279 | 71.8057913833082 | 1.05328055508204 |  |  | 10 | -73.4254558954552 | 56.7866915720739 | 13.1606232702706 |  |
| 8 | 0.649518873005858 | 65.6942932202302 | 1.68410672013469 |  |  | 11 | -4.12119112341652 | 65.7658933185333 | -1.44944916314638 |  |
| 9 | 76.5431799584129 | 66.3673424000350 | 2.82074406080027 |  |  | 12 | 72.8079757867634 | 64.3549524304774 | 1.68683960266960 |  |

Parameters of T-S neurons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | | | |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -4.78425210410967e-05 + 0.000395080620831132i |  | 0.00288711925411639 - 0.00607929366108221i |  | 0.0915851351671641 - 0.0113023434317610i |
| 2 |  | 0.00138479618261347 + 0.000224357126643451i |  | -0.000222881616332931 + 0.000592951570070319i |  | -0.0181717218793994 + 0.00805754817127839i |
| 3 |  | 0.000748739555030129 + 0.00425923635267362i |  | -0.284088565259624 + 0.0588414556609281i |  | -0.000767135757655320 + 0.000151023695316938i |
| 4 |  | -0.00411012387648986 + 0.00595889586650922i |  | 0.0526330556781625 - 0.00553060749440280i |  | -0.0118893146469980 + 0.0399493617205733i |
| 5 |  | 0.00180705217989937 + 0.00613843020678659i |  | 0.0106817335310361 - 0.00379405718669179i |  | -0.00658771536346700 - 0.0349984389427288i |
| 6 |  | 3.51511110021901e-05 + 0.000516324738406555i |  | -0.00296676907983224 + 0.0111657495996181i |  | 0.0235598073797893 - 0.00623233703804486i |
| 7 |  | -0.00116539315218801 - 0.00717178982804890i |  | -0.000759778876666168 + 0.00100690772972051i |  | 0.00257143279822919 - 0.0182600517846677i |
| 8 |  | -0.000721905180117118 + 0.0130936316914859i |  | -0.527893192001219 + 0.00238790326844726i |  | -7.30886702745091e-05 + 0.000429756816398793i |
| 9 |  | -0.000123242542284509 + 0.00419186556579192i |  | 0.0598663134953196 - 0.0442573016498517i |  | 0.000944798921648275 - 0.00137466945844048i |
|  |  |  |  |  |  |  |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | 0.00404645362620709 - 0.00323881250011531i |  | -0.0122802036696306 + 0.00686856367594556i |  |  |
| 2 |  | 0.00566972840781788 + 0.00499913829415703i |  | 0.00164867771786263 - 0.00167239949255779i |  |  |
| 3 |  | -0.000548577924451352 - 0.00170444001603338i |  | 0.00452138186765151 + 0.00513017415255061i |  |  |
| 4 |  | 7.73255037666520e-05 - 0.000280522070511097i |  | -0.00171581195017923 - 0.00155198772964908i |  |  |
| 5 |  | 0.0214515976654251 + 0.0102594828340668i |  | 0.000182974681395074 + 0.000313388232563360i |  |  |
| 6 |  | -0.00558919224928596 - 0.0217643170937453i |  | 0.149215502041173 - 0.0109301945299027i |  |  |
| 7 |  | -0.00287703059918581 - 0.00121340490369069i |  | -0.0137942723253792 - 0.00114310825559003i |  |  |
| 8 |  | 0.00285357792627896 + 0.0148963036946262i |  | -0.0149820158373646 - 4.57782374046879e-05i |  |  |
| 9 |  | -1.63181359562108e-05 + 0.000131229916199691i |  | 0.000500537953700625 - 0.00398722269344900i |  |  |
|  |  |  |  |  |  |  |

**Experiment 4 (PSO)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameters of CFSs | | | | | | | | | | |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 1 | -14231.2453082239 | 8033.28195569293 | 0.377038280898083 |  |  | 4 | 21615.6792480866 | -2065.66524658915 | 5.15933168862928 |  |
| 2 | -60.9025536844924 | 479.679155112718 | 1.75440927306212 |  |  | 5 | 377.772631243274 | -10804.7921567929 | -2.70383214627052 |  |
