

Open-Endedness, Evolution, and AI

Kenneth O. Stanley

Open-Endedness Team Leader



kstanley@openai.com

kennethostanley@gmail.com

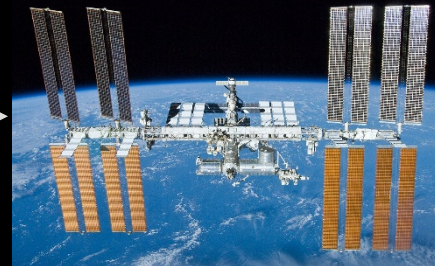
Twitter: [@kenneth0stanley](https://twitter.com/kenneth0stanley)

Open-Endedness: Where Intelligence Is Still Human

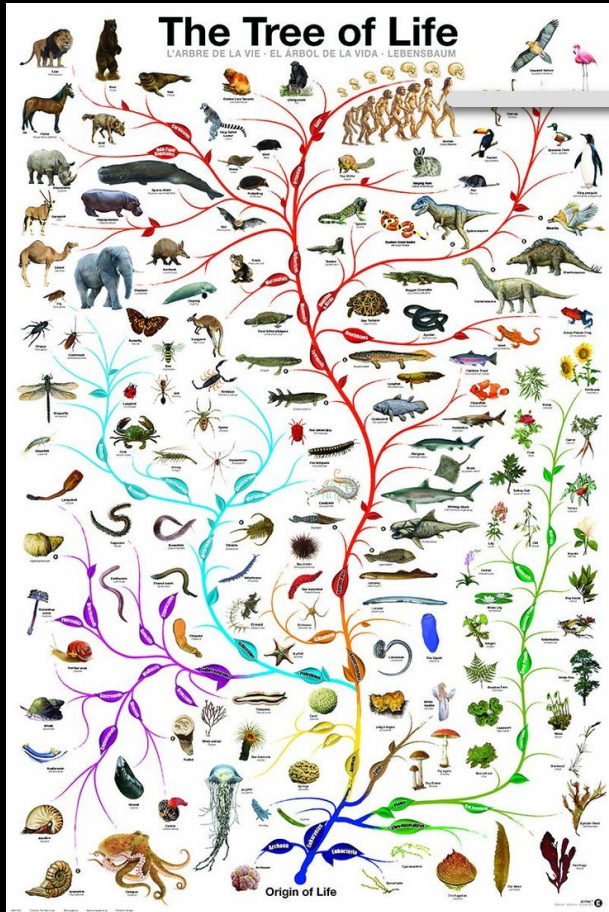
- ◇ AI can solve problems



- ◇ But humans do something still very unique: *open-ended innovation*



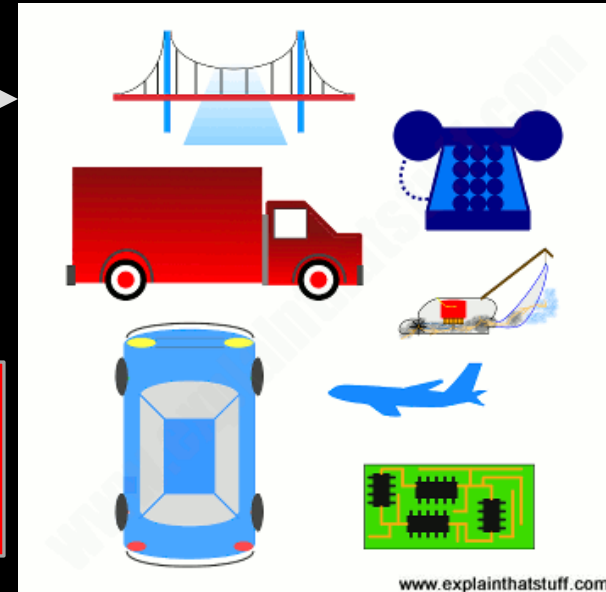
Open-Ended Phenomena Precede and Follow Us



Natural Evolution:
the eternal inventor



We should be trying to
understand these
phenomena



Human Civilization:
Millennia of creativity

- Invention
- Science
- Art
- Music
- etc...

The Pursuit of Open-Endedness Highlights New Principles

- ◇ These are neglected dimensions of intelligence
 - ◇ divergence, populations, diversity preservation, stepping stone collection, generating new solutions and new problems/opportunities at the same time
- ◇ And very importantly: The environment!
 - ◇ What property of our universe facilitates unbounded open-ended innovation?
 - ◇ Very little research has focused here

