ARC Prize: Advancing Open AGI

What is ARC-AGI?

ARC-AGI stands for Abstraction and Reasoning Corpus for Artificial General Intelligence. It is a benchmark introduced by François Chollet in 2019 to measure AI’s ability to acquire new skills on unknown tasks, aiming to assess progress toward general intelligence.

The Origins of ARC-AGI

In 2019, François Chollet, creator of Keras and AI researcher at Google, published the influential paper “On the Measure of Intelligence.” He introduced ARC-AGI as a benchmark to evaluate AI systems on skill acquisition and adaptation to novel tasks, laying a foundation for progress toward AGI.

Measuring Intelligence

- Task-specific skill isn’t true intelligence.
- Prior knowledge can mask a system’s real capabilities.
- Intelligence is about generalization and learning new skills.
- We need benchmarks that test for novel skill acquisition.

Design of ARC-AGI

ARC-AGI tasks involve grid-based puzzles with input-output examples. Each grid cell can be one of ten colors, and grids range from 1×1 to 30×30 in size. The tasks require mapping inputs to outputs based on underlying patterns or rules.

How to Solve a Task

To solve an ARC-AGI task, produce a pixel-perfect output grid corresponding to the final input. Every cell’s color and position must match exactly, including the correct grid dimensions. Precision is crucial.

Objectness

Objects are consistent entities—they persist over time and don’t appear or disappear without cause. Understanding objectness means recognizing that objects maintain their identity and can interact or remain separate based on context.

Goal-Directedness

Some objects are agents with intentions—they pursue goals. Distinguishing between animate and inanimate objects allows us to infer purpose and predict behavior.

Numbers & Counting

Understanding numbers allows us to count and compare objects based on attributes like shape or color. Basic arithmetic operations like addition and subtraction enable quantitative reasoning.

Basic Geometry & Topology

Recognizing shapes and spatial relationships is fundamental. Objects can be mirrored, rotated, translated, combined, or repeated. Understanding geometry and topology helps in detecting patterns and transformations.

The Impact of Solving ARC-AGI

A Stepping Stone Toward AGI

Solving ARC-AGI would revolutionize programming and automation. It would enable anyone, regardless of programming expertise, to create software by providing simple input-output examples. This new paradigm could democratize software development and drive unprecedented innovation.

2024: ARC Prize Announcement

- Over $1.1 million prize pool.
- Collaboration between Mike Knoop, François Chollet, and Lab42.
- Aims to accelerate open-source progress toward AGI.
- Challenges teams worldwide to solve ARC-AGI.

Key Dates for 2024

- **June 11, 2024**: ARC Prize 2024 Launch
- **November 10, 2024**: Code Submission Deadline
- **November 12, 2024**: Paper Submission Deadline
- **December 6, 2024**: Winners Announced
- **Q1 2025**: ARC Prize 2025 Update

Thank You for Advancing AGI

We appreciate your commitment and passion in pushing the boundaries of artificial intelligence. Together, we can achieve remarkable breakthroughs.