

Exploration of Facial Expression in Legal Proceedings

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Background

In (???), A judge is expected to “maintain a standard of behaviour in court that ... does not diminish the confidence of litigants, ... ,in the ability, the integrity, the impartiality and the independence of the judge” and this is achieved through certain judicial demeanor (Tutton, Mack, and Roach Anleu (2018) and Goffman (1956)). However, from a behaviour perspective, some facial and vocal inflections are often unbeknown to the speakers (Ekman et al. (1991)) and thus many scholars are studying the court outcome through the language and words used by the judges in the court (Shullman (2004)) and their vocal and facial characteristics ((???)).

There’s existing literature to understand the emotion of the Justices from a linguistic perspective and suggest some factors that could be useful to indicate the justices’ vote and thus the court outcome. These factors includes the use of pleasant and unpleasant language by Black et al. (2011), the frequency and content of Justices’ questions by Shullman (2004) and Johnson et al. (2009). A statistical method is used by (???) to include a regression analysis to the number of questions asked by the Justices to infer the winning party in the court.

Other scholars have studied the emotion of the Justices from vocal characteristics and suggesting that these vocal characteristics especially the perceived masculinity is strongly correlated with the court outcomes (???, (???), (???). (???) uses a multilevel logistic model with random effect to suggest subconscious vocal inflections contains information that are not available from textual information.

(???)’s work in 2018 employed both vocal and facial characteristics to predict the court votes using the Supreme Court data from 1946-2014. The audio clips is first preprocessed to get the Mel-frequency Cepstral Coefficients (MFCC) and then applied to a random forest model while the image features are extracted using Histogram of Oriented Gradients (HOG). However, this approach on image feature extraction is a general method for image analysis and more specific facial recognition software is readily available to extract human facial features. We have yet to see these facial recognition technology being applied to the legal study.

Also, most of the paper above are conducted using the U.S. Supreme Court Database and less studies have conducted using Australia High Court data. (???) has used an ethnographic approach to study the transcript and audio visual recordings in the High Court of Australia but the study is conducted in an observational manner via matching the Justices’ body movement and appearance with the transcript.

It is thus not difficult to notice that a more accurate approach could be employed to understand the emotion of the Justices in the court. An Anatomical analysis of facial action was conducted in 1976 by (???) and there comes the Facial Action Code(FAC) (???), which has been further revised by (???). This decomposition of facial muscles is widely used in scientific research, animation (<https://www.paulekman.com/facial-action-coding-system/>) and even nowadays, computer vision((???)).

A series of emotion recognition challenges then pop up with an aim to better detect the facial emotions in the real-world audio-video based images(Emotion Recognition In The Wild Challenge and Workshop (EmotiW) 2013: Dhall et al. (2013) and Kahou et al. (2013); Audio/Visual Emotion Challenge: (???) and Schuller et al. (2011)).

An example is its application in competitive sports, specifically tennis. (???) find that the emotion of professional tennis players will have an impact on their performance and the Facial Action Coding System(FACS) is modified to sport-relevant emotions to better suits the context.

Therefore, there’s a gap of employing statistical analysis to the Justices’ facial images in the context of the High Court of Australia and this will be the focus of my thesis.

OpenFace (???) provides a state-of-the-art implementation of facial expression detection including facial landmarking, eye gaze tracking and facial action unit detection. Along with its previous version ((???)), the OpenFace toolkit has been used in different social researches including depression classification((???)) and social signal processing ((???))

Reference

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