Overview

1) A set of adaptive ROI cropping nets (ROI Nets) are designed to learn regional features separately.

2) Multi-label and single AU based methods are compared. With additional AU correlations and richer global features, the multi-label learning approach shows slightly better performance.

3) An LSTM-based temporal fusion recurrent net (LSTM Net) is proposed to fuse static CNN features, which makes the AU predictions more accurate than with static images only.

AU Detection

With deep pretrained models and a "smarter" way to focus on interest regions, the proposed approach shows its power in AU detection on multiple datasets. Our approach also shows the potential to deal with "wild" image AU detection in real time, which is our ongoing work.