| 3 | -15147.5675463246 | 809.100134219540 | 6.58852037194692 |  |  | 6 | 5958.90803458233 | 3699.21113261658 | 3.64966604869457 |  |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 7 | -11929.3674484542 | -11852.0889454436 | -7.56925459954588 |  |  | 10 | 5004.02067332205 | 1688.43410501967 | 0.595383566166191 |  |
| 8 | -294.858837308521 | -1216.14344987551 | -4.53722790948316 |  |  | 11 | 128.476148669331 | 3608.95008342547 | 10.7216737536870 |  |
| 9 | 1027.00508604548 | -24.2355780795790 | -4.67555131415045 |  |  | 12 | -3089.76060568101 | -150.610739015697 | 0.946919870111663 |  |

Parameters of T-S neurons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | | | |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -0.00582201645746847 - 0.0124553025410176i |  | -2.03341573507565e-195 - 5.68979509710862e-195i |  | 1.48579229636425e-66 + 1.69179108003445e-65i |
| 2 |  | -0.0156700958318703 - 0.00483501346491905i |  | -3.71119222330544e-193 - 1.03844594839456e-192i |  | -4.71029153901387e-64 - 3.96626394581820e-63i |
| 3 |  | 0.00312508840192749 - 0.00561462436511734i |  | 1.08178115608517e-193 + 3.02698214355291e-193i |  | -3.25846446880319e-64 + 3.40013820528898e-63i |
| 4 |  | 0.00730975505072227 + 0.000756846653426781i |  | -5.76025572248509e-193 - 1.61180393155468e-192i |  | -2.90165175120018e-63 - 7.62028955135971e-63i |
| 5 |  | -0.00320507523826355 - 0.000699110921615851i |  | 8.23324866123890e-194 + 2.30378358234125e-193i |  | 1.62894018626625e-63 - 2.17791329670250e-63i |
| 6 |  | 2.64394777118975e-71 + 2.21925576640056e-71i |  | 0.00258428092783314 + 0.0133001075053422i |  | 1.60479810573758e-71 + 9.17564770618996e-72i |
| 7 |  | -2.76923222201997e-69 - 1.42278135528363e-69i |  | -0.000703141121556359 - 0.00144023173513697i |  | -1.79740589039573e-69 - 4.05149069738308e-70i |
| 8 |  | 5.90868812819290e-70 + 5.06146458479326e-70i |  | -0.000632536518807642 - 0.00132912120136200i |  | 3.01811706808291e-70 + 1.98130474540018e-70i |
| 9 |  | -1.57246423177103e-69 - 1.08854615227962e-69i |  | -0.00132137178763674 - 0.000934862532283768i |  | -9.92029617002417e-70 - 4.36288718460201e-70i |
| 10 |  | -5.03200547350425e-69 - 4.17344313690179e-69i |  | -0.00160898205429114 - 0.00162765997848471i |  | -3.05947911377541e-69 - 1.71394295756352e-69i |
| 11 |  | -0.00159695765180205 + 0.00534834268112904i |  | -2.15692730517386e-284 - 6.10003174377457e-284i |  | -0.00555514995544139 - 0.00483127071814953i |
|  |  |  |  |  |  |  |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | 4.01162022021506e-14 + 2.42000091015184e-14i |  | 1.97575110436454e-146 + 8.46283633093712e-147i |  |  |
| 2 |  | 8.46368841180416e-13 + 1.92727306786263e-12i |  | -2.02347235812203e-144 - 7.53765210609176e-145i |  |  |
| 3 |  | 1.90989655622866e-11 + 1.24683205273695e-11i |  | 6.20023809087639e-145 + 2.12696183992256e-145i |  |  |
| 4 |  | 5.23697281424083e-13 + 2.89796449998845e-12i |  | -1.26349261940459e-144 - 5.09850677056655e-145i |  |  |
| 5 |  | 5.01854556540217e-12 + 9.26627063601382e-12i |  | -3.76976924168079e-144 - 1.61049179194378e-144i |  |  |
| 6 |  | -0.00477163109033451 - 0.000673058233484430i |  | -2.52197744736644e-197 - 7.12628944430885e-197i |  |  |
| 7 |  | 0.0207309372203165 - 0.00271127258680477i |  | -4.60286744493964e-195 - 1.30062089669427e-194i |  |  |
| 8 |  | 0.000276088906247581 + 0.00272457317740655i |  | 1.34169694477001e-195 + 3.79119995219245e-195i |  |  |
| 9 |  | 0.00442505400723933 + 0.00995967165815418i |  | -7.14425229006914e-195 - 2.01873374203182e-194i |  |  |
| 10 |  | 0.00297647225132503 + 0.00615332275258376i |  | 1.02114226236871e-195 + 2.88541649555512e-195i |  |  |
