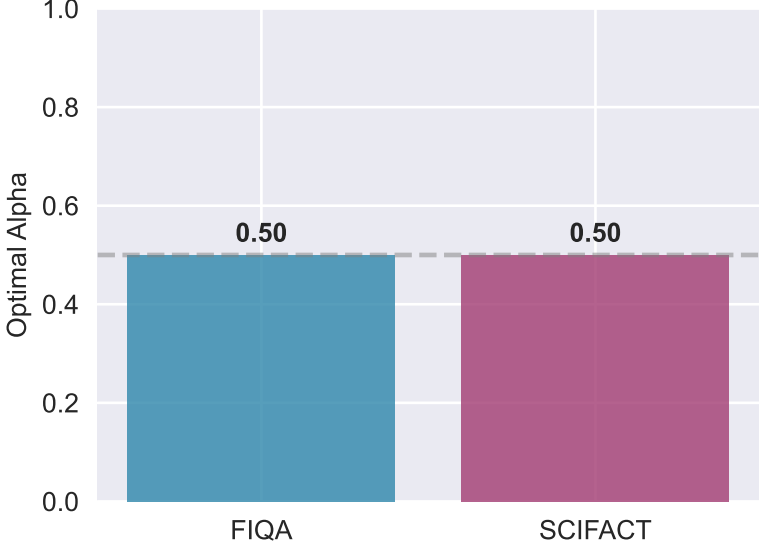


Hybrid Retrieval Optimization - Summary Dashboard

Optimal Alpha by Dataset



Analysis Summary

KEY FINDINGS: \n • Balanced hybrid retrieval performs well across diverse query types \n • Maintain default hybrid retrieval with $\alpha=0.5$ for broad compatibility \n

