

**Sun, Yi; Robinson, Mark; Adams, Rod; Kaye, Paul; Rust, Alistair; Davey, Neil**

**Integrating binding site predictions using non-linear classification methods.** (English)

[Zbl 1133.68411](#)

Winkler, Joab (ed.) et al., Deterministic and statistical methods in machine learning. First international workshop, Sheffield, UK, September 7–10, 2004. Revised lectures. Berlin: Springer (ISBN 978-3-540-29073-5/pbk). Lecture Notes in Computer Science 3635. Lecture Notes in Artificial Intelligence, 229-241 (2005).

Summary: Currently the best algorithms for transcription factor binding site prediction are severely limited in accuracy. There is good reason to believe that predictions from these different classes of algorithms could be used in conjunction to improve the quality of predictions. In this paper, we apply single layer networks, rules sets and support vector machines on predictions from 12 key algorithms. Furthermore, we use a ‘window’ of consecutive results in the input vector in order to contextualise the neighbouring results. Moreover, we improve the classification result with the aid of under- and over- sampling techniques. We find that support vector machines outperform each of the original individual algorithms and other classifiers employed in this work with both type of inputs, in that they maintain a better tradeoff between recall and precision.

For the entire collection see [[Zbl 1131.68016](#)].

**MSC:**

**68T05** Learning and adaptive systems in artificial intelligence

Cited in **2** Documents

**Software:**

[Footprinter](#)

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