| 11 |  | 7.38175978370526e-72 + 8.92990343573012e-72i |  | 5.86142891394705e-72 + 3.31409500436419e-72i |  |  |

**Experiment 4 (ABCO)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameters of CFSs | | | | | | | | | | |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 1 | -144.879819860569 | -23.1947833159984 | 107.702101262740 |  |  | 4 | -142.002481775883 | -22.3253418311421 | 104.065403919125 |  |
| 2 | -144.879819860569 | -23.1947833159984 | 107.702101262740 |  |  | 5 | -142.002481775883 | -22.3253418311421 | 104.065403919125 |  |
| 3 | -144.879819860569 | -23.1947833159984 | 107.702101262740 |  |  | 6 | -142.002481775883 | -22.3253418311421 | 104.065403919125 |  |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 7 | -112.308099874222 | -31.5349515834486 | 60.4358627864983 |  |  | 10 | -117.268463045223 | -35.6152447270688 | 57.1512540113364 |  |
| 8 | -112.308099874222 | -31.5349515834486 | 60.4358627864983 |  |  | 11 | -117.268463045223 | -35.6152447270688 | 57.1512540113364 |  |
| 9 | -112.308099874222 | -31.5349515834486 | 60.4358627864983 |  |  | 12 | -117.268463045223 | -35.6152447270688 | 57.1512540113364 |  |

Parameters of T-S neurons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | | | |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -4.33741619321654e-05 - 0.000276606636725447i |  | -0.000708487654060056 - 0.0445434983574480i |  | 0.00197540767746248 - 0.000723759028683912i |
| 2 |  | 0.00102440185131378 - 0.00653932491989259i |  | 0.00377046826597962 + 0.00538572275046406i |  | 0.00225250510799977 + 0.00435749175039946i |
| 3 |  | -0.00509497502840142 - 0.00468121848224500i |  | -0.00115697558491429 - 0.0147548936516228i |  | -0.00303684958506733 - 0.000803729990079447i |
| 4 |  | -0.000775014697863220 - 0.00633071185060436i |  | 0.000861335858357926 + 0.000121814812861056i |  | 4.96052803344684e-05 - 2.28836632067030e-05i |
| 5 |  | -0.00266515848875812 - 0.000842353403672551i |  | -7.74066032979313e-06 - 6.14920806232714e-06i |  | 0.00317866595142202 + 0.0106984043092803i |
| 6 |  | -9.79382541252022e-05 + 9.37820699258486e-05i |  | -0.00200292588101337 + 0.00221947014492298i |  | 0.00118357655373764 + 0.00162348353535276i |
| 7 |  | 0.000836398907199125 + 0.00258578935738075i |  | -0.000287003223335603 - 0.0196004940507856i |  | -0.00165705423188858 - 0.00153221079418676i |
| 8 |  | -0.00223412467791240 - 0.0289549000116595i |  | 0.000167378021633970 + 0.00206540166215144i |  | -0.00166906176322226 + 0.00203906914341988i |
| 9 |  | -0.00280920854480572 + 0.00376742434358620i |  | -0.000317197441812229 - 0.00207705664824730i |  | 6.41612755634769e-05 - 3.28505856790406e-05i |
| 10 |  | -0.00102479986918426 + 0.00147188597146459i |  | -4.50760705072031e-05 - 5.64563533523479e-06i |  | 0.000215204481875527 - 0.00196643784977297i |
| 11 |  | 1.69608452403260e-05 + 0.000168366447260140i |  | 0.00135212579622409 - 0.00211447568454328i |  | 0.00134877874780610 - 0.00653086868930352i |
|  |  |  |  |  |  |  |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -0.00246967224116587 - 0.0423805762068844i |  | 6.43202670141607e-05 + 0.00224650528340123i |  |  |
| 2 |  | -0.00473558155358168 - 0.00470364472236684i |  | -1.22262242088130e-05 + 3.60331510926497e-06i |  |  |
| 3 |  | 3.69121026759816e-05 - 0.000139001366483724i |  | -0.00119005315443337 + 0.00277039720238327i |  |  |
| 4 |  | 0.00169013628885313 - 0.00400752172146714i |  | -0.00255750548141957 + 0.000402561039991916i |  |  |