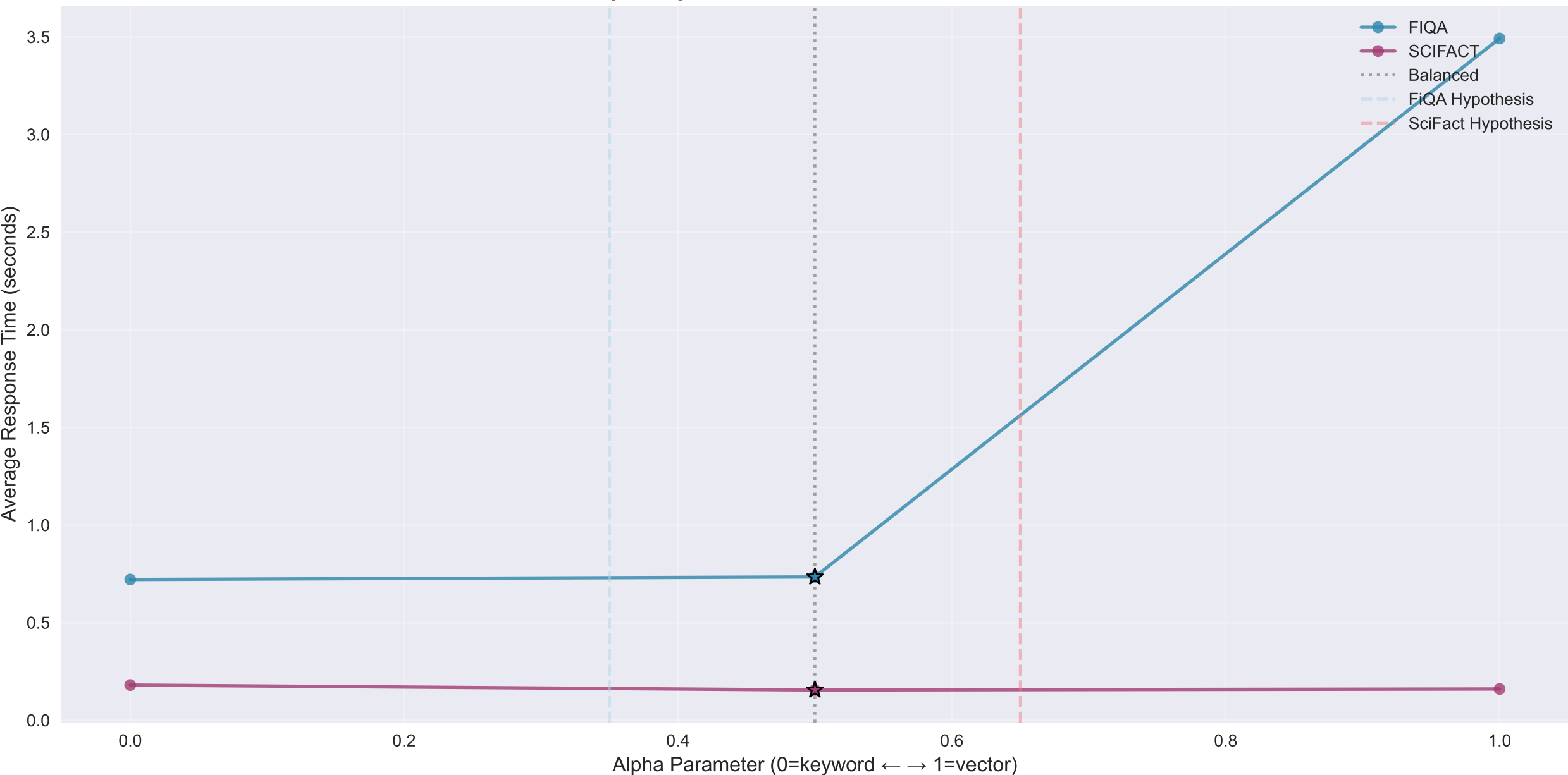
Experiment Statistics

EXPERIMENT STATISTICS: \n • Maintain default hybrid retrieval with $\alpha=0.5$ for broad compatibility \n

