STATIC FACIAL EXPRESSION RECOGNITION WITH MULTI-LAYER DEEP LEARNING

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There are many factors that can play a role during encoding, which makes the recognition not accurate enough. In addition, based on the previous research that has been done in facial recognition, the images in facial action coding system are still very limited. My research builds on the existing methods for facial recognition and focus on generating more accurate and diverse results by using deep learning with advanced facial landmarks technique and categorical model. This research is focusing on improving the accuracy and diversity of facial expression recognition with deep learning.

SVM:
- Supported Vector Machine
- Local neural network
- Polynomial kernel with degree of 3-23
- Radial basis function kernel (rbf)

	rbf	poly 3	poly 6	linear	sigmoid
auto gamma	89.6059	85.7763	85.0824	82.9353	64.7059
scale gamma	72.5294	74.7824	78.4412	85.6882	63.8706

MLP:
Multilayer Perception
Global neural network
Stochastic gradient descent with adaptive learning rate
Stochastic gradient-based optimizer (adam)
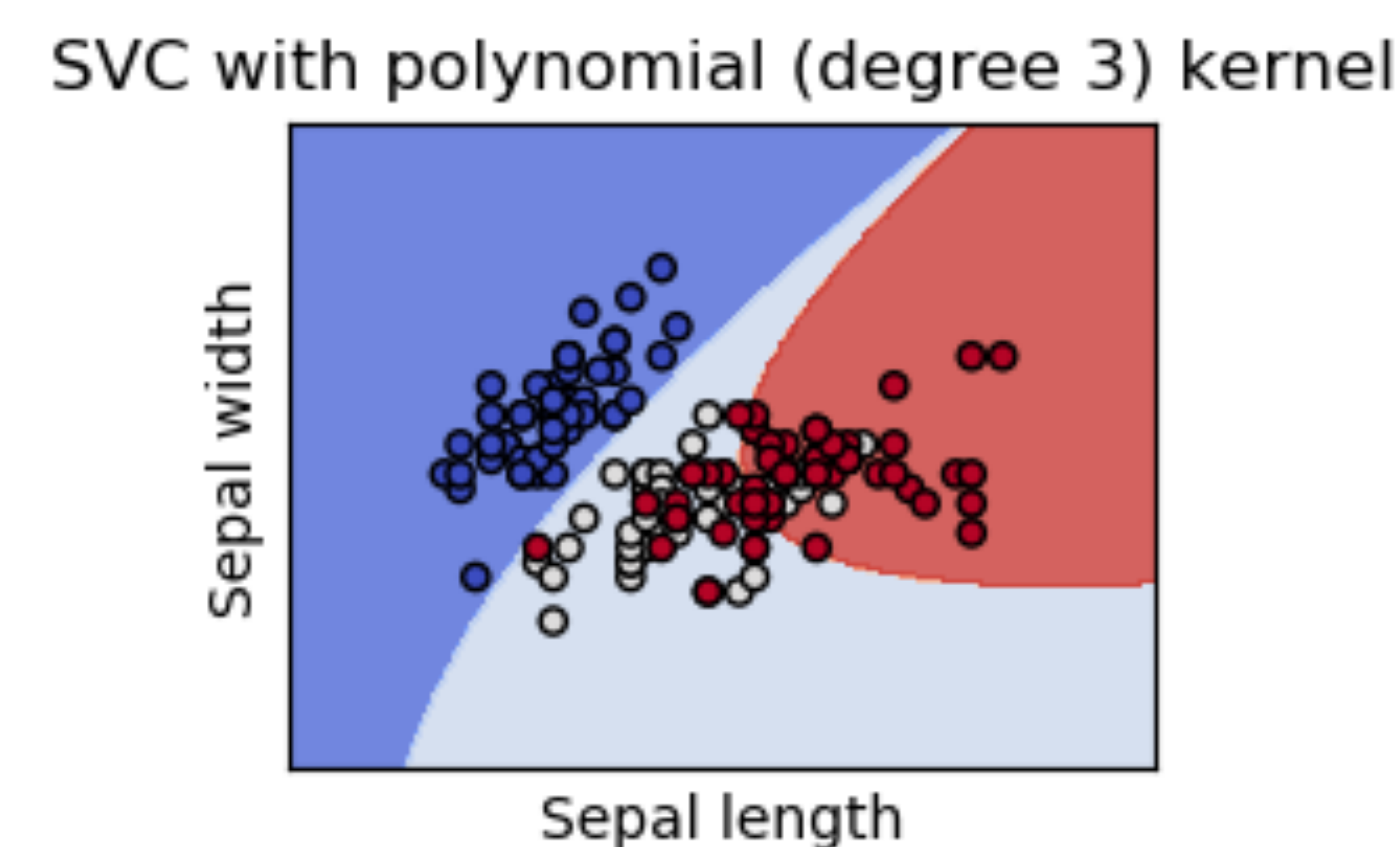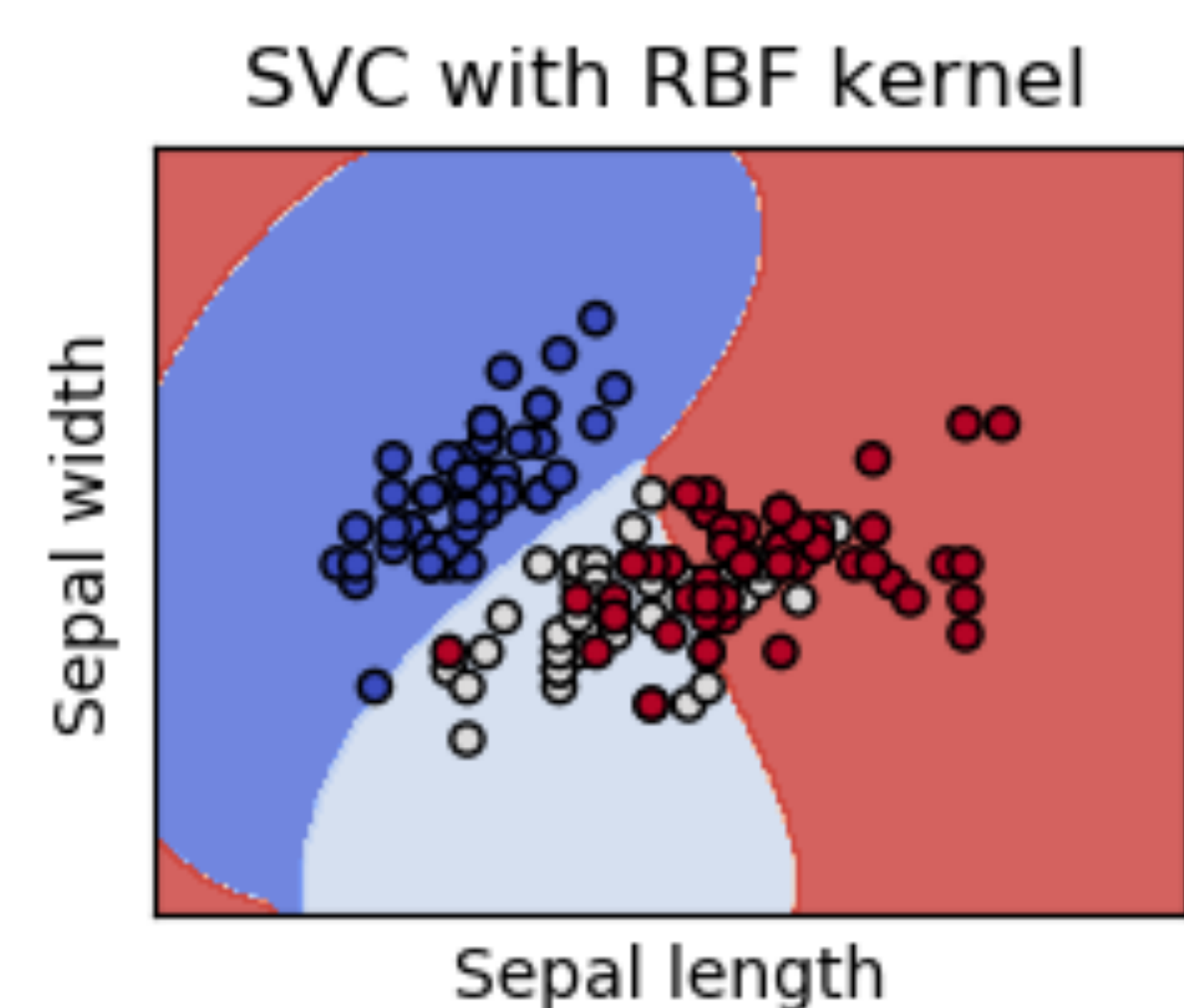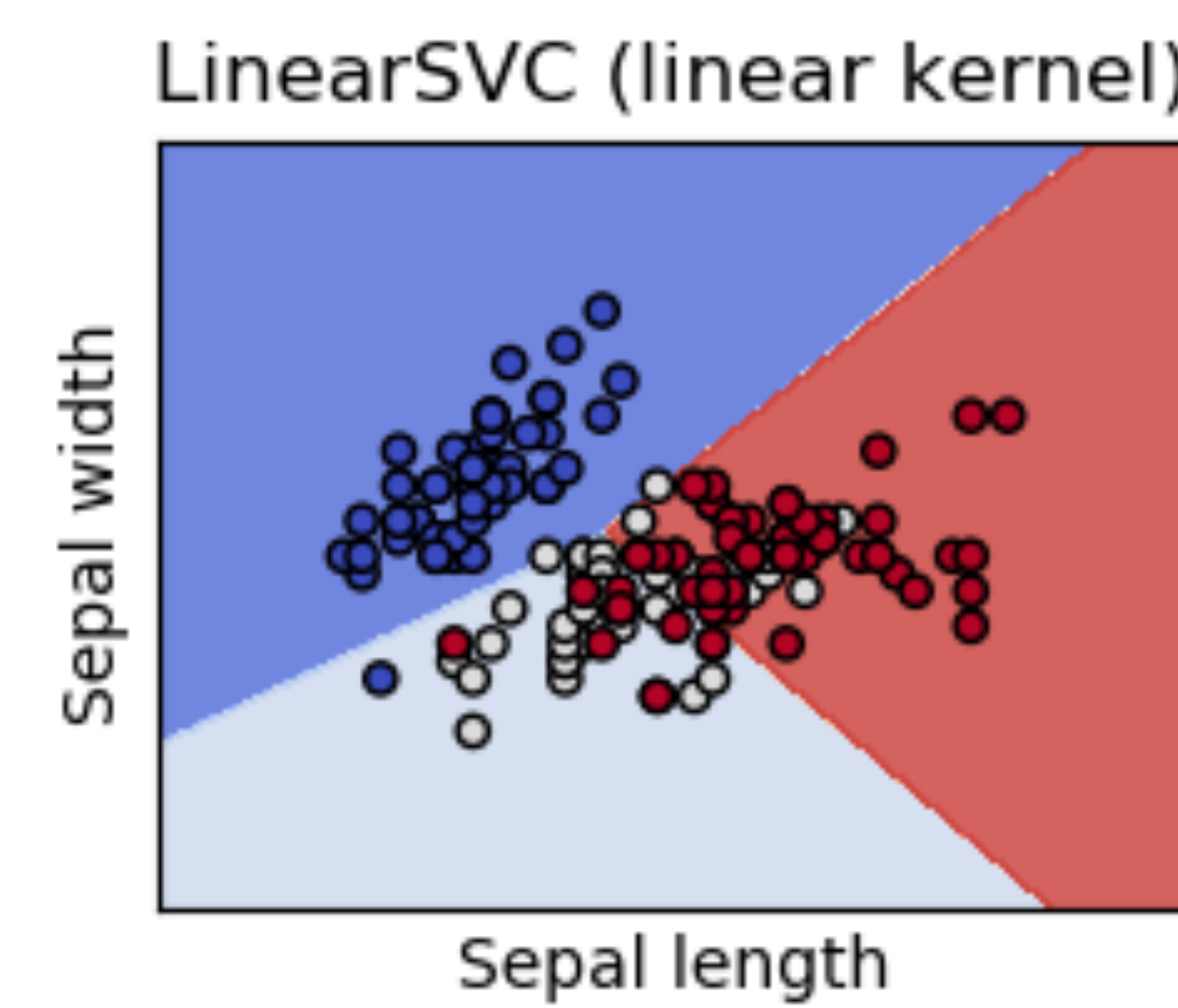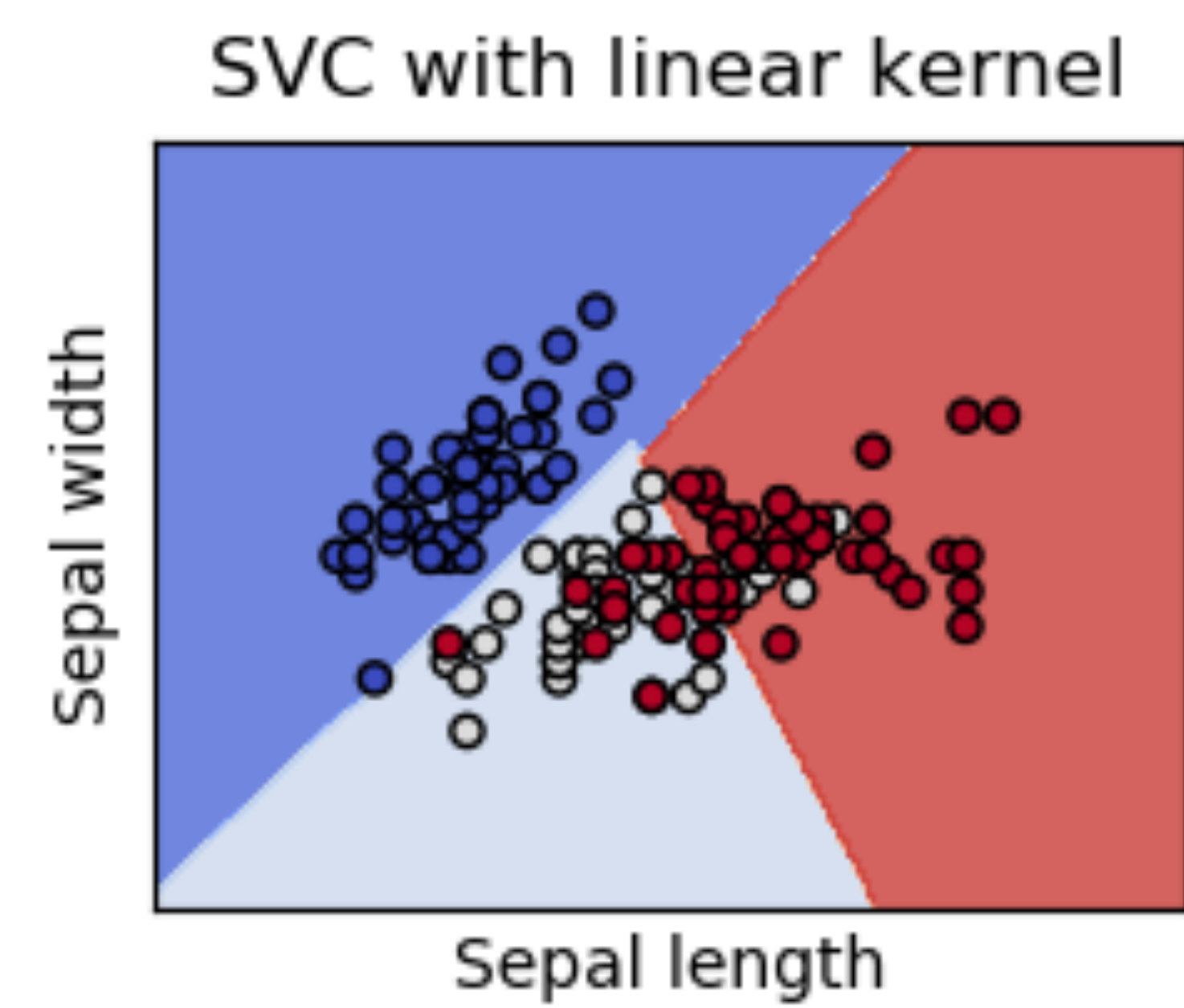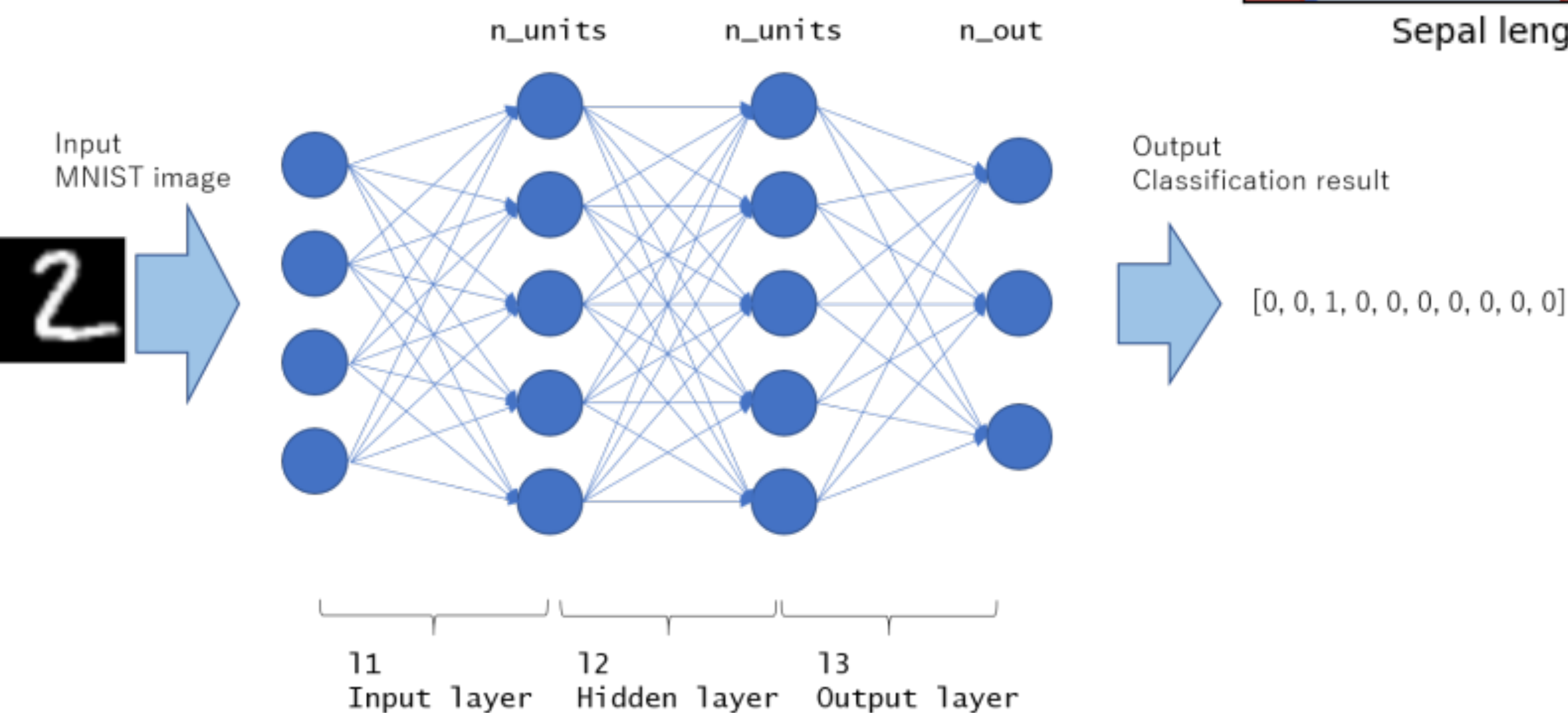
Different types of smiles
There are 19 types of smiles but only 6 are for happiness
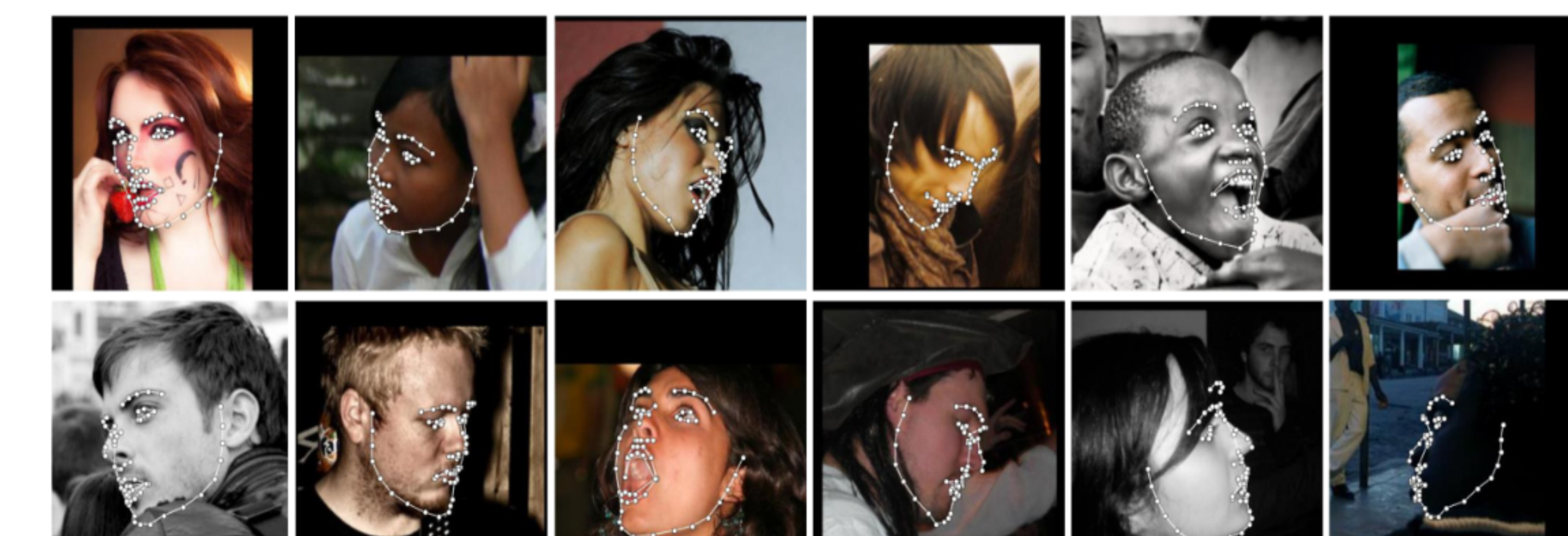