DeFi Milestone Plan (Condensed to 5)

This document condenses the NGF 12-step process into 5 parsable milestones for DeFi, aligned with the Warp → Detect → Denoise doctrine described in the patents and article. Each milestone is script-driven (e.g., defi_milestoneX.py), validated, then folded into the micro_llm package with benchmarks and tests.

Milestone 0 — Baseline (■ done)

• Adapters: simple rule + stub mapper (ARC + DeFi).
• Residual traces + priors.
• Stage-10 rails (matched filter + dual thresholds).
• Basic verifiers (ARC grid ops, DeFi invariants).
• End-to-end CLI runs working.
■ This is where we already are.

Milestone 1 — Hybrid Mapper + Prior Injection

• Integrate trained mapper (scikit-learn joblib stub).
• Confidence scoring + abstain wiring.
• Adapter residuals boosted with priors.
• Stage-10 rails respect priors when ordering.
■ Produces a stronger front-end mapping from prompt → features → traces.

Milestone 2 — Stage-11 Warp + Detect

• Warp: funnel fit, PCA(3), curvature metrics.
• Detect: matched filtering with calibrated nulls (permutation / circular shifts).
• Output: stable well identification + ordered primitives.
■ First NGF-native reasoning path, still without denoiser.

Milestone 3 — Stage-11 Denoise + Safety Guards

• Hybrid EMA+median smoothing.
• Confidence gates + noise floor rejection.
• Phantom-guard probes.
• Monte Carlo jitter averaging.
• Logging: SNR, phantom index, hallucination/omission rates.
■ Yields deterministic suppression of phantom wells.

Milestone 4 — Consolidation + Benchmarks

• Fold into micro_llm package.
• ARC + DeFi benchmark suites (latent ARC, toy DeFi scenarios).
• Test harness for hallucination/abstain metrics.
• Push to GitHub, tag release.
■ Demonstrates end-to-end deterministic micro-LLM reasoning.