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A 'Neural' Network that Learns to Play Backgammon

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Abstract:

We describe a class of connectionist networks that have learned to play back(cid:173) gammon at an intermediate-to-advanced level. TIle networks

were trained by a supervised learning procedure on a large set of sample positions evaluated by a human expert. In actual match play against humans and conventional computer programs, the networks demonstrate substantial ability to generalize on the basis of

expert knowledge. Our study touches on some of the most important issues in net(cid:173) work learning theory, including the development

of efficient coding schemes and training procedures, scaling, generalization, the use of real-valued inputs and out(cid:173) puts, and techniques for

escaping from local minima. Practical applications in games and other domains are also discussed.

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