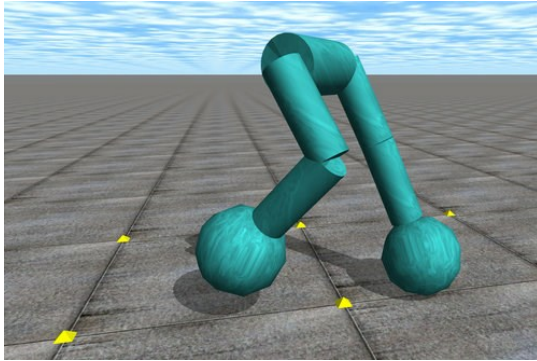# A Mass Extinction Upside

DISCOVERY ZONE, COMPUTER SCIENCE, RESEARCH

Mass extinctions look like pure destruction, removing species and genetic material from the tree of life. But some evolutionary biologists hypothesize that these extinction events could accelerate evolution by selecting for those species that are faster to adapt. New evidence from computer scientists at The University of Texas at Austin gives weight to this idea.

A team of researchers led by Professor Risto Miikkulainen modeled mass extinctions in simulated robots. More specifically, Miikkulainen and postdoctoral scholar Joel Lehman used computer

algorithms inspired by evolution to train simulated robotic brains for a task in ways that help them improve from one generation to the next. Their aim in simulating mass extinctions was to see whether destruction events could help computerized intelligence evolve more quickly and adopt better features and abilities.

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 The virtual mass extinctions were modeled after real-life disasters like what killed off the dinosaurs; so, at random, 90 percent of the team's robots got wiped out. After a few cycles of destruction, the team discovered the surviving robotic lineages had advantages. They were more evolvable and better at producing new behaviors and features that helped them with the task at hand, learning to walk. Compared to robots in simulations with no mass extinctions, these extinction-event survivors had more creative solutions to help them walk.

"Focused destruction can lead to surprising outcomes," says Miikkulainen. "Sometimes you have to develop something that seems objectively worse in order to develop the tools you need to get better."

Read more about this study.

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