

Media Release

# ARCathon

## Global AI Competition

Davos, Switzerland

31. January 2023



**Lab42 announces the names of the first winners of ARCathon, one of the most challenging and important competitions in AI. Out of 118 participating teams from 47 countries, the best solution of the first edition achieved a solution rate of 6%. At the end of the competition, ARCathon winner Michael Hodel, a master's student in computer science at ETH Zurich, Switzerland, further optimized his and other solutions, setting a new world record of 30.5%. The previous world record was set at a Google Kaggle competition in January 2020. ARCathon will launch the next edition of ARCathon on January 31, 2023, open to all AI enthusiasts worldwide, to continue to push the boundaries of cutting-edge AI.**

The ARC challenge is referred to as one of the hardest and most important competitions in AI (quote TechTalks, 2020). ARCathon is the first global AI competition of Lab42, which opened its doors on July 1<sup>st</sup>, 2022, in Davos. The committed goal of Lab42 is to develop human-level AI for humankind, addressing the global AI research community. In this spirit, 118 teams from 47 countries followed the call of Lab42 to design algorithms capable of human-level abstract thinking and reasoning. Solving the Abstraction and Reasoning Corpus (ARC) of François Chollet, AI pioneer and Co-Host of the ARCathon, is a first step towards human thinking and reasoning capabilities in algorithms, which today's state-of-the-art deep learning models do not possess.

ARC entails over 1'000 unique and discrete puzzles (see picture 1) that require abstract problem-solving skills independent from learned expertise and knowledge about the world. Therefore, the solution of each ARC puzzle relies solely on innate abstraction and reasoning skills, such as the ability to count and detect objects and symmetries. In a study from New York University, humans solved over 80% of all ARC tasks effortlessly. Contrary, the world record for state-of-the-art models and algorithms reached a ceiling at 20%, while aggregate solutions of existing approaches did not exceed the 30% mark - until January 2023 when Michael Hodel handed in his solution to both the Kaggle and the Lab42 platform, confirming a new world record for ARC.

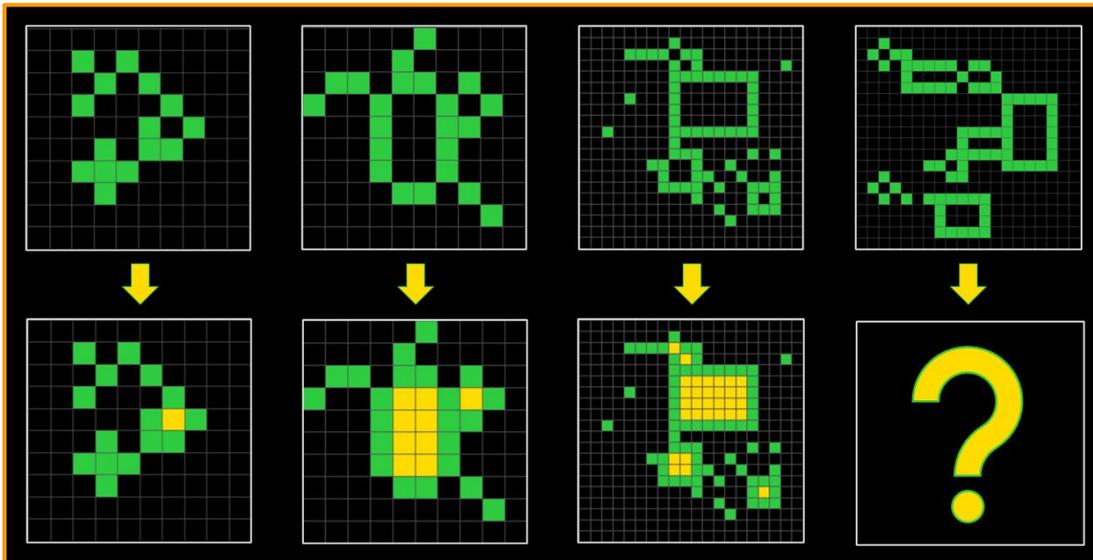
Current approaches to AI maneuver firmly in the direction of deep learning, a powerful tool to solve specific problems with gigantic amounts of data. Nowadays, so-called transformer neural networks can even be trained to interact with humans, like the chatbot ChatGPT (GPT = Generative Pre-trained Transformer). Although the bot outputs human-like texts, summaries, poems, and even programming code, the model cannot innovate, reason, or find new insights beyond the data it was trained with. The model calculates the probability of the next word in a sentence, which is why it sometimes produces untrue or nonsense statements. This bottleneck is called the Grounding Problem.

Since today's AI approaches lack any understanding of the meaning behind the words it outputs, no new knowledge about the world can be gained autonomously. Tackling ARC requires skills such as reasoning and grounding on information to solve unfamiliar and never encountered problems. ARC is currently considered the gold standard IQ test for AI, as it requires the development of entirely new algorithms to solve its 100 secret tasks. In the first edition of Lab42's ARCathon, the most promising individuals and teams were identified globally, and the challenge has been institutionalized, paving the way for the ARCathon edition.

The 1<sup>st</sup> place finisher **Michael Hodel** (see picture 2) from Zurich, Switzerland, was also the one who pushed the existing ARC world record beyond the 30% mark after ARCathon 2022 ended. In 2<sup>nd</sup> place comes Jozef Kopanicak with his team from the **Mirus Software AG** based in Davos, Switzerland, and in Zilina, Slovakia. 3<sup>rd</sup> place finisher is iOS developer **Simon Strandgaard** from Copenhagen, Denmark. Congratulations to the podium on this outstanding achievement!

With a strong starting point and a critical mission, Lab42 starts the next edition of **ARCathon on January 31<sup>st</sup>, 2023**. Lab42 is committed to harnessing this collective energy and expertise to drive progress toward human-level AI for humankind. Registration is now open at <https://lab42.global/arcathon>.

Picture 1: ARC-task examples



Picture 2: ARCCathon winner Michael Hodel (middle), ETH Master Student in Computer Science and Lab42 Challenger, together with Prof. Dr. Thilo Stadelmann (right), Head of Center for AI at ZHAW, and Oliver Schmid (left), Head of Community and ARCCathon at Lab42.

