

AEDU-EAST: CLOSING

Wrapping it up

CLOSING

Reflections on AEdu-(East + West)

DAY 1

"Why teach ALife?"

Align on shared goals and learning outcomes for ALife education. Small group discussions surface the challenges and opportunities ALife presents as a teaching domain. Features curated presentations and lightning talks showcasing ALife education success stories.

DAY 2

"How to teach ALife?"

Building on Day 1 goals, shift to practical strategies. Small group feedback exchanges let you workshop your own ideas and teaching artifacts with peers. Experienced educators lead introductory tutorials on effective pedagogical practices.

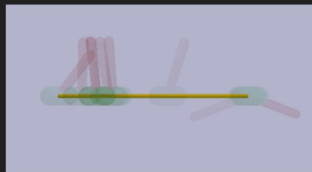
Why do we Teach ALife?

WHAT DO YOU DO/TEACH
THAT IS “ARTIFICIAL LIFE”?

WHAT’S MISSING?

ALife a Melange of Viewpoints, Methods, and Theory

- Recent discussions about an identity crisis: is ALife a field or something else?
 - e.g. (Beer, 2024) ~ ALife should consolidate commonalities as a mature discipline.
 - and (Harvey, 2024) ~ ALife more of a nursery ecology for novel interdisciplinary research ideas and collaboration.



ALife-Ed

<https://github.com/hyeesunder/PGEHs>

“i looked into it briefly but didn’t understand the point of it”

“I think it’s a subfield of AI [...] a set of optimisation techniques”

“sounds like science fiction”

“is this a new area?”

“AI with some consciousness”

RECENT DISCUSSIONS WITH COLLEAGUES AND STUDENTS

“it is about genetic algorithms”

“we played with cellular automata [in module X]”

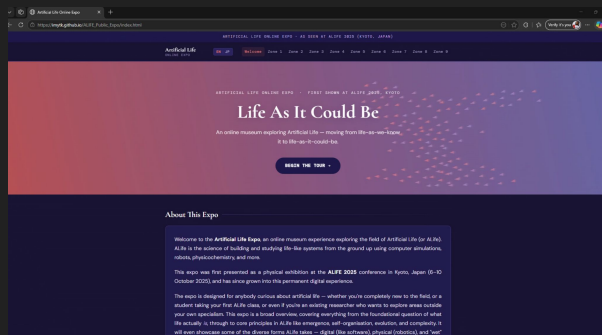
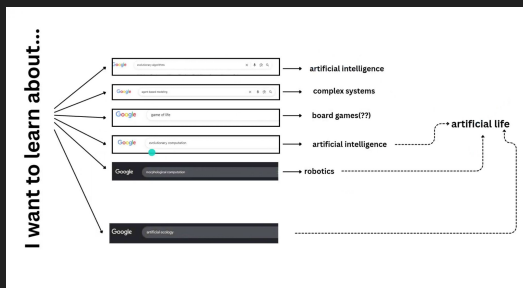
“...algorithms we can use for video games”

“i came across it [...] i work in computational biology [...]”

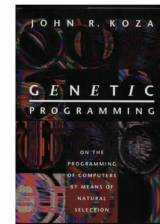
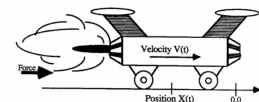
“...like swarm intelligence”

“i looked it years ago [...] i liked the focus on emergence”

“i can’t see how CS can create life”

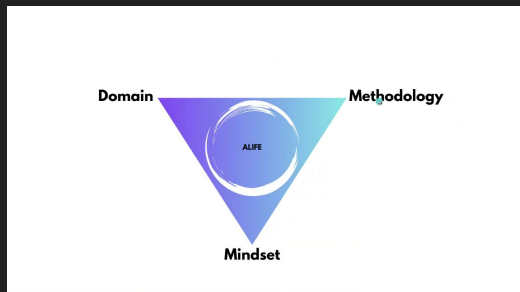


Optimal Control Cart Centering (isotropic rocket) Problem



J. R. Koza, Genetic Programming: On the Programming of Computers by Means of Natural Selection. Cambridge, MA: MIT Press, 1992

How do we Teach ALife?



Soup of Life

Soup of Life – Watch Life Emerge in Real Time

A continuously running artificial life simulation where simple organisms emerge, evolve, and sometimes go extinct. No goals, just observation.

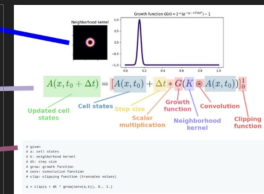


Carve a Rosetta Stone 1/2

Graphical overview

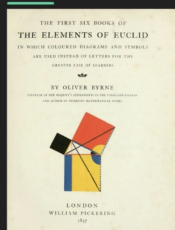
'Equation

Code



Slide from (Davis 2024)

ALife-Ed



Oliver Byrne 1847. CC0: [archived](#)
ALife-Ed

Empowerment by Visualisation (1/3)

cell states $A(x, t)$ $t = 0$

cell states $A(x, t)$ $t = 1$

growth $G(x, t)$ $t = 0$

$A(x, t) = A(x, t-1) + \Delta t \cdot G(x, t-1)$

From (Davis 2024)

Libraries, Stack, Robots, and Tools

Evolutionary Algorithms:
DEAP

Neural Networks:
PyTorch

Body and Environment Simulations:
Gymnasium
Mujoco

Robotic Hardware:
Hand-built wheeled robot, a robotic arm, and legged walker



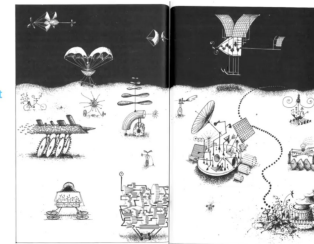
Evolutionary Robotics

(Robot Learning, NeuroRobotics, Embodied AI)

Explore the automated design of autonomous robots, integrating topics in Artificial Intelligence, Robotics, and Cognitive Science.

