

Table 4 Further results of RQ2: comparison of accuracy rates based on four types of configurations

| System | Merged Best configuration | PCA-based configuration | Variance coefficient based configuration | MoJoFM ($\alpha = 0.7, \beta = 0.1, \gamma = 0.2$) |
|---------------------|---|---|--|---|
| Elasticsearch | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9237) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8475) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8123) | 0.9237 |
| Android-async-http | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9165) | $\alpha = 0.4, \beta = 0.2, \gamma = 0.4$ (0.8641) | $\alpha = 0.2, \beta = 0.1, \gamma = 0.7$ (0.8027) | 0.9165 |
| Iosched | $\alpha = 0.6, \beta = 0.2, \gamma = 0.2$ (0.9436) | $\alpha = 0.3, \beta = 0.2, \gamma = 0.5$ (0.8354) | $\alpha = 0.2, \beta = 0.4, \gamma = 0.4$ (0.8123) | 0.9354 |
| Libgdx | $\alpha = 0.7, \beta = 0.2, \gamma = 0.1$ (0.9379) | $\alpha = 0.5, \beta = 0.2, \gamma = 0.3$ (0.7413) | $\alpha = 0.6, \beta = 0.1, \gamma = 0.3$ (0.8541) | 0.9356 |
| Android-annotations | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9079) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.7835) | $\alpha = 0.3, \beta = 0.1, \gamma = 0.6$ (0.8304) | 0.9079 |
| Okhttp | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9531) | $\alpha = 0.3, \beta = 0.3, \gamma = 0.4$ (0.8124) | $\alpha = 0.3, \beta = 0.2, \gamma = 0.5$ (0.9531) | 0.9531 |
| RxJava | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.8699) | $\alpha = 0.3, \beta = 0.1, \gamma = 0.6$ (0.7632) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8522) | 0.8699 |
| Spring-framework | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9552) | $\alpha = 0.5, \beta = 0.2, \gamma = 0.3$ (0.7999) | $\alpha = 0.4, \beta = 0.3, \gamma = 0.3$ (0.8245) | 0.9552 |
| Zxing | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9106) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9106) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8434) | 0.9106 |
| MPAndroidChart | $\alpha = 0.7, \beta = 0.2, \gamma = 0.1$ (0.9033) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.8947) | $\alpha = 0.4, \beta = 0.4, \gamma = 0.2$ (0.7977) | 0.8947 |
| Netty | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9256) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9256) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8163) | 0.9256 |
| Guava | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9419) | $\alpha = 0.3, \beta = 0.2, \gamma = 0.5$ (0.9419) | $\alpha = 0.4, \beta = 0.3, \gamma = 0.3$ (0.8212) | 0.9419 |
| Junit | $\alpha = 0.8, \beta = 0.1, \gamma = 0.1$ (0.9177) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.8729) | $\alpha = 0.6, \beta = 0.2, \gamma = 0.2$ (0.8581) | 0.8929 |
| Presto | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9412) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9412) | $\alpha = 0.4, \beta = 0.3, \gamma = 0.3$ (0.8044) | 0.9412 |
| Glide | $\alpha = 0.6, \beta = 0.2, \gamma = 0.2$ (0.9259) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9201) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8005) | 0.9201 |
| Disruptor | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9195) | $\alpha = 0.7, \beta = 0.2, \gamma = 0.1$ (0.8711) | $\alpha = 0.4, \beta = 0.4, \gamma = 0.2$ (0.7831) | 0.9195 |
| Stetho | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9163) | $\alpha = 0.6, \beta = 0.2, \gamma = 0.2$ (0.8615) | $\alpha = 0.5, \beta = 0.4, \gamma = 0.1$ (0.8333) | 0.9163 |
| Titan | $\alpha = 0.7, \beta = 0.2, \gamma = 0.1$ (0.9458) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.8996) | $\alpha = 0.4, \beta = 0.3, \gamma = 0.3$ (0.8047) | 0.9396 |
| Fastjson | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9263) | $\alpha = 0.3, \beta = 0.2, \gamma = 0.5$ (0.8063) | $\alpha = 0.6, \beta = 0.1, \gamma = 0.3$ (0.8112) | 0.9263 |
| AndroidAsync | $\alpha = 0.8, \beta = 0.1, \gamma = 0.1$ (0.9056) | $\alpha = 0.3, \beta = 0.2, \gamma = 0.5$ (0.7959) | $\alpha = 0.4, \beta = 0.3, \gamma = 0.3$ (0.8186) | 0.9259 |
| gradle | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9348) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9354) | $\alpha = 0.4, \beta = 0.4, \gamma = 0.2$ (0.8365) | 0.9348 |
| HoloEverywhere | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9354) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9354) | $\alpha = 0.6, \beta = 0.1, \gamma = 0.3$ (0.8415) | 0.9354 |
| Storm | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9356) | $\alpha = 0.3, \beta = 0.3, \gamma = 0.4$ (0.7923) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8069) | 0.9356 |