| 5 |  | -0.00253208809110157 - 0.0340410783846663i |  | 0.000168064458200068 + 0.00156155925699689i |  |  |
| 6 |  | 0.00102141630637748 + 0.0429881300272315i |  | -0.00184981970385931 - 0.00365687648742392i |  |  |
| 7 |  | -0.00105635932493227 + 0.00214456494740113i |  | -2.54983293766485e-05 + 0.000151783742070407i |  |  |
| 8 |  | 2.93102017638936e-05 - 0.000136222233330620i |  | 0.000248835208320834 + 0.00629278629921498i |  |  |
| 9 |  | 0.00146602861418756 - 0.00938020689820966i |  | -0.00128298264262586 - 0.0169278935297230i |  |  |
| 10 |  | 0.00308538432913584 + 0.000698216413848875i |  | -0.00243277378628705 + 0.0195853598894967i |  |  |
| 11 |  | 0.000638826399713135 - 0.0113206760972827i |  | 0.00101784603631913 - 0.00263329643406418i |  |  |

**Experiment 5 (PSO)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameters of CFSs | | | | | | | | | | |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 1 | -14231.2453082239 | 8033.28195569293 | 0.377038280898083 |  |  | 4 | 21615.6792480866 | -2065.66524658915 | 5.15933168862928 |  |
| 2 | -60.9025536844924 | 479.679155112718 | 1.75440927306212 |  |  | 5 | 377.772631243274 | -10804.7921567929 | -2.70383214627052 |  |
| 3 | -15147.5675463246 | 809.100134219540 | 6.58852037194692 |  |  | 6 | 5958.90803458233 | 3699.21113261658 | 3.64966604869457 |  |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 7 | -11929.3674484542 | -11852.0889454436 | -7.56925459954588 |  |  | 10 | 5004.02067332205 | 1688.43410501967 | 0.595383566166191 |  |
| 8 | -294.858837308521 | -1216.14344987551 | -4.53722790948316 |  |  | 11 | 128.476148669331 | 3608.95008342547 | 10.7216737536870 |  |
| 9 | 1027.00508604548 | -24.2355780795790 | -4.67555131415045 |  |  | 12 | -3089.76060568101 | -150.610739015697 | 0.946919870111663 |  |

Parameters of T-S neurons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | | | |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -0.00582201645746847 - 0.0124553025410176i |  | -2.03341573507565e-195 - 5.68979509710862e-195i |  | 1.48579229636425e-66 + 1.69179108003445e-65i |
| 2 |  | -0.0156700958318703 - 0.00483501346491905i |  | -3.71119222330544e-193 - 1.03844594839456e-192i |  | -4.71029153901387e-64 - 3.96626394581820e-63i |
| 3 |  | 0.00312508840192749 - 0.00561462436511734i |  | 1.08178115608517e-193 + 3.02698214355291e-193i |  | -3.25846446880319e-64 + 3.40013820528898e-63i |
| 4 |  | 0.00730975505072227 + 0.000756846653426781i |  | -5.76025572248509e-193 - 1.61180393155468e-192i |  | -2.90165175120018e-63 - 7.62028955135971e-63i |
| 5 |  | -0.00320507523826355 - 0.000699110921615851i |  | 8.23324866123890e-194 + 2.30378358234125e-193i |  | 1.62894018626625e-63 - 2.17791329670250e-63i |
| 6 |  | 2.64394777118975e-71 + 2.21925576640056e-71i |  | 0.00258428092783314 + 0.0133001075053422i |  | 1.60479810573758e-71 + 9.17564770618996e-72i |
| 7 |  | -2.76923222201997e-69 - 1.42278135528363e-69i |  | -0.000703141121556359 - 0.00144023173513697i |  | -1.79740589039573e-69 - 4.05149069738308e-70i |
| 8 |  | 5.90868812819290e-70 + 5.06146458479326e-70i |  | -0.000632536518807642 - 0.00132912120136200i |  | 3.01811706808291e-70 + 1.98130474540018e-70i |
| 9 |  | -1.57246423177103e-69 - 1.08854615227962e-69i |  | -0.00132137178763674 - 0.000934862532283768i |  | -9.92029617002417e-70 - 4.36288718460201e-70i |
| 10 |  | -5.03200547350425e-69 - 4.17344313690179e-69i |  | -0.00160898205429114 - 0.00162765997848471i |  | -3.05947911377541e-69 - 1.71394295756352e-69i |