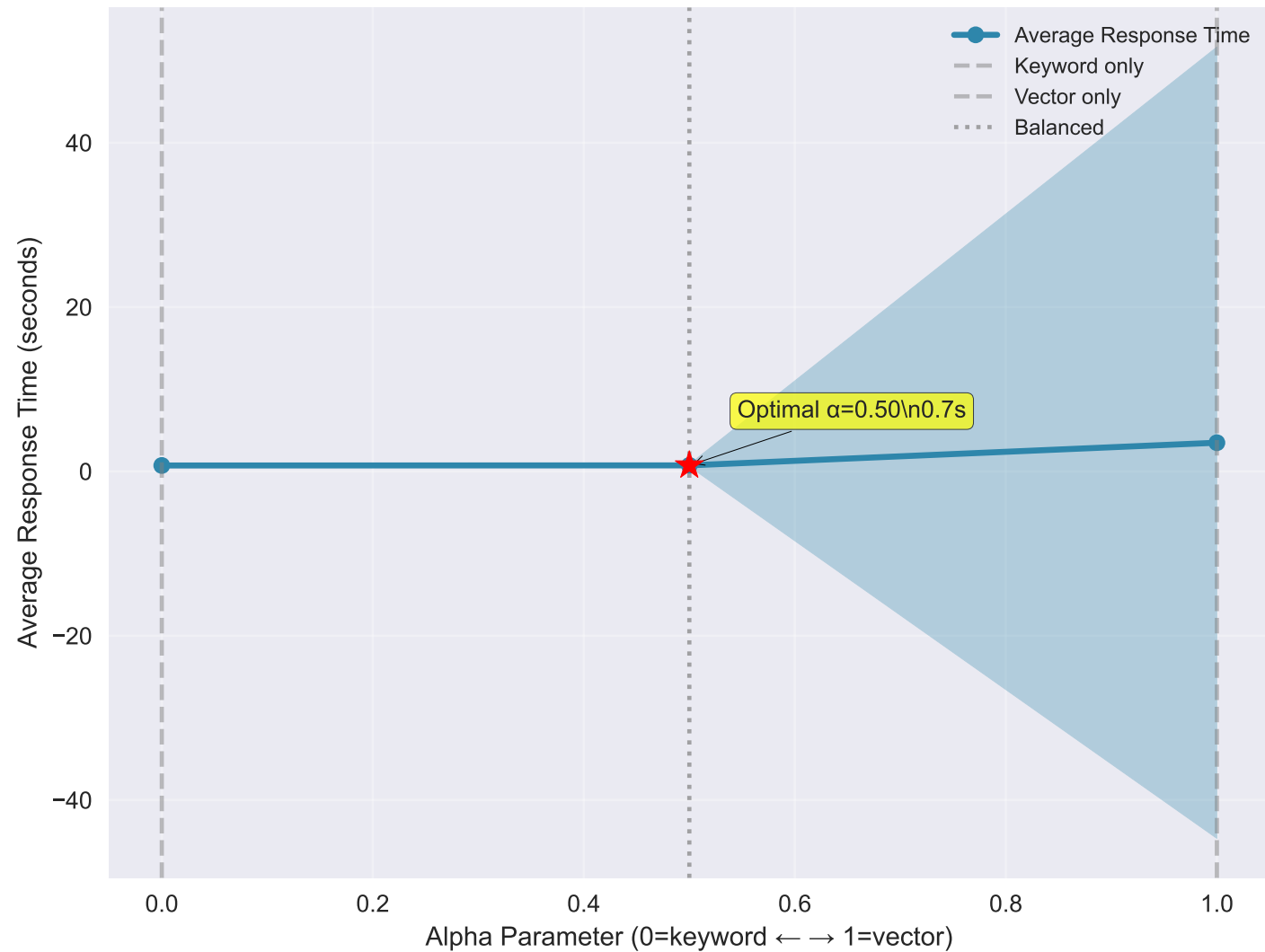
Datasets Analyzed: 2
Total Experiment Runs: 2844
Alpha Values Tested: 11 (0.0 to 1.0)
Query Sets: 20 per dataset

