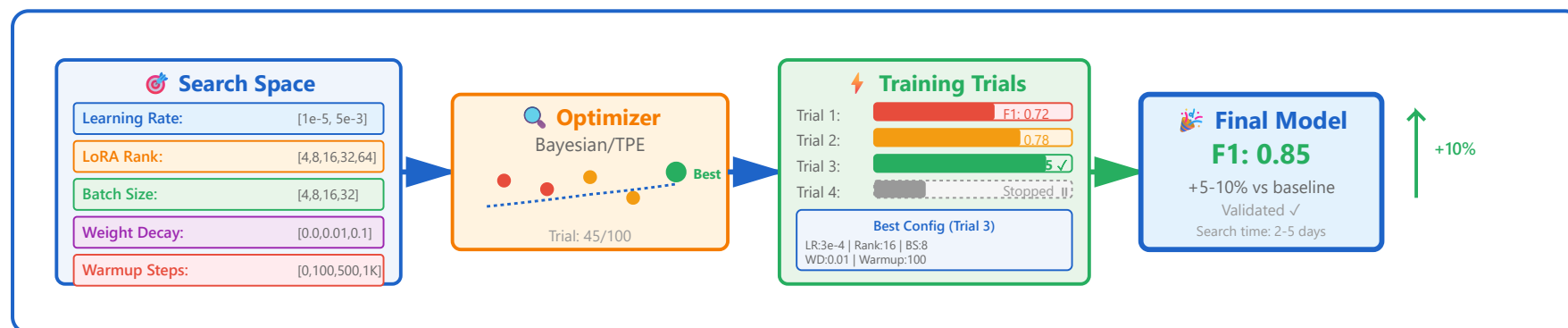


Hyperparameter Optimization

Automated Hyperparameter Search Find optimal configurations for medical tasks



50-100

Trials

5-10%

Performance Gain

2-5 days

Search Time

🔧 Optimization Tools

- **Optuna:** Tree-structured Parzen estimator (TPE)
- **Ray Tune:** Distributed hyperparameter tuning
- **Weights & Biases Sweeps:** Bayesian optimization
- **Hyperopt:** Random search and TPE

Search Strategies

- **Random Search:** 20-50 trials, good baseline
- **Bayesian Optimization:** 50-100 trials, efficient
- **Population-Based:** Evolve configurations
- **Early Stopping:** Terminate poor trials