| 11 |  | -0.00159695765180205 + 0.00534834268112904i |  | -2.15692730517386e-284 - 6.10003174377457e-284i |  | -0.00555514995544139 - 0.00483127071814953i |
|  |  |  |  |  |  |  |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | 4.01162022021506e-14 + 2.42000091015184e-14i |  | 1.97575110436454e-146 + 8.46283633093712e-147i |  |  |
| 2 |  | 8.46368841180416e-13 + 1.92727306786263e-12i |  | -2.02347235812203e-144 - 7.53765210609176e-145i |  |  |
| 3 |  | 1.90989655622866e-11 + 1.24683205273695e-11i |  | 6.20023809087639e-145 + 2.12696183992256e-145i |  |  |
| 4 |  | 5.23697281424083e-13 + 2.89796449998845e-12i |  | -1.26349261940459e-144 - 5.09850677056655e-145i |  |  |
| 5 |  | 5.01854556540217e-12 + 9.26627063601382e-12i |  | -3.76976924168079e-144 - 1.61049179194378e-144i |  |  |
| 6 |  | -0.00477163109033451 - 0.000673058233484430i |  | -2.52197744736644e-197 - 7.12628944430885e-197i |  |  |
| 7 |  | 0.0207309372203165 - 0.00271127258680477i |  | -4.60286744493964e-195 - 1.30062089669427e-194i |  |  |
| 8 |  | 0.000276088906247581 + 0.00272457317740655i |  | 1.34169694477001e-195 + 3.79119995219245e-195i |  |  |
| 9 |  | 0.00442505400723933 + 0.00995967165815418i |  | -7.14425229006914e-195 - 2.01873374203182e-194i |  |  |
| 10 |  | 0.00297647225132503 + 0.00615332275258376i |  | 1.02114226236871e-195 + 2.88541649555512e-195i |  |  |
| 11 |  | 7.38175978370526e-72 + 8.92990343573012e-72i |  | 5.86142891394705e-72 + 3.31409500436419e-72i |  |  |

**Experiment 5 (ABCO)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameters of CFSs | | | | | | | | | | |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 1 | -144.879819860569 | -23.1947833159984 | 107.702101262740 |  |  | 4 | -142.002481775883 | -22.3253418311421 | 104.065403919125 |  |
| 2 | -144.879819860569 | -23.1947833159984 | 107.702101262740 |  |  | 5 | -142.002481775883 | -22.3253418311421 | 104.065403919125 |  |
| 3 | -144.879819860569 | -23.1947833159984 | 107.702101262740 |  |  | 6 | -142.002481775883 | -22.3253418311421 | 104.065403919125 |  |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 7 | -112.308099874222 | -31.5349515834486 | 60.4358627864983 |  |  | 10 | -117.268463045223 | -35.6152447270688 | 57.1512540113364 |  |
| 8 | -112.308099874222 | -31.5349515834486 | 60.4358627864983 |  |  | 11 | -117.268463045223 | -35.6152447270688 | 57.1512540113364 |  |
| 9 | -112.308099874222 | -31.5349515834486 | 60.4358627864983 |  |  | 12 | -117.268463045223 | -35.6152447270688 | 57.1512540113364 |  |

Parameters of T-S neurons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | | | |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -4.33741619321654e-05 - 0.000276606636725447i |  | -0.000708487654060056 - 0.0445434983574480i |  | 0.00197540767746248 - 0.000723759028683912i |
| 2 |  | 0.00102440185131378 - 0.00653932491989259i |  | 0.00377046826597962 + 0.00538572275046406i |  | 0.00225250510799977 + 0.00435749175039946i |
| 3 |  | -0.00509497502840142 - 0.00468121848224500i |  | -0.00115697558491429 - 0.0147548936516228i |  | -0.00303684958506733 - 0.000803729990079447i |
| 4 |  | -0.000775014697863220 - 0.00633071185060436i |  | 0.000861335858357926 + 0.000121814812861056i |  | 4.96052803344684e-05 - 2.28836632067030e-05i |
| 5 |  | -0.00266515848875812 - 0.000842353403672551i |  | -7.74066032979313e-06 - 6.14920806232714e-06i |  | 0.00317866595142202 + 0.0106984043092803i |
