|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Data | **dataset3** | **iris** | **3L** | **Aggregation** | **Compound** | **Control** | **Ecoli** | **Dermatology** | **mice** | **s2** | **S3** | **shape** | **thyroid** |
| 0.01 | 0.0667 | 0.5739 | 0.0024 | 0.1699 | 0.4274 | **0.2507** | 0.0657 | 0.4080 | 0.4156 | 0.0133 | 0.0485 | 0.3979 | 0.0039 |
| 0.05 | 0.0667 | 0.5739 | 0.0223 | 0.1891 | 0.5096 | 0.2507 | 0.0657 | 0.4080 | 0.4156 | 0.0133 | 0.0107 | 0.3979 | **0.3352** |
| 0.1 | **0.3770** | 0.5739 | 0.0024 | **0.7984** | 0.5042 | 0.2507 | 0.0641 | 0.4080 | 0.5518 | 0.7566 | 0.0085 | 0.4248 | 0.3338 |
| 0.15 | 0.0101 | 0.5739 | 0.0024 | 0.7984 | 0.4641 | 0.2507 | 0.0641 | 0.4080 | 0.6010 | **0.7583** | **0.6868** | 0.4248 | 0.0134 |
| 0.2 | 0.0073 | 0.5739 | 0.0024 | 0.7984 | 0.6876 | 0.2507 | 0.0641 | 0.4080 | 0.6095 | 0.7583 | 0.6868 | **0.4680** | 0.0134 |
| 0.25 | 0.0073 | 0.5739 | 0.0024 | 0.7984 | 0.6947 | 0.2507 | 0.0641 | 0.4080 | 0.7117 | 0.7583 | 0.6868 | 0.4680 | 0.1405 |
| 0.3 | 0.0073 | 0.5739 | **0.3721** | 0.7984 | **0.6989** | 0.2503 | 0.0641 | 0.4080 | **0.8272** | 0.7583 | 0.6868 | 0.4680 | 0.0321 |
| 0.35 | 0.0105 | 0.5739 | 0.3721 | 0.7984 | 0.6947 | 0.2481 | 0.0641 | 0.4080 | 0.8272 | 0.7583 | 0.6868 | 0.4680 | 0.0321 |
| 0.4 | 0.0202 | 0.5739 | 0.3721 | 0.7984 | 0.6947 | 0.2481 | 0.0641 | 0.4080 | 0.8272 | 0.7583 | 0.6868 | 0.4680 | 0.1539 |
| 0.45 | 0.0202 | 0.5739 | 0.3612 | **0.7985** | 0.6947 | 0.2471 | 0.0641 | 0.4069 | 0.8272 | 0.7583 | 0.6868 | 0.4680 | 0.0321 |
| 0.5 | 0.0274 | 0.5739 | 0.3612 | 0.7985 | 0.6851 | 0.2447 | 0.0641 | **0.4090** | 0.8272 | 0.7583 | 0.6868 | 0.4512 | 0.0473 |

