Abstract

This paper presents promising results achieved by applying a new coding scheme based on predictive coding to neuroevolution. The technique proposed exploits the ability of a bit, which contains sufficient information, to represent its neighboring bits. In this way, a single bit represents not only its own information, but also that of its neighborhood. Moreover, whenever there is a change in bit representation, it is determined by a threshold value that determines the point at which the change in information is significant. The main contributions of this work are the following: (i) the ratio of the number of bits to the amount of information content is reduced; (ii) the complexity of the overall system is reduced as there is a lesser amount of bit to process; (iii) Finally, we successfully apply the coding scheme to NEAT, which is used as a biometric classifier for the authentication of keystroke dynamics.

References

Application of Predictive Coding in Neuroevolution

- Martin A. P 1999 Increasing genomic complexity by gene duplication and the origin of

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NEAT; Predictive Coding; Biometric; coding scheme