| 6 |  | -9.79382541252022e-05 + 9.37820699258486e-05i |  | -0.00200292588101337 + 0.00221947014492298i |  | 0.00118357655373764 + 0.00162348353535276i |
| 7 |  | 0.000836398907199125 + 0.00258578935738075i |  | -0.000287003223335603 - 0.0196004940507856i |  | -0.00165705423188858 - 0.00153221079418676i |
| 8 |  | -0.00223412467791240 - 0.0289549000116595i |  | 0.000167378021633970 + 0.00206540166215144i |  | -0.00166906176322226 + 0.00203906914341988i |
| 9 |  | -0.00280920854480572 + 0.00376742434358620i |  | -0.000317197441812229 - 0.00207705664824730i |  | 6.41612755634769e-05 - 3.28505856790406e-05i |
| 10 |  | -0.00102479986918426 + 0.00147188597146459i |  | -4.50760705072031e-05 - 5.64563533523479e-06i |  | 0.000215204481875527 - 0.00196643784977297i |
| 11 |  | 1.69608452403260e-05 + 0.000168366447260140i |  | 0.00135212579622409 - 0.00211447568454328i |  | 0.00134877874780610 - 0.00653086868930352i |
|  |  |  |  |  |  |  |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -0.00246967224116587 - 0.0423805762068844i |  | 6.43202670141607e-05 + 0.00224650528340123i |  |  |
| 2 |  | -0.00473558155358168 - 0.00470364472236684i |  | -1.22262242088130e-05 + 3.60331510926497e-06i |  |  |
| 3 |  | 3.69121026759816e-05 - 0.000139001366483724i |  | -0.00119005315443337 + 0.00277039720238327i |  |  |
| 4 |  | 0.00169013628885313 - 0.00400752172146714i |  | -0.00255750548141957 + 0.000402561039991916i |  |  |
| 5 |  | -0.00253208809110157 - 0.0340410783846663i |  | 0.000168064458200068 + 0.00156155925699689i |  |  |
| 6 |  | 0.00102141630637748 + 0.0429881300272315i |  | -0.00184981970385931 - 0.00365687648742392i |  |  |
| 7 |  | -0.00105635932493227 + 0.00214456494740113i |  | -2.54983293766485e-05 + 0.000151783742070407i |  |  |
| 8 |  | 2.93102017638936e-05 - 0.000136222233330620i |  | 0.000248835208320834 + 0.00629278629921498i |  |  |
| 9 |  | 0.00146602861418756 - 0.00938020689820966i |  | -0.00128298264262586 - 0.0169278935297230i |  |  |
| 10 |  | 0.00308538432913584 + 0.000698216413848875i |  | -0.00243277378628705 + 0.0195853598894967i |  |  |
| 11 |  | 0.000638826399713135 - 0.0113206760972827i |  | 0.00101784603631913 - 0.00263329643406418i |  |  |

**Experiment 6 (PSO)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameters of CFSs | | | | | | | | | | |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 1 | -14231.2453082239 | 8033.28195569293 | 0.377038280898083 |  |  | 4 | 21615.6792480866 | -2065.66524658915 | 5.15933168862928 |  |
| 2 | -60.9025536844924 | 479.679155112718 | 1.75440927306212 |  |  | 5 | 377.772631243274 | -10804.7921567929 | -2.70383214627052 |  |
| 3 | -15147.5675463246 | 809.100134219540 | 6.58852037194692 |  |  | 6 | 5958.90803458233 | 3699.21113261658 | 3.64966604869457 |  |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 7 | -11929.3674484542 | -11852.0889454436 | -7.56925459954588 |  |  | 10 | 5004.02067332205 | 1688.43410501967 | 0.595383566166191 |  |
| 8 | -294.858837308521 | -1216.14344987551 | -4.53722790948316 |  |  | 11 | 128.476148669331 | 3608.95008342547 | 10.7216737536870 |  |
| 9 | 1027.00508604548 | -24.2355780795790 | -4.67555131415045 |  |  | 12 | -3089.76060568101 | -150.610739015697 | 0.946919870111663 |  |

Parameters of T-S neurons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | | | |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -0.00582201645746847 - 0.0124553025410176i |  | -2.03341573507565e-195 - 5.68979509710862e-195i |  | 1.48579229636425e-66 + 1.69179108003445e-65i |
