Config Yaml and Open Evolve

The config yaml given to open evolve is integral for setting up the main purpose of it. It handles the specific prompt to the LLM, the iterations, database configuration, evaluator bounds and general settings like evolution strategy. A piece so integral does have a consistent structure unlike the evaluator functions.

Similarities Between Configs

The evolutionary goal is all the same, the LLM Setup has a primary and secondary model, although the base quick start guide doesn't mention primary/secondary, just listing the multiple models, so perhaps the creators of the Open Evolve examples just agreed on that naming scheme.


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Configuration

OpenEvolve offers extensive configuration for advanced users:

# Advanced Configuration Example
max_iterations: 1000
random_seed: 42  # Full reproducibility

llm:
  # Ensemble configuration
  models:
    - name: "gemini-2.5-pro"
      weight: 0.6
    - name: "gemini-2.5-flash"
      weight: 0.4
  temperature: 0.7

database:
  # MAP-Elites quality-diversity
  population_size: 500
  num_islands: 5  # Parallel evolution
  migration_interval: 20
  feature_dimensions: ["complexity", "diversity", "performance"]
```

The manipulation of the evolution is accessible across all the examples as are the max_iterations, seed (random seed for the evolution), checkpoint count (which iterations checkpoints are generated) and others. These variables for the performance of open evolve are on our checklist of data points to look for.

Differences Between the Configs

The differences between the config.yaml files are the bounds in which the algorithm operates. For example the timeout parameter for the evaluator varies relative to the complexity of the problem, it's obvious to know if you allocate less time for an algorithm to run or be evaluated on it can come up that each iteration will always fail, however allocate too much time and now your 100 iterations takes up to five hours. This means that not only does the evaluator script have to evaluate, but the proper amount of time should be known before/during the creation of the config file.

Conclusion Relative to the Research

Every variable in the config file must be tracked for a full examination of how Open Evolves' performance is adjusted, this means that we will probably have a list of configs compared to a control config, base function and evaluator script. Specifically, which control has yet to be determined, and the prompt specification will have to be broken down into multiple categories just to see the quality of the prompt affecting it as well.

I do have an assumption based on the fact that there is a wide application for the Open Evolve framework and LLMs as a whole. This assumption is that generally over giving it resources will work substantially better than under giving it resources. Although that is an assumption that must be tested.