| System | Merged Best configuration | PCA-based configuration | Variance coefficient based configuration | MoJoFM ($\alpha = 0.7, \beta = 0.1, \gamma = 0.2$) |
|-------------------|---|---|---|---|
| Guice | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9195) | $\alpha = 0.5, \beta = 0.2, \gamma = 0.3$ (0.8325) | $\alpha = 0.7, \beta = 0.2, \gamma = 0.1$ (0.8701) | 0.9195 |
| Dubbo | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9354) | $\alpha = 0.6, \beta = 0.2, \gamma = 0.2$ (0.8671) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8330) | 0.9354 |
| Orientdb | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9741) | $\alpha = 0.3, \beta = 0.3, \gamma = 0.4$ (0.8852) | $\alpha = 0.3, \beta = 0.1, \gamma = 0.6$ (0.8504) | 0.9741 |
| Neo4j | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9475) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9475) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8196) | 0.9475 |
| jna | $\alpha = 0.6, \beta = 0.2, \gamma = 0.2$ (0.9254) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9103) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9103) | 0.9187 |
| Smile | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.8953) | $\alpha = 0.4, \beta = 0.3, \gamma = 0.3$ (0.8123) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.8953) | 0.8953 |
| Tachyon | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9391) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8666) | $\alpha = 0.2, \beta = 0.1, \gamma = 0.7$ (0.8025) | 0.9391 |
| ExoPlayer | $\alpha = 0.6, \beta = 0.2, \gamma = 0.2$ (0.9014) | $\alpha = 0.4, \beta = 0.2, \gamma = 0.4$ (0.8423) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8652) | 0.8978 |
| Grails | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9294) | $\alpha = 0.5, \beta = 0.2, \gamma = 0.3$ (0.8774) | $\alpha = 0.2, \beta = 0.1, \gamma = 0.7$ (0.8398) | 0.9294 |
| Mockito | $\alpha = 0.6, \beta = 0.2, \gamma = 0.2$ (0.9156) | $\alpha = 0.6, \beta = 0.3, \gamma = 0.1$ (0.8664) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8345) | 0.9022 |
| Mongo-java-driver | $\alpha = 0.6, \beta = 0.2, \gamma = 0.2$ (0.9098) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8016) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8016) | 0.9024 |
| Hibernate-orm | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9262) | $\alpha = 0.3, \beta = 0.3, \gamma = 0.4$ (0.8198) | $\alpha = 0.6, \beta = 0.1, \gamma = 0.3$ (0.8545) | 0.9262 |
| Deeplearning4j | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9579) | $\alpha = 0.3, \beta = 0.3, \gamma = 0.4$ (0.8574) | $\alpha = 0.3, \beta = 0.1, \gamma = 0.6$ (0.8499) | 0.9579 |
| Hazelcast | $\alpha = 0.7, \beta = 0.2, \gamma = 0.1$ (0.9452) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8471) | $\alpha = 0.4, \beta = 0.4, \gamma = 0.2$ (0.8315) | 0.9320 |
| Jadx | $\alpha = 0.7, \beta = 0.2, \gamma = 0.1$ (0.9347) | $\alpha = 0.7, \beta = 0.2, \gamma = 0.1$ (0.9147) | $\alpha = 0.2, \beta = 0.1, \gamma = 0.7$ (0.8418) | 0.9204 |
| Blueprints | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9389) | $\alpha = 0.3, \beta = 0.2, \gamma = 0.5$ (0.7989) | $\alpha = 0.3, \beta = 0.1, \gamma = 0.6$ (0.8047) | 0.9389 |
| Quasar | $\alpha = 0.7, \beta = 0.2, \gamma = 0.1$ (0.9399) | $\alpha = 0.3, \beta = 0.3, \gamma = 0.4$ (0.8364) | $\alpha = 0.6, \beta = 0.1, \gamma = 0.3$ (0.8736) | 0.9314 |
| Cucumber-jvm | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9311) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9311) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8115) | 0.9311 |
| Webmagic | $\alpha = 0.7, \beta = 0.2, \gamma = 0.1$ (0.9395) | $\alpha = 0.6, \beta = 0.2, \gamma = 0.2$ (0.8399) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8069) | 0.9299 |
| Zookeeper | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9056) | $\alpha = 0.3, \beta = 0.2, \gamma = 0.5$ (0.8194) | $\alpha = 0.3, \beta = 0.1, \gamma = 0.6$ (0.8336) | 0.9056 |
| ninja | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9042) | $\alpha = 0.6, \beta = 0.2, \gamma = 0.2$ (0.8985) | $\alpha = 0.4, \beta = 0.4, \gamma = 0.2$ (0.8568) | 0.9042 |
| Rundeck | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9415) | $\alpha = 0.3, \beta = 0.2, \gamma = 0.5$ (0.7531) | $\alpha = 0.6, \beta = 0.2, \gamma = 0.2$ (0.8422) | 0.9415 |
| Moco | $\alpha = 0.8, \beta = 0.1, \gamma = 0.1$ (0.9236) | $\alpha = 0.3, \beta = 0.3, \gamma = 0.4$ (0.8232) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8665) | 0.9196 |
| Flyway | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9417) | $\alpha = 0.5, \beta = 0.2, \gamma = 0.3$ (0.8599) | $\alpha = 0.4, \beta = 0.4, \gamma = 0.2$ (0.8384) | 0.9417 |

| System | Merged Best configuration | PCA-based configuration | Variance coefficient based configuration | MoJoFM ($\alpha = 0.7, \beta = 0.1, \gamma = 0.2$) |
|----------|---|---|--|---|
| Flume | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9191) | $\alpha = 0.3, \beta = 0.3, \gamma = 0.4$ (0.7411) | $\alpha = 0.6, \beta = 0.1, \gamma = 0.3$ (0.8096) | 0.9191 |
| Astyanax | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9364) | $\alpha = 0.7, \beta = 0.1, \gamma = 0.2$ (0.9364) | $\alpha = 0.4, \beta = 0.4, \gamma = 0.2$ (0.8619) | 0.9364 |
| Syncany | $\alpha = 0.6, \beta = 0.2, \gamma = 0.2$ (0.9371) | $\alpha = 0.4, \beta = 0.1, \gamma = 0.5$ (0.8017) | $\alpha = 0.3, \beta = 0.1, \gamma = 0.6$ (0.7820) | 0.9145 |