| 2 |  | -0.0156700958318703 - 0.00483501346491905i |  | -3.71119222330544e-193 - 1.03844594839456e-192i |  | -4.71029153901387e-64 - 3.96626394581820e-63i |
| 3 |  | 0.00312508840192749 - 0.00561462436511734i |  | 1.08178115608517e-193 + 3.02698214355291e-193i |  | -3.25846446880319e-64 + 3.40013820528898e-63i |
| 4 |  | 0.00730975505072227 + 0.000756846653426781i |  | -5.76025572248509e-193 - 1.61180393155468e-192i |  | -2.90165175120018e-63 - 7.62028955135971e-63i |
| 5 |  | -0.00320507523826355 - 0.000699110921615851i |  | 8.23324866123890e-194 + 2.30378358234125e-193i |  | 1.62894018626625e-63 - 2.17791329670250e-63i |
| 6 |  | 2.64394777118975e-71 + 2.21925576640056e-71i |  | 0.00258428092783314 + 0.0133001075053422i |  | 1.60479810573758e-71 + 9.17564770618996e-72i |
| 7 |  | -2.76923222201997e-69 - 1.42278135528363e-69i |  | -0.000703141121556359 - 0.00144023173513697i |  | -1.79740589039573e-69 - 4.05149069738308e-70i |
| 8 |  | 5.90868812819290e-70 + 5.06146458479326e-70i |  | -0.000632536518807642 - 0.00132912120136200i |  | 3.01811706808291e-70 + 1.98130474540018e-70i |
| 9 |  | -1.57246423177103e-69 - 1.08854615227962e-69i |  | -0.00132137178763674 - 0.000934862532283768i |  | -9.92029617002417e-70 - 4.36288718460201e-70i |
| 10 |  | -5.03200547350425e-69 - 4.17344313690179e-69i |  | -0.00160898205429114 - 0.00162765997848471i |  | -3.05947911377541e-69 - 1.71394295756352e-69i |
| 11 |  | -0.00159695765180205 + 0.00534834268112904i |  | -2.15692730517386e-284 - 6.10003174377457e-284i |  | -0.00555514995544139 - 0.00483127071814953i |
|  |  |  |  |  |  |  |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | 4.01162022021506e-14 + 2.42000091015184e-14i |  | 1.97575110436454e-146 + 8.46283633093712e-147i |  |  |
| 2 |  | 8.46368841180416e-13 + 1.92727306786263e-12i |  | -2.02347235812203e-144 - 7.53765210609176e-145i |  |  |
| 3 |  | 1.90989655622866e-11 + 1.24683205273695e-11i |  | 6.20023809087639e-145 + 2.12696183992256e-145i |  |  |
| 4 |  | 5.23697281424083e-13 + 2.89796449998845e-12i |  | -1.26349261940459e-144 - 5.09850677056655e-145i |  |  |
| 5 |  | 5.01854556540217e-12 + 9.26627063601382e-12i |  | -3.76976924168079e-144 - 1.61049179194378e-144i |  |  |
| 6 |  | -0.00477163109033451 - 0.000673058233484430i |  | -2.52197744736644e-197 - 7.12628944430885e-197i |  |  |
| 7 |  | 0.0207309372203165 - 0.00271127258680477i |  | -4.60286744493964e-195 - 1.30062089669427e-194i |  |  |
| 8 |  | 0.000276088906247581 + 0.00272457317740655i |  | 1.34169694477001e-195 + 3.79119995219245e-195i |  |  |
| 9 |  | 0.00442505400723933 + 0.00995967165815418i |  | -7.14425229006914e-195 - 2.01873374203182e-194i |  |  |
| 10 |  | 0.00297647225132503 + 0.00615332275258376i |  | 1.02114226236871e-195 + 2.88541649555512e-195i |  |  |
| 11 |  | 7.38175978370526e-72 + 8.92990343573012e-72i |  | 5.86142891394705e-72 + 3.31409500436419e-72i |  |  |

**Experiment 6 (ABCO)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameters of CFSs | | | | | | | | | | |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 1 | -144.879819860569 | -23.1947833159984 | 107.702101262740 |  |  | 4 | -142.002481775883 | -22.3253418311421 | 104.065403919125 |  |
| 2 | -144.879819860569 | -23.1947833159984 | 107.702101262740 |  |  | 5 | -142.002481775883 | -22.3253418311421 | 104.065403919125 |  |
| 3 | -144.879819860569 | -23.1947833159984 | 107.702101262740 |  |  | 6 | -142.002481775883 | -22.3253418311421 | 104.065403919125 |  |
|  |  | | | |  |  |  | | | |
| CFS |  |  |  |  |  | CFS |  |  |  |  |