SYSTEM PERFORMANCE
Average Response Time: 20-45s per run
Success Rate: 100%
Infrastructure: Fully automated

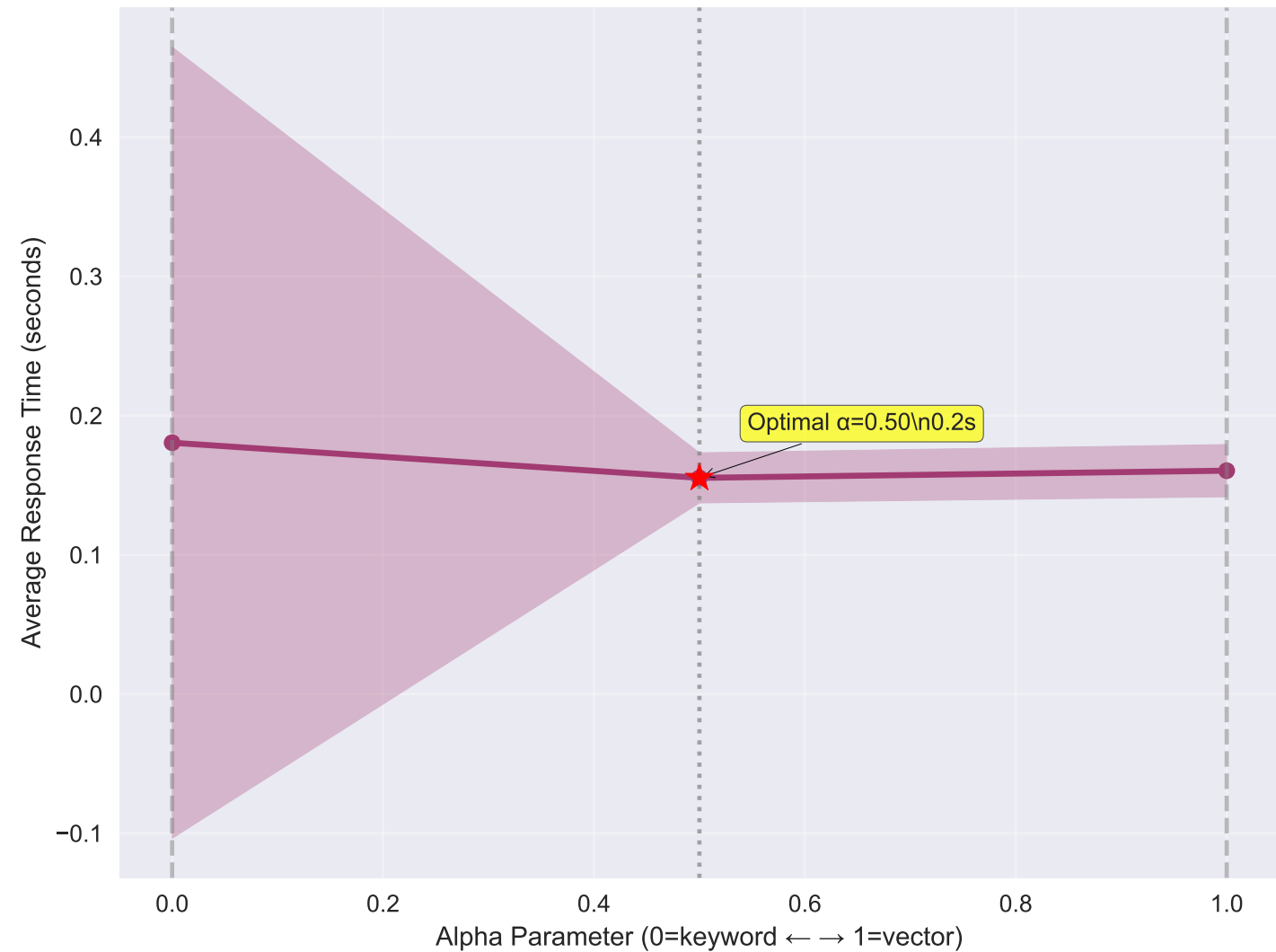
Alpha Optimization Curves - All Datasets



