

Leon Chua and Tamas Roska: non-linear networks as a basis for intelligence

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The brain was the inspiration for KU Leuven's Patron Saint's Day this year. The honorary doctorates conferred on the occasion recognised individuals who – each in his or her own way – have contributed to a better understanding of the brain and its functioning.



Professor Leon Chua briefly described the key question of his research: how, and with what components, can intelligence occur? In his pioneering research, he builds a bridge connecting biology and technology. So, too, does **Professor Tamas Roska**, who stresses that the brain does not work like today's personal computers, but rather according to the principles of non-linear networks.

Promotor Joos Vandewalle delivered the laudatio for both honourees. He emphasised the importance of cellular neural networks, or CNN, as a new operating basis for the way technology processes information. Chua and Roska have shown that a network approach enables computers to perform human activities better than a classical computer, which largely operates according to a linear approach.

The 'memristor' also received the necessary attention. This component, which Professor Chua articulated theoretically in 1971 but would not become a technical reality until 2008, promises significant breakthroughs in chip technology. For his part, Professor Roska played a leading role in developing the Hungarian scientific community.

Rector Waer repeated the importance of non-linear networks not only in technological progress but also as a bridge between human and artificial intelligence. The ideas of Chua and

Roska form the basis of many important, cutting-edge technologies, including image processing. Their work also has substantial interdisciplinary implications.



Congratulations for the honours! We wish you good health and productive educational and scientific activity in the future!

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