Rscale（稳定，但需要调参）

Isolation Kernel（性能好，但不稳定）t=200

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Data | dataset3 | iris | 3L | Aggregation | Compound | Control | Ecoli | Dermatology | mice | s2 | S3 | shape | thyroid |
| 2 | 0.4222/0.6052 | 0.5957/ 0.5782 | 0.0244 | 0.7153/ 0.7151 | 0.6828/ 0.6759 | 0.7390/0.7412 | 0.3428/ 0.3457 | 0.6070/ 0.6108 | **1.0000** | 0.7413/ 0.7583 | **0.6868/0.6108** | 0.0316/ 0.2098 | 0.3057/ 0.2905 |
| 4 | 0.8121/ 0.6072 | 0.5782/ 0.5782 | 0.1694/0.1748/ 0.0286/ 0.1914 | 0.7147/ 0.7148 | 0.3264/ 0.6593 | **0.7452/** **0.7407** | 0.3573/ 0.3407 | 0.6070 | 1.0000 | 0.7586/ 0.9718 | 0.6868 | 0.2610/ 0.3211 | 0.3057/ 0.0123 |
| 8 | 0.6052/ 0.6052 | 0.5745/ 0.5782 | 0.1707/0.1805/ 0.1353/ 0.1345 | 0.7984/ 0.7984 | 0.4258/ 0.4277 | 0.7412/ 0.7361 | 0.3407/ 0.5783 | 0.6070 | 1.0000 | **0.9718/0.7586** | 0.6868/ 0.6852 | 0.4235/ 0.4235 | 0.3144/ 0.2973 |
| 16 | 0.8121/ 0.8133 | 0.5735/ 0.5782 | -0.0013/0.0015/ | 0.7986/ 0.7987 | 0.7631/ 0.7614 | 0.7361/ 0.5569 | 0.3878/ 0.4006 | 0.6070/ 0.6180 | 1.0000 | 0.9718/ 0.7555 | 0.6852/ 0.6868 | 0.4437/ 0.4280 | 0.3355/ 0.3326 |
| 32 | 0.8132/ 0.8121 | 0.5821/ 0.7277 | 0.0023/-0.0013/ 5.4669e-04/0.0014 | 0.7985/ 0.7988 | **0.8433/**0.7598 | 0.7361 | 0.3902/ 0.3872 | **0.8647/0.8647** | 1.0000 | 0.9560/ 0.7413 | 0.6852/ 0.6852 | **0.6144/0.6107** | **0.3368/0.3355** |
| 64 | 0.6109/ 0.8132 | 0.6101/0.5910/ 0.5957 | 0.4409/0.3739 | 0.7993/ 0.7986 | 0.7700 /0.7631 | 0.7361/0.7456 | **0.5030/0.5180** | 0.8647/ 0.8548 | 1.0000 | 0.7566/ 0.9567 | 0.6868/ 0.6852 | 0.5854/ 0.6608 | 0.3311/ 0.3382 |
| 128 | 0.6185/ 0.8059 | 0.5735/0.6101/ 0.5787/0.6964 | 0.1719/0.3720/ 0.4108 | 0.7983/ 0.7990 | 0.7704/ 0.7670 | 0.5733/0.5703 | 0.3466/ 0.4692 | 0.6269/ 0.6164 | 1.0000 | 0.7583/ 0.7583 | 0.6868/ 0.6852 | 0.5092/ 0.5838 | 0.3311 |
| 256 | 0.6185/ 0.6185 | / | 0.1719 | **0.8189/0.8024** | 0.7650/ 0.8119 | 0.5730/0.5730 | 0.1891/ 0.1440 | 0.5638/ 0.5471 | 1.0000 | 0.7485/ 0.7413 | 0.6868 | / | / |
| 512 | / | / | 0.0138/0.0441/ 0.0243/ 0.0220 | 0.8002/ 0.7994 | / | 0.5718/0.5740 | / | / | 0.3365/0.3701 | 0.7485 | 0.6704 | / | / |
| 1024 | / | / | / | / | / | / | / | / | 0.0192/ 0.0167 | 0.7485/ 0.7464 | 0.6729 | / | / |