| 7 | -112.308099874222 | -31.5349515834486 | 60.4358627864983 |  |  | 10 | -117.268463045223 | -35.6152447270688 | 57.1512540113364 |  |
| 8 | -112.308099874222 | -31.5349515834486 | 60.4358627864983 |  |  | 11 | -117.268463045223 | -35.6152447270688 | 57.1512540113364 |  |
| 9 | -112.308099874222 | -31.5349515834486 | 60.4358627864983 |  |  | 12 | -117.268463045223 | -35.6152447270688 | 57.1512540113364 |  |

Parameters of T-S neurons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | | | | |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -4.33741619321654e-05 - 0.000276606636725447i |  | -0.000708487654060056 - 0.0445434983574480i |  | 0.00197540767746248 - 0.000723759028683912i |
| 2 |  | 0.00102440185131378 - 0.00653932491989259i |  | 0.00377046826597962 + 0.00538572275046406i |  | 0.00225250510799977 + 0.00435749175039946i |
| 3 |  | -0.00509497502840142 - 0.00468121848224500i |  | -0.00115697558491429 - 0.0147548936516228i |  | -0.00303684958506733 - 0.000803729990079447i |
| 4 |  | -0.000775014697863220 - 0.00633071185060436i |  | 0.000861335858357926 + 0.000121814812861056i |  | 4.96052803344684e-05 - 2.28836632067030e-05i |
| 5 |  | -0.00266515848875812 - 0.000842353403672551i |  | -7.74066032979313e-06 - 6.14920806232714e-06i |  | 0.00317866595142202 + 0.0106984043092803i |
| 6 |  | -9.79382541252022e-05 + 9.37820699258486e-05i |  | -0.00200292588101337 + 0.00221947014492298i |  | 0.00118357655373764 + 0.00162348353535276i |
| 7 |  | 0.000836398907199125 + 0.00258578935738075i |  | -0.000287003223335603 - 0.0196004940507856i |  | -0.00165705423188858 - 0.00153221079418676i |
| 8 |  | -0.00223412467791240 - 0.0289549000116595i |  | 0.000167378021633970 + 0.00206540166215144i |  | -0.00166906176322226 + 0.00203906914341988i |
| 9 |  | -0.00280920854480572 + 0.00376742434358620i |  | -0.000317197441812229 - 0.00207705664824730i |  | 6.41612755634769e-05 - 3.28505856790406e-05i |
| 10 |  | -0.00102479986918426 + 0.00147188597146459i |  | -4.50760705072031e-05 - 5.64563533523479e-06i |  | 0.000215204481875527 - 0.00196643784977297i |
| 11 |  | 1.69608452403260e-05 + 0.000168366447260140i |  | 0.00135212579622409 - 0.00211447568454328i |  | 0.00134877874780610 - 0.00653086868930352i |
|  |  |  |  |  |  |  |
| T-S Neuron |  |  |  |  |  |  |
| 1 |  | -0.00246967224116587 - 0.0423805762068844i |  | 6.43202670141607e-05 + 0.00224650528340123i |  |  |
| 2 |  | -0.00473558155358168 - 0.00470364472236684i |  | -1.22262242088130e-05 + 3.60331510926497e-06i |  |  |
| 3 |  | 3.69121026759816e-05 - 0.000139001366483724i |  | -0.00119005315443337 + 0.00277039720238327i |  |  |
| 4 |  | 0.00169013628885313 - 0.00400752172146714i |  | -0.00255750548141957 + 0.000402561039991916i |  |  |
| 5 |  | -0.00253208809110157 - 0.0340410783846663i |  | 0.000168064458200068 + 0.00156155925699689i |  |  |
| 6 |  | 0.00102141630637748 + 0.0429881300272315i |  | -0.00184981970385931 - 0.00365687648742392i |  |  |
| 7 |  | -0.00105635932493227 + 0.00214456494740113i |  | -2.54983293766485e-05 + 0.000151783742070407i |  |  |
| 8 |  | 2.93102017638936e-05 - 0.000136222233330620i |  | 0.000248835208320834 + 0.00629278629921498i |  |  |
| 9 |  | 0.00146602861418756 - 0.00938020689820966i |  | -0.00128298264262586 - 0.0169278935297230i |  |  |
| 10 |  | 0.00308538432913584 + 0.000698216413848875i |  | -0.00243277378628705 + 0.0195853598894967i |  |  |
| 11 |  | 0.000638826399713135 - 0.0113206760972827i |  | 0.00101784603631913 - 0.00263329643406418i |  |  |