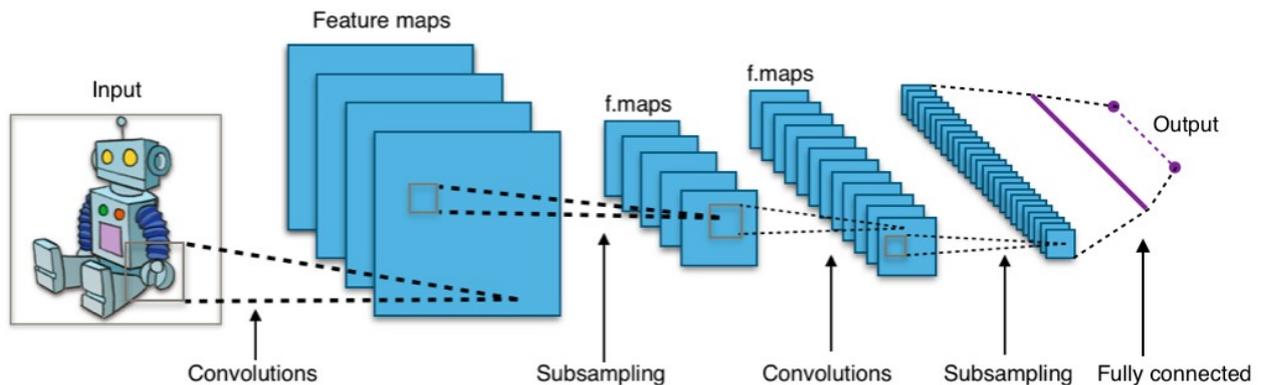


Thesis topic: Adversarial Examples for Automated Scoring of Figural Creativity with Convolutional Neural Networks

Tedious routine tasks can often be performed by machine learning algorithms. In creativity research, human raters have to review creativity test takers' responses and rate them. Often more than one human rater is needed, especially when a highly reliable test score is required. Recent advances for open-ended verbal creativity tests suggest that supervised machine learning based approaches could assist human raters or even replace humans in low-stakes situations.



Figural creativity tests, i.e. tests where test takers draw their responses, are much harder to handle than text data. Recently, Cropley and Marrone (2021) have proposed to use convolutional neural networks for this purpose. Specifically, Mobilenets (Howard et al., 2017) are used in the scoring algorithm. The main aim of this thesis is to conceptually reproduce the Cropley and Marrone approach with another data set. Special emphasis is on potential adversarial examples, i.e., inputs that lead to very high or very low scores according to human raters but the other way round for machine learning based scoring. A secondary aim could be to compare competing image classification to Mobilenets.

Data from Forthmann et al. (2019) and other sources is available for this project. Basic knowledge of machine learning in Python is an advantage but not a requirement.

This thesis will be supervised by Prof. Dr. Philipp Doebler. Dr. Forthmann is available for consultation during the process.

Contact: doebler@statistik.tu-dortmund

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