T=250

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Data | dataset3 | iris | 3L | Aggregation | Compound | Control | Ecoli | Dermatology | mice | s2 | S3 | shape | thyroid |
| 2 | 0.3430/0.6120/ 0.8117/ 0.6302 | 0.5782/0.5910/ 0.5782/ 0.5798 | 0.0328/0.0366/  0.0244/0.0366 | 0.7154/ 0.7151 | 0.6496 | 0.7392 | 0.3667 | 0.6070 | **1.0000** | 0.7583 | **0.6824** | 0.2470 | 0.3156 |
| 4 | 0.8121/0.6052/ 0.8121/ 0.6052 | 0.5745/0.5782/ 0.5782/ 0.5782 | 0.0370/0.1748/  0.0366/0.0851 | 0.7149 | 0.6478 | **0.7418** | 0.3407 | 0.5966 | 1.0000 | 0.9718 | 0.6868 | 0.3322 | 0.3057 |
| 8 | 0.8102/0.6052/ 0.6052/ 0.6092 | 0.5782/0.5782/ 0.5782/ 0.5782 | 0.1345/0.1694/  0.1345/ 0.1385 | 0.7984 | 0.6550 | 0.7418 | 0.3472 | 0.6070 | 1.0000 | **0.7586** | 0.6868 | 0.3771 | 0.3057 |
| 16 | 0.6052/0.6079/ 0.8121/ 0.8121 | 0.5782/0.5782/ 0.5742/ 0.5745 | -0.0013/-3.8511e-04/  -0.0013/-3.8511e-04 | 0.7986 | 0.7598 | 0.7361 | 0.3409 | 0.6180 | 1.0000 | 0.9718 | 0.6852 | 0.4280 | 0.0015 |
| 32 | 0.8121/0.8132/ 0.8121/ 0.8143 | 0.6101/0.5821/ 0.5821/ 0.6101 | -3.8511e-04/-0.0013/  -0.0013/-0.0013 | 0.7986 | **0.7631** | 0.7354 | 0.3872 | **0.7105** | 1.0000 | 0.7413 | 0.6868 | **0.6309** | **0.3326** |
| 64 | 0.8230/0.8230/ 0.8133/ 0.8133 | 0.5865/0.6354/ 0.6101/ 0.6101 | 0.3755/0.3739/  0.3739/0.3755 | 0.7985 | 0.8466 | 0.7400 | **0.4232** | 0.8561 | 1.0000 | 0.7566 | 0.6868 | 0.5876 | 0.3311 |
| 128 | 0.6185/0.6185/ 0.8207/ 0.6251 | 0.5735/0.5735/ 0.5787/ 0.6101 | 0.3755/0.3720/  0.3746/0.3981 | 0.7991 | 0.8146 | 0.5733 | 0.1941 | 0.6322 | 1.0000 | 0.7583 | 0.6868 | 0.4543 | 0.3311 |
| 256 | 0.3614/0.6185/ 0.6185/ 0.6431 | / | 0.1719/0.1719/  0.1719/0.1719 | **0.7987** | 0.8089 | 0.5730 | 0.2125 | 0.6164 | 1.0000 | 0.7502 | 0.6868 | / | / |
| 512 | / | / | 0.0541/0.0487/0.1940 | 0.8002 | / | 0.5654 | / | / | 0.5002 | 0.7485 | 0.6311 | / | / |
| 1024 | / | / | / | / | / | / | / | / | 0.0198 | 0.7485 | 0.6729 | / | / |

