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HYBRID EVENT

NITheCS and the Department of Physics at Stellenbosch University jointly present a

COLLOQUIUM:

Solving nonlinear classification problems with a complex valued almost linear perceptron

Prof Uwe Jaekel (Koblenz University of Applied Sciences, Germany)

Attend in person* or online

***Venue:** Tea Room, Merensky Building, Stellenbosch University

Friday, 3 February 2023 | 14h30 – 15h30 SAST

ABSTRACT

We show how a modification of the classical linear perceptron using complex weights and an alternative activation function can be used to separate classes that are not linearly separable. This allows the network to learn both arbitrary binary functions, including the XOR function, and solve linear, circular and elliptical classification problems with the same sparse network. We show that the XOR problem can be solved by training phases only with guaranteed convergence.

BIOGRAPHY

Uwe Jaekel is a professor in Mathematics at Koblenz University of Applied Sciences, Germany.

After obtaining his doctorate in Astrophysics at the University of Bonn in 1994, he worked as a Researcher at the Jülich Research Centre. Eight years later he joined C&C Research Laboratories, NEC Europe Ltd, in a research capacity, progressing to principal researcher in 2002.

In 2007, Prof Jaekel was appointed to his current position at Koblenz University of Applied Sciences.

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