

ARCathon

Possible First Steps to a Solution

Understanding of ARC

If you are lost on where to start with your algorithm, we would like to give you an idea of how to start brainstorming for an ARC solution. To gain a better understanding of ARC and to read what its inventor, François Chollet, has to say about the test, we suggest reading the following article and Chollet's paper, where he introduces ARC:

- François Chollet: [On the Measure of Intelligence](#) (notably pages 46–58)
- Mehran Kazemini & answers from François Chollet: [Commentary on ARC](#)

François Chollet's Suggestion

“If you don't know how to get started, I would suggest the following template:”

Lab42 recommends the first two-step for every team.

1. “Take a bunch of tasks from the training or evaluation set — around 10. For each task, write by hand a simple program that solves it. It doesn't matter what programming language you use — pick what you're comfortable with.
2. Think about what these programs have in common.”

From here, deviation from this template could lead to a breakthrough.

We only know that **Abstract Reasoning** and the concept of **Core Knowledge** – described in Chollet's paper – play an essential role in solving ARC.

3. “Now, look at your programs, and ponder the following:
 - a. Could they be expressed more naturally in a different medium (what we call a DSL, a domain-specific language)?
 - b. What would a search process that outputs such programs look like (regardless of conditioning the search on the task data)?
 - c. How could you simplify this search by conditioning it on the task data?
 - d. Once you have a set of generated candidates for a solution program, how do you pick the one most likely to generalize?

You will not find tutorials online on how to do any of this. The best you can do is read past literature on program synthesis, which will help with step 3). But even that may not be that useful :)

This challenge is something new. You are expected to think on your own and come up with novel, creative ideas. It's what's fun about it! ”

Go to ARC Playground now: <https://arc-editor.lab42.global/>