Gaussian Kernel（稳定，性能不好）

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| data | dataset3 | iris | 3L | Aggregation | Compound | Control | Ecoli | Dermatology | mice | s2 | S3 | shape | thyroid |
| 2-5 | 0.0196 | 0.5739 | 0.3721 | 0.7984 | 0.6970 | 0.2455 | 0.0641 | 0.2880 | 0.8220 | 0.7583 | 0.6868 | 0.4045 | 0.0426 |
| 2-4 | 0.0196 | 0.5739 | 0.3721 | 0.7984 | 0.6970 | 0.2455 | 0.0641 | 0.2880 | 0.8220 | 0.7583 | 0.6868 | 0.4045 | 0.0426 |
| 2-3 | 0.0196 | 0.5739 | 0.3721 | 0.7984 | 0.6970 | 0.2455 | 0.0641 | 0.2880 | 0.8220 | 0.7583 | 0.6868 | 0.4045 | 0.0426 |
| 2-2 | 0.0196 | 0.5739 | 0.3721 | 0.7984 | 0.6970 | 0.2455 | 0.0641 | 0.2880 | 0.8220 | 0.7583 | 0.6868 | 0.4045 | 0.0426 |
| 2-1 | 0.0196 | 0.5739 | 0.3721 | 0.7984 | 0.6970 | 0.2455 | 0.0641 | 0.2880 | 0.8220 | 0.7583 | 0.6868 | 0.4045 | 0.0426 |
| 20 | 0.0196 | 0.5739 | 0.3721 | 0.7984 | 0.6970 | 0.2455 | 0.0641 | 0.2880 | 0.8220 | 0.7583 | 0.6868 | 0.4045 | 0.0426 |
| 21 | 0.0196 | 0.5739 | 0.3721 | 0.7984 | 0.6970 | 0.2455 | 0.0641 | 0.2880 | 0.8220 | 0.7583 | 0.6868 | 0.4045 | 0.0426 |
| 22 | 0.0196 | 0.5739 | 0.3721 | 0.7984 | 0.6970 | 0.2455 | 0.0641 | 0.2880 | 0.8220 | 0.7583 | 0.6868 | 0.4045 | 0.0426 |
| 23 | 0.0196 | 0.5739 | 0.3721 | 0.7984 | 0.6970 | 0.2455 | 0.0641 | 0.2880 | 0.8220 | 0.7583 | 0.6868 | 0.4045 | 0.0426 |
| 24 | 0.0196 | 0.5739 | 0.3721 | 0.7984 | 0.6970 | 0.2455 | 0.0641 | 0.2880 | 0.8220 | 0.7583 | 0.6868 | 0.4045 | 0.0426 |
| 25 | 0.0196 | 0.5739 | 0.3721 | 0.7984 | 0.6970 | 0.2455 | 0.0641 | 0.2880 | 0.8220 | 0.7583 | 0.6868 | 0.4045 | 0.0426 |

Adaptive Gaussian Kernel（稳定，但参数影响较大）

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Data | dataset3 | iris | 3L | Aggregation | Compound | Control | Ecoli | Dermatology | mice | s2 | S3 | shape | thyroid |
| 0.01n | 0.4604 | 0.0024 | -3.8511e-04 | 0.7986 | 0.9065 | 0.5650 | 0.0702 | 0.2990 | 0.8159 | 0.7583 | 0.6868 | 0.2561 | 0.0228 |
| 0.05n | 0.4604 | 0.5739 | -3.8511e-04 | 0.7986 | 0.7631 | 0.5633 | 0.0552 | 0.2945 | 0.9298 | 0.7583 | 0.6868 | 0.5630 | 0.0321 |
| 0.1n | 0.4604 | 0.5739 | 0.3730 | 0.7986 | 0.7631 | 0.5633 | 0.0528 | 0.2917 | 0.9298 | 0.7583 | 0.6868 | 0.6493 | 0.0321 |
| 0.15n | 0.1334 | 0.5739 | 0.3730 | 0.7986 | 0.8122 | 0.5633 | 0.0554 | 0.2917 | 0.9298 | 0.7583 | 0.6868 | 0.4636 | 0.0321 |
| 0.2n | 0.1334 | 0.5739 | 0.3730 | 0.7986 | 0.8122 | 0.2518 | 0.0586 | 0.2917 | 0.9298 | 0.7583 | 0.6868 | 0.4767 | 0.0321 |
| 0.25n | 0.0266 | 0.5739 | 0.3730 | 0.7986 | 0.8122 | 0.2507 | 0.0541 | 0.4101 | 0.9298 | 0.7583 | 0.6868 | 0.4127 | 0.0321 |
| 0.3n | 0.0167 | 0.5782 | 0.3730 | 0.7984 | 0.7631 | 0.2507 | 0.0555 | 0.4090 | 0.9298 | 0.7583 | 0.6868 | 0.4127 | 0.0321 |
| 0.35n | 0.0167 | 0.5782 | 0.3730 | 0.7984 | 0.7631 | 0.2507 | 0.0555 | 0.4090 | 0.9298 | 0.7566 | 0.6868 | 0.4680 | 0.0321 |
| 0.4n | 0.0167 | 0.5782 | 0.3730 | 0.7984 | 0.7778 | 0.2507 | 0.0589 | 0.2897 | 0.9298 | 0.7583 | 0.6868 | 0.4680 | 0.0321 |
| 0.45n | 0.0167 | 0.5782 | 0.3730 | 0.7984 | 0.6908 | 0.2507 | 0.0589 | 0.2897 | 0.9298 | 0.7583 | 0.6868 | 0.4821 | 0.0321 |
| 0.5n | 0.0167 | 0.5782 | 0.3730 | 0.7984 | 0.6908 | 0.5633 | 0.0589 | 0.2897 | 0.9298 | 0.7583 | 0.6868 | 0.4821 | 0.0321 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Aggregation | 2 | 4 | 8 | 16 | 32 | 64 | 128 | 256 | 512 | 1024 |
| 200 | 0.7828 | 0.7151 |  |  |  |  |  |  |  |  |
| 250 | 0.7151 | 0.8223 |  |  |  |  |  |  |  |  |
| 300 | 0.7151 | 0.7984 |  |  |  |  |  |  |  |  |
| 350 | 0.7147 | 0.7984 |  |  |  |  |  |  |  |  |
| 400 | 0.7150 | 0.7149 |  |  |  |  |  |  |  |  |
| 450 | 0.7151 | 0.7149/0.7147/ 0.7149 | 0.7984 |  |  |  |  |  |  |  |

