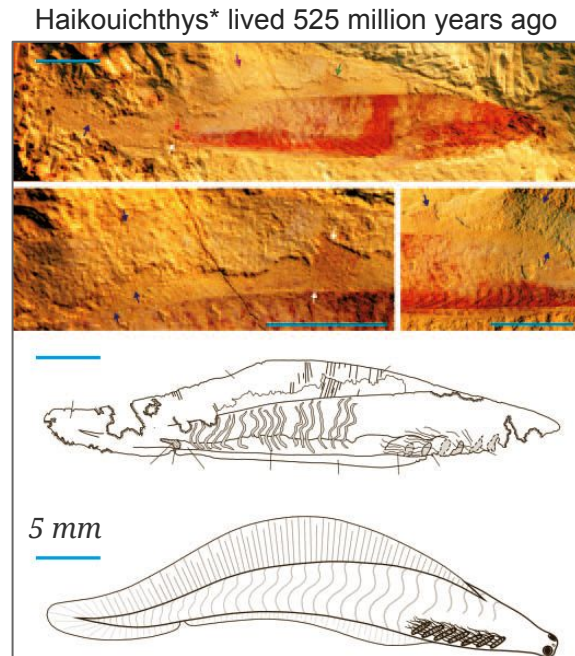


# Kōan 4: Learning how to swim like a fish

- Once in a while, we discover fossil remains of extinct fish, giving us insights on the evolution of species.
- The way these species lived and moved can only be roughly estimated by looking at the features of the fossilized fishes.
- The students will design a robot-fish<sup>1</sup> and a machine learning algorithm<sup>2</sup> allowing the fish to efficiently learn how to “swim” either in simulation<sup>3</sup> or using a real robot.
- Can your method give insights on the way extinct fishes swam?
  - If yes, what can you tell about the fish from the obtained results?



Zhang & Hou, 2004, p. 1163

*Do you have other ideas?  
Feel free to be creative!*

<sup>1</sup> Software or hardware.

<sup>2</sup> The proposed method would be applicable to different fishes and validated with non-extinct species of fish.

<sup>3</sup> 2D simulator [here](#) or 3D simulator [here](#).

\* <https://en.wikipedia.org/wiki/Haikouichthys>