

Proceedings of SPIE - The International Society for Optical Engineering

Volume 10808, 2018, Номер статьи 1080821

Photonics Applications in Astronomy, Communications, Industry, and High-Energy Physics Experiments 2018; Wilga; Poland; 3 June 2018 до 10 June 2018; Код 140492

Neural network modelling by rank configurations(Conference Paper)

Bykov, M.M.(a), Kovtun, V.V.(a), Raimy, A.b, Gromaszek, K.(c), Smailova, S.(d)

a)Vinnitsia National Technical University, 95 Khmelnytske shose, Vinnitsia, 21021, Ukraine

b)University Cheikh Anta Diop of Dakar, UCAD BP 5005, Dakar, Senegal

c)Lublin University of Technology, ul. Nadbystrzycka 38A, Lublin, 20-618, Poland

d)East Kazakhstan State Technical University Named after D.Serikbayev, 69 Protozanov Street, Ust-Kamenogorsk, 070004, Kazakhstan

Краткое описание

The article presents the model of neural network in the form of rank configuration. The neurons are assumed to be the nodes of simplex, which presents a rank configuration, and the weights of the neural network are the edges of this simplex in the proposed model. Edges of simplex are marked by ranks of the weights. This approach allows us to evaluate the adequacy of rank configurations to make decisions on a system that already had proven effective in this application. Also such model gives an opportunity to present neurons as binary codes that preserve ranks of distances (DRP-codes) and to build digital model of memory core of memcomputer. The research of the model is carried out on the process of decimal digits recognition by Hopfield net. © COPYRIGHT SPIE. Downloading of the abstract is permitted for personal use only.