Topics such as the design of robot morphologies, neural controllers, evolutionary computation, autonomous embodied agents, physical simulations, and computer-designed organisms.

Open to students in ALL engineering majors with some programming experience.



What is ALife?



odinmg. 🍀 Yesterday at 23:46

The study of the "fundamental" properties of life without relying in a specific substrate?



Gabe Yesterday at 23:46

Theoretical biology focused on "emergent" systems...?



1



Q. Tyrell Davis Yesterday at 23:47

ALife is a:

Discipline 🧐

Inter-Discipline 🦷

Subject 🙌

Community/ecology 👍

Complexity science that likes to party 🎉

Different name for theoretical biology 🍌

Don't know/Undecided 🧑 (edited)



3



1



2



Anya Vostinar Yesterday at 23:44

"The study of the dynamics of life separate from the substrate of DNA"



Stephen Kelly Yesterday at 23:45

creating life from scratch to understand it better

(edited)



James Stovold 🍀 Yesterday at 23:45

Like AI but cooler



1



Helsbels 🍀 Yesterday at 23:45

From a slide presentation of mine: Models known behaviors (flocking, swarming, mycelial growth) Intersects with AI in study of intelligence and adaptive behavior

Cultivates imagined behaviors or forms

Embraces the concept of Diverse Intelligence



Matthew Andres Moreno Yesterday at 23:45

I think a lot about the idea of understanding through creating.



Jason Yoder Yesterday at 23:45

building models of lifelike systems to check our understanding and the consequences of our ideas



Jean Alfonso-Decena Yesterday at 23:45

The study of diverse natural life by understanding systems in synthetic modeling 😊



Arnault Vermillet Yesterday at 23:45

"computational approaches to processes of living systems"

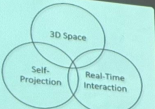


Marts Yesterday at 23:46

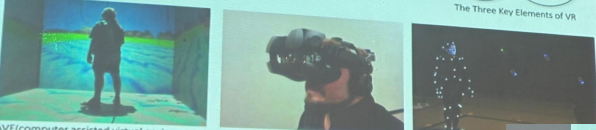
making simulations to understand more about life itself

Virtual Reality

- ✓ A technology that immerses users in a computer-generated world.
- ✓ By replacing sensory inputs, it strives to match the realism of the physical world.
- ✓ Its ultimate goal is to provide an "as-if" experience—one that feels just like reality.



The Three Key Elements of VR



CAVE (computer assisted virtual environment) Head mounted display (HMD) Optical motion

Autopoiesis & Self-Replication

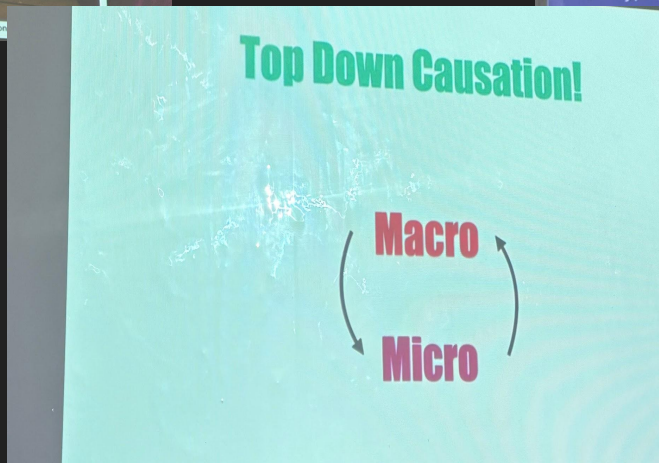
How CA resembles real life?

- A pattern that constantly produces its own parts (vs a factory)
- Maintains own boundary & individuality
- Levels: self-maintain (fragile), self-repair (robust), self-replicate (repair from fragment), self-assemble (emerge from parts)
- Types of self-replication: simple fission, bag-like, machine with tape

more machine-with-tape like ribosome or von Neumann machine?



ALIFE ARTIFICIAL LIFE INSTITUTE



Stay in-the-loop!

Discord Server: ALife Education

We hope to use this **Discord** server moving forward.

If you are interested in staying involved with the **ALife education**, please reach out to the organizers with your ideas and directions you'd like to pursue.

We are a **globally-distributed group**, which creates a truly unique opportunity as we work unite our **pedagogical practices** and **network across educators**.

Thank you all for participating!

Please provide feedback so we can build on strengths and address weaknesses

<https://forms.gle/TzRZ6jDBiHVTYfgz8>

Open Dialogue encouraged on the [#feedback-ideas-improvements](#) channel.

AEDU: Artificial Life Education Virtual Workshop

AEDU-West North America | May 18 & 19, 2026 | 10:00 AM - 2:00 PM ET
AEDU-East Japan & Asia | May 25, 2026 | 10:00 AM - 2:00 PM JST

We bid you ~~AEDU~~ adieu!

(For now :D)