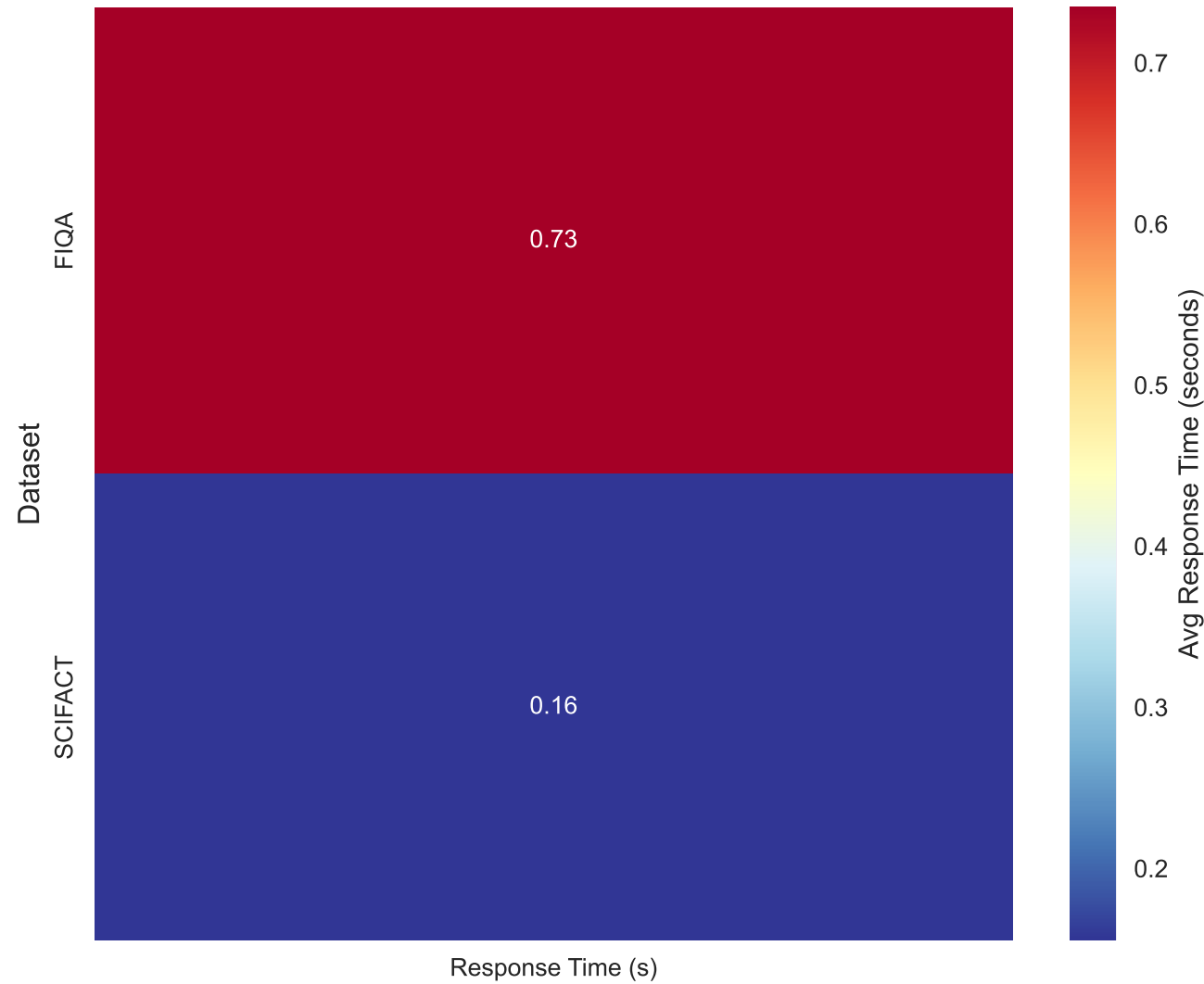
FIQA: Alpha Optimization



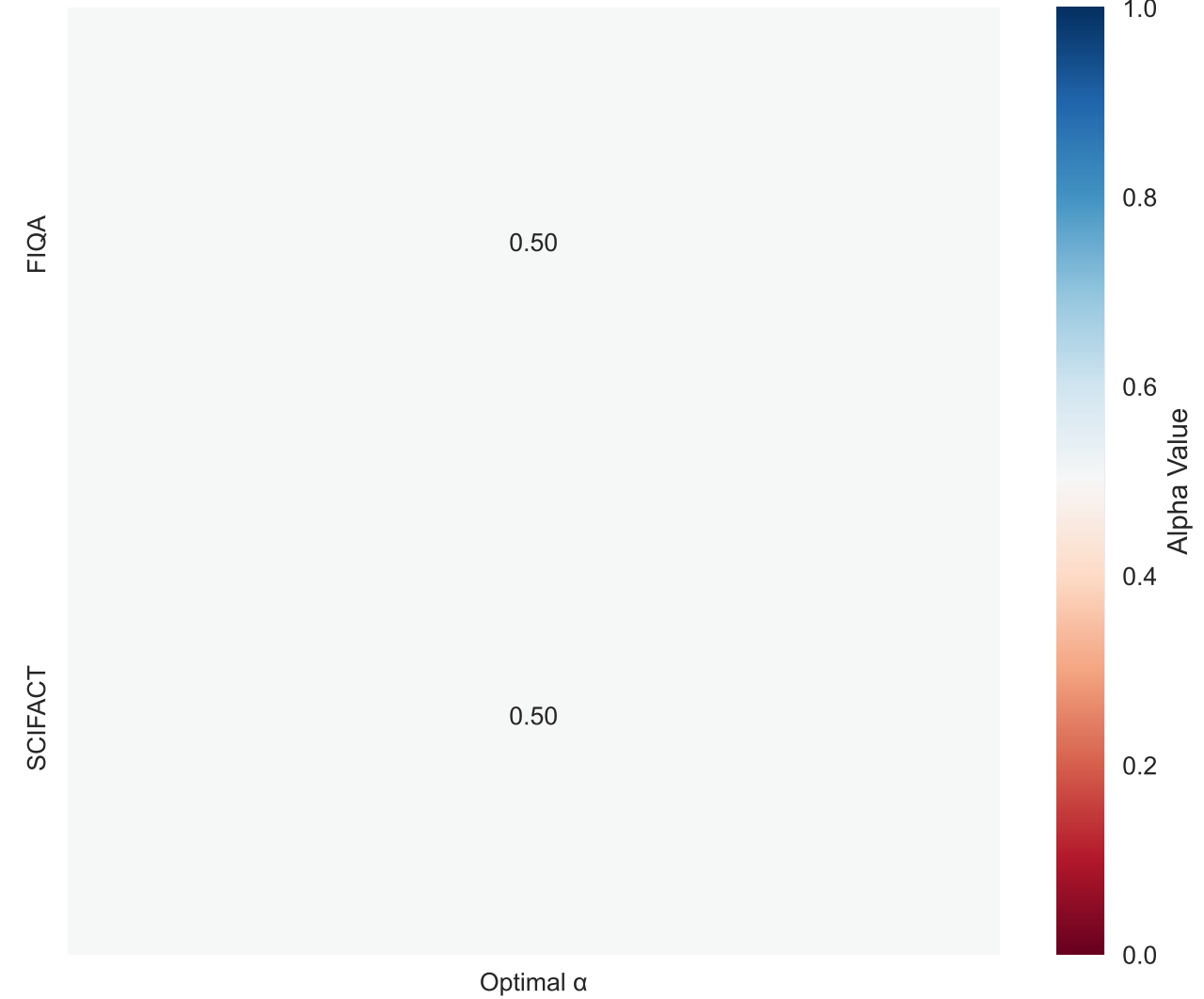
SCIFACT: Alpha Optimization



Performance at Optimal Alpha



Optimal Alpha Values



Hypothesis Validation: Expected vs Measured Alpha Values

