The Wolfram 2,3 Turing Machine Research Prize − Announcement

Source: http://coding.derkeiler.com/Archive/General/comp.theory/2007−10/msg00057.html

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- *Date*: Thu, 25 Oct 2007 10:47:11 −0000

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Prize Announcement

THE WOLFRAM 2,3 TURING MACHINE RESEARCH PRIZE

October 24th, 2007

http://www.wolframprize.org

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The Prize Is Won: The Simplest Universal Turing Machine Is Proved

It has been a long time since Alan Turing's original 1936 paper about universal Turing machines. In 2002, Stephen Wolfram identified a candidate for the smallest universal Turing machine, from a search of the 2,985,984 2−state 3−color possibilities. As of today, we know that Wolfram's 2,3 Turing machine actually is universal.

On May 14, 2007, as part of the fifth anniversary of Wolfram's book A New Kind of Science, a $25,000 research prize was announced for determining whether or not the Wolfram 2,3 Turing machine was in fact universal. Only five months later, that prize has now been won, ending a quest of more than half a century to find the very simplest universal Turing machine.

Alex Smith, a 20−year−old undergraduate in Birmingham, UK, has given a proof that Wolfram's 2,3 Turing machine is indeed universal. He has a background in mathematics and esoteric programming languages.

This universality proof is also another piece of evidence for Wolfram's general Principle of Computational Equivalence.

The official prize ceremony is planned for November at Bletchley Park, UK, site of Alan Turing's wartime work.

For more information about the prize and the solution, see:

http://www.wolframprize.org

Stephen Wolfram has posted his personal reaction to the prize at:
http://blog.wolfram.com/2007/10/the_prize_is_won_the_simplest.html

−− The Wolfram Science Group
http://www.wolframscience.com

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