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seeing science

SeeingScience

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Digging Deep Into the Tree of Life

The awe-inspiring journey from the first cell some 3.5 billion years ago to the remarkable diversity of species we see today is now available in a tabletop display called DeepTree. “For the first time, people can explore the entire tree of life in one interactive visualiza-

tion,” says Chia Shen, PhD, senior research fellow in computer science at Harvard University’s School of Engineering and Applied Sciences.

DeepTree is part of a larger museum exhibit called *Life on Earth* that was put together by Shen’s team and is currently

stationed in four museums including the California Academy of Science in San Francisco and Chicago’s Field Museum.

To create DeepTree, Shen’s team merged vast public datasets of phylogenetic trees, common names and species images, as well as estimates for the times of divergence; selected a tree shape that would accurately reflect the way species diverge gradually over time; and studied how multiple museum visitors interact

with the displays simultaneously to enable cooperative learning.

“Our project is very carefully constructed so people can learn,” says Shen. Indeed, a research study carried out in two museum settings showed that by using DeepTree, young people have an increased understanding of common ancestry and the relatedness of diverse species.

Shen and her colleagues are also experimenting with rendering a large tree in the cloud. “Secondary school teachers are interested,” Shen says, “And we think we can do it.” □



Using the touchscreen DeepTree display, museum visitors (inset, left) can zoom through evolutionary history from its roots to fungi, plants, birds, fish (pictured), and mammals. Images courtesy of Life on Earth. For more information, visit <https://lifeonearth.seas.harvard.edu/>.

Perciformes
Perch-like