

Core Capability Comparison

Capability	LLVM / GCC	MLGO / CompilerGym	Formal Compilers	MAESTRO
Performance	★★★★★ ★★★★	★★★★★ ★★★★	★	★★★★
Correctness enforcement	✗	✗	★★★★★ ★★★★	★★★★★ ★★★★
UB awareness	✗ (exploits)	✗	★★★★★ ★★★★	★★★★★ ★★★★
Security preservation	✗	✗	★★★★★	★★★★★ ★★★★
Explainability	✗	✗	★★	★★★★★ ★★★★
Learning/adaptation	✗	★★★★★	✗	★★★★★
Self-refinement	✗	✗	✗	★★★★★
Multi-agent design	✗	✗	✗	★★★★★ ★★★★
IR-level integration	★★★★★ ★★★★	★★★★★ ★★★★	★★	★★★★★