

### **Roadmap and Outlook (Proposed Consolidation Path)**

The project has now progressed from early proof-of-concept scans (v0.3–v0.4), through a first dynamic stability proxy (v0.5), to systematic signature aggregation (v0.6) and an explicit evidence layer (v0.6.1: robustness sweeps, enrichment, and hold-out replication). At this stage, the most productive next steps are not to add complexity for its own sake, but to consolidate the methodology into a small number of clearly defined, reproducible extensions that strengthen interpretability and scientific defensibility.

A practical consolidation path is to add (i) a calibrated null/baseline model (v0.7) that characterizes what “chance structure” looks like under the same pipeline, (ii) a refined and baseline-normalized “interestingness” score (v0.8) that makes stability claims comparable across parameter settings and seed populations, and (iii) a controlled robustness/perturbation study (v0.9) that tests whether top signature families persist under small Hamiltonian perturbations rather than only across random seeds. A subsequent release (v1.0) should focus on packaging and clarity: a single reproducible reference implementation, explicit decision criteria, and a consolidated “what this does and does not claim” section. Where access allows, a minimal backend replication (v1.1) can be added as a validation appendix, limited to a small number of representative candidates, to test simulator–hardware agreement without turning the project into a hardware benchmarking effort.

This roadmap is intentionally restrained: the goal is to strengthen the evidentiary chain—from spectral coincidences, to structured subspaces, to stability-correlated and repeatable signature families—while keeping each increment small enough to be audited, reproduced, and meaningfully critiqued by domain experts.