AGI as the Technological Goal

Toward AI with a wider range of sufficient capabilities

- Narrow AI: now maturing
  - Intelligent behavior in specific domains (e.g., chess, automatic driving, surveillance, medical diagnosis, ...)
  - Already practical
  - Basis for autonomy

AI: technical goal

- Acquiring problem solving capabilities through experience to solve problems beyond the assumptions at the design stage
- Basis for autonomy

Machine Learning

- is the key technology to obtain good performances by acquiring knowledge in data-abundant routine environments

Cognitive Architecture

- is the key technology to cope with data-scarce unknown environments by combining acquired knowledge

AI Architecture can be learned from Brain

- Whole Brain model
- Constrained AI Architecture
- Deep Learning
- Multi-layered perception
- Perceptron
- McCulloch & Pitts Model
- Electrodes
- Neurons
- Screws

Performance

- Linear
- Non-linear

Task Domains

- Narrow: Domain-specific
- Broad: Domain-general

Getting Shift

- Gradual
- Step-by-step

Cognitive Architecture

- Isomorphic
- Analogous

Natural and artificial neural network studies have reached the mesoscopic level so that they can serve/constrain AI Architecture design.

The Whole Brain Architecture (WBA) Approach:

- To create a human-like AGI by learning from the architecture of the entire brain.

1. Develop brain organs as Machine Learning modules
2. Integrate them into Cognitive Architecture

1. Limbic System
2. Prefrontal Cortex
3. Amygdala
4. Hippocampus
5. Paralimbic cortex

The Whole Brain Architecture: Now Feasible

Now experts in related domains can work on it!

The Basic Ideas of WBAI

- Vision
  - To create a world in which AI exists in harmony with humanity

- Mission
  - To promote the open development of WBA

- Values
  - Study: Deepen and spread our expertise.
  - Imagine: Broaden our views through public dialogue.
  - Build: Create AGI through open collaboration.

Desirable AGI through Open WBA development

- AGI thinking and behaving like human beings
- AGI as common goods for the humanity via open co-creation

The Open WBA Platform:

- NPO WBAi is making a place for collaborative development

AGI Architecture

- Virtual Environment Simulator
- Connectome
- Neuroscientific Data
- Behavioral Data

Integration:

- A brain-inspired architecture platform for integrating machine learning modules

Catch-up:

- An open engineers’ community that can implement the cutting-edge machine learnings in a short term

Let’s build a brain together

https://wba-initiative.org/en/