AI neural networks to unlock affordable weather cover

25 November 2024

Researchers have used machine learning to design lower cost insurance to protect farmers against weather risk.

Using a neural network can more effectively capture weather variables and production losses and optimise premiums, the academics say, cutting the current average price for index insurance contracts for farmers by 37%.

A neural network is a method in artificial intelligence that teaches computers to process data. Called deep learning, it uses interconnected nodes or "neurons" in a layered structure that resembles the human brain.

The research team, co-led by Zhu Wenjun and Zhang Jinggong from Nanyang Technological University, used neural networks to pair weather variables such as temperature and rainfall and crop production losses.

The complex relationships unearthed were found to be "remarkably different" from those of conventional models.

The research was funded by the Singapore Ministry of Education Academic Research Fund, the Natural Sciences and Engineering Research Council of Canada, Hong Kong University of Science and Technology, and other grants.

"The findings open the way for governments to optimise initiatives to reduce the financial burden on public agencies and develop innovative measures to help the agriculture sector during a climate-related crisis," NTU said.

The research also "sets the stage for a paradigm shift in using AI to design financial products potentially across borders and in industries beyond

agriculture".

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