Complex-Valued Neural Networks. Advances and Applications. IEEE Press Series on Computational Intelligence

Description: Presents the latest advances in complex-valued neural networks by demonstrating the theory in a wide range of applications.

Complex-valued neural networks is a rapidly developing neural network framework that utilizes complex arithmetic, exhibiting specific characteristics in its learning, self-organizing, and processing dynamics. They are highly suitable for processing complex amplitude, composed of amplitude and phase, which is one of the core concepts in physical systems to deal with electromagnetic, light, sonic/ultrasonic waves as well as quantum waves, namely, electron and superconducting waves. This fact is a critical advantage in practical applications in diverse fields of engineering, where signals are routinely analyzed and processed in time/space, frequency, and phase domains.

Complex-Valued Neural Networks: Advances and Applications covers cutting-edge topics and applications surrounding this timely subject. Demonstrating advanced theories with a wide range of applications, including communication systems, image processing systems, and brain-computer interfaces, this text offers comprehensive coverage of:

- Conventional complex-valued neural networks
- Quaternionic neural networks
- Clifford-algebraic neural networks

Presented by international experts in the field, Complex-Valued Neural Networks: Advances and Applications is ideal for advanced-level computational intelligence theorists, electromagnetic theorists, and mathematicians interested in computational intelligence, artificial intelligence, machine learning theories, and algorithms.

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