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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 41(0)

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Publication Date

2019

Peer reviewed

Deep Learning of Chinese Characters

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Abstract

In this study, the printing forms (different fonts) of about 3000 common Chinese characters were sent into a Deep Neural Network (DNN), along with their sounds. The network can successfully learn the association between the form and the sound of these characters. It also develops certain generalizability when facing new characters. In addition, the internal representations on different layers of the network show the emergence of basic writing structures of Chinese characters (i.e. strokes, radicals, left-right, top-down structures). The learning pattern of the network is further compared with that of the elementary school students.