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**Hellenic Artillery School** 

## **Abstracts**

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## **Boolean Functions and Neural Networks**

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**Abstract** Boolean functions have been used to model a large number of applications in a variety of disciplines, including optimization, operations research, circuit complexity, artificial intelligence, communications, cryptography, error correcting codes, etc.

Neural networks are computational tools (machines based loosely on the ways in which the brain is believed to work). They can be used for the representation of Boolean functions.

In this presentation mutual applications and links between Boolean functions and artificial neural Networks are given.

## References

- M. Anthony, Neural networks and Boolean functions, in Y. Crama and P. L. Hammer, eds Boolean Models and Methods in Mathematics, Computer Science, and Engineering, Cambridge University Press, Cambridge, 2010, pp. 554-576.
- [2] C. Carlet, Boolean functions for cryptography and error-correcting codes, in: Y. Crama and P. L. Hammer, eds., Boolean Models and Methods in Mathematics, Computer Science, and Engineering, Cambridge University Press, Cambridge, 2010, pp. 257-397.
- [3] Y. Crama and P. L. Hammer. Boolean Functions: Theory, Algorithms, and Applications. Cambridge University Press, Cambridge, UK, 2010.