Here’s Why These Two Scientists Won the $1.06 Million 2024 Nobel Prize in Physics

Two North America-based academics used physics to help pioneer advances in AI — and now they’re being rewarded for their contributions with the 2024 Nobel Prize in Physics.

The Royal Swedish Academy of Sciences announced on Tuesday that Princeton emeritus professor John Hopfield and University of Toronto professor Geoffrey E. Hinton were the latest Physics Nobel Prize winners. Hopfield was honored for inventing the Hopfield Neural Network, a system that stores and recreates patterns in data, in 1982.

Hinton, who has been called “The Godfather of AI,” used the Hopfield network as the basis for a network of his own, the Boltzmann machine, which he co-invented in 1985. The machine can identify properties in data and be used for tasks like finding hidden features in data.

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“The Boltzmann machine can be used to classify images or create new examples of the type of pattern on which it was trained,” the Nobel Prize committee stated in a post on X. “Hinton has built upon this work, helping initiate the current explosive development of machine learning.”

The prizewinners share a reward totaling 11 million Swedish kroner or $1.06 million U.S. dollars.

Chair of the Nobel Committee for Physics Ellen Moons, Secretary General of the Royal Swedish Academy of Sciences Hans Ellegren, and Member of the Nobel Committee for Physics Anders Irbaeck announce the two winners of the 2024 Nobel Prize in Physics, displayed on the screen. Photo by JONATHAN NACKSTRAND/AFP via Getty Images

Hinton, who is 76 years old, shared that he was “in a cheap hotel in California” when he heard the news.

“I was going to have an MRI scan today but I’ll have to cancel that!” he said at Tuesday’s press conference.

Hopfield, who is 91, was based in a cottage in England when he found out.

“My wife and I went out to get a flu shot and stopped to get a coffee on the way back home,” he told Princeton University’s Office of Communications. When he arrived home, he had “a pile

of emails” that he said were “heartwarming.”

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The Nobel Prize winners in Chemistry, Literature, and Peace will be announced later this week while the prize for economic sciences will be announced next week.

The Nobel Prize in Physiology or Medicine was awarded Monday to UMass Chan Medical School professor Victor Ambros and Harvard Medical School professor Gary Ruvkun for their discovery of microRNA, which is crucial for gene regulation.

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