|  |  |
| --- | --- |
| Table 4 Experiment 2 model configuration | |
| Feature variable as model input | f15、f30、f24、f13、f12 |
| Number of fuzzy sets of each input | 3、3、3、3、3 |
| Number of fuzzy rules in the model | 243 |
| Number of fuzzy rules after selected | 6 |
| Number of fuzzy sets is used in model | 9 |
| Number of premise part’s parameters | 36 |
| Fuzzy set type of premise part | Sphere complex Gaussian fuzzy set |
| Number of consequence parts | 1 |
| Number of consequence part’s parameters | 6 |
| Fuzzy set type of consequence part |  |

Table 5 Experiment 2 Algorithm parameter configuration

|  |  |
| --- | --- |
| **PSO** |  |
| Dimension of each particle | 4 |
| Number of species | 9 |
| Number of groups | 5 |
| Number of particles/group | 10 |
| Initial velocity | Random number from 0 to 1 |
| Initial location | Given by the Fuzzy C-mean algorithm |
| PSO parameters(ω,) | (0.8 ,2,2,2) |
| Number of iterations | 50 |
| **KFA** |  |
| Number of consequence part’s parameters | 6 |
|  | αI |
| α |  |
| I | 6 × 27 Identity matrix |
|  | 6× 1 Matrix |
|  | 1 × 1 Identity matrix |

Table18模型參數(學習後)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 前鑑部 | | | | Fuzzy set | | | | | | | | | | | | | |
|  | | | | A1 | | | | | |  | | | | A2 | | | |
|  | | | | c | | |  | λ | |  | | | | c |  | | λ |
| 76 | | | | -1745.5 | | | 6805.578 | -100.757 | |  | | | | 9832.196 | -1121.48 | | -70.9189 |
|  | | | | -1791.81 | | | 4428.115 | -103.682 | |  | | | | 1266.962 | 9612.611 | | -86.5003 |
| 因果層-前鑑部概念參數 | | | | | | | | | | | | | | | | | |
|  | |  | | |  | | | | |  | |  | | | | | |
| Node1 | |  | | | -108.864 | | | | |  | | -15.0964 | | | | | |
| Node2 | |  | | | -7.28907 | | | | |  | | -67.0199 | | | | | |
| Node3 | |  | | | -313.182 | | | | |  | | 107.8223 | | | | | |
| Node4 | |  | | | -65.2076 | | | | |  | | 41.36395 | | | | | |
| 因果層-後鑑部概念參數 | | | | | | | | | | | | | | | | | |
|  | | |  | | |  | | | | |  | |  | | | | |
| Node1 | | |  | | | -17.4372331501585 | | | | |  | | 45.3410945770107 | | | | |
| Node2 | | |  | | | -168.351420685251 | | | | |  | | -29.5544535499869 | | | | |
| Node3 | | |  | | | -84.3081946904507 | | | | |  | | -138.920872857213 | | | | |
| Node4 | | |  | | | 73.3127898356410 | | | | |  | | 39.9799581781516 | | | | |
| Node5 | | |  | | | -187.812721250236 | | | | |  | | 12.4864765494386 | | | | |
| Node6 | | |  | | | -284.285979910881 | | | | |  | | 106.399094996883 | | | | |
| Node7 | | |  | | | -26.8777785309430 | | | | |  | | -126.009113843574 | | | | |
| Node8 | | |  | | | -205.764414284106 | | | | |  | | -7.69547227225333 | | | | |
| Node9 | | |  | | | -139.220817862637 | | | | |  | | -48.0739923980790 | | | | |
| 後鑑部 | | | | | | | | | | | | | | | | | |
| n |  | | | | | | | |  | | | | | | |  | |
| R 1 | 1.76652692978580 + 0.000442839529587525i | | | | | | | | 0.0565157890727423 - 3.34381719325547e-06i | | | | | | | 0.271152319416308 - 0.000184132085584596i | |
| R 2 | 0.000257296529719028 - 1.35722328331713e-07i | | | | | | | | 0.137665246142138 - 0.000113896496015624i | | | | | | | 0.0128830559188936 - 1.14929634140484e-05i | |
| R 3 | 2.48104118404281 - 0.000379598630175676i | | | | | | | | 0.0261885917234834 - 0.000110855827411663i | | | | | | | -0.108684119916839 + 0.000304211851869168i | |
| R 4 | 12.5385298735716 + 0.000395465651890702i | | | | | | | | -0.0823032571984446 + 3.65659933512982e-05i | | | | | | | 0.182541370037408 + 0.000228093225244867i | |
| R 5 | 0.000331200894629041 - 2.20805844177472e-08i | | | | | | | | 0.175686138088179 - 9.51848058388380e-05i | | | | | | | 0.0204518302887491 - 8.70363224468471e-06i | |
| R 6 | 0.255223540946321 - 7.17278775297926e-05i | | | | | | | | 0.244566050882813 - 0.000207216383118012i | | | | | | | 0.0432000803325510 - 1.68078374727063e-05i | |
| R 7 | 5.56816271859757 - 0.00149780288092133i | | | | | | | | 0.428561026520558 - 0.000517431794211150i | | | | | | | -0.0929902592221763 + 0.000193378653541652i | |
| R 8 | 0.000268683036141812 - 4.23255832818272e-08i | | | | | | | | 0.200879834941426 - 6.52288924326077e-05i | | | | | | | 0.0189074707150422 - 8.91597870419950e-06i | |
| R 9 | 0.405378080995230 - 0.000104584592003180i | | | | | | | | 0.115267299049003 - 2.98666251348669e-05i | | | | | | | 0.0293546810515430 + 5.45084220769208e-05i | |