Isolation Kernel（性能好，但不稳定）t=200

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Data | dataset3 | iris | 3L | Aggregation | Compound | Control | Ecoli | Dermatology | mice | s2 | S3 | shape | thyroid |
| 2 | 0.4222 | 0.5782 | 0.0244 | 0.7151 | 0.6759 | 0.7390 | 0.3428 | 0.6070 | **1.0000** | 0.7413 | **0.6108** | 0.0316 | 0.2905 |
| 4 | 0.6072 | 0.5782 | 0.0286 | 0.7147 | 0.3264 | **0.7407** | 0.3407 | 0.6070 | 1.0000 | 0.7586 | 0.6868 | 0.2610 | 0.0123 |
| 8 | 0.6052 | 0.5745 | 0.1345 | 0.7984 | 0.4258 | 0.7361 | 0.3407 | 0.6070 | 1.0000 | **0.7586** | 0.6852 | 0.4235 | 0.2973 |
| 16 | 0.8121 | 0.5782 | -0.0013 | 0.7986 | 0.7614 | 0.5569 | 0.3878 | 0.6070 | 1.0000 | 0.7555 | 0.6852 | 0.4280 | 0.3326 |
| 32 | 0.8121 | 0.5821 | -0.0013 | 0.7985 | 0.7598 | 0.7361 | 0.3872 | **0.8647** | 1.0000 | 0.7413 | 0.6852 | **0.6107** | **0.3355** |
| 64 | 0.6109 | 0.5910 | ***0.3739*** | 0.7986 | 0.7631 | 0.7361 | **0.5030** | 0.8548 | 1.0000 | 0.7566 | 0.6852 | 0.5854 | 0.3311 |
| 128 | 0.6185 | 0.5735 | 0.1719 | 0.7983 | 0.7670 | 0.5703 | 0.3466 | 0.6164 | 1.0000 | 0.7583 | 0.6852 | 0.5092 | 0.3311 |
| 256 | 0.6185 | / | 0.1719 | **0.8024** | 0.7650 | 0.5730 | 0.1440 | 0.5471 | 1.0000 | 0.7413 | 0.6868 | / | / |
| 512 | / | / | 0.0138 | 0.7994 | / | 0.5718 | / | / | 0.3365 | 0.7485 | 0.6704 | / | / |
| 1024 | / | / | / | / | / | / | / | / | 0.0167 | 0.7464 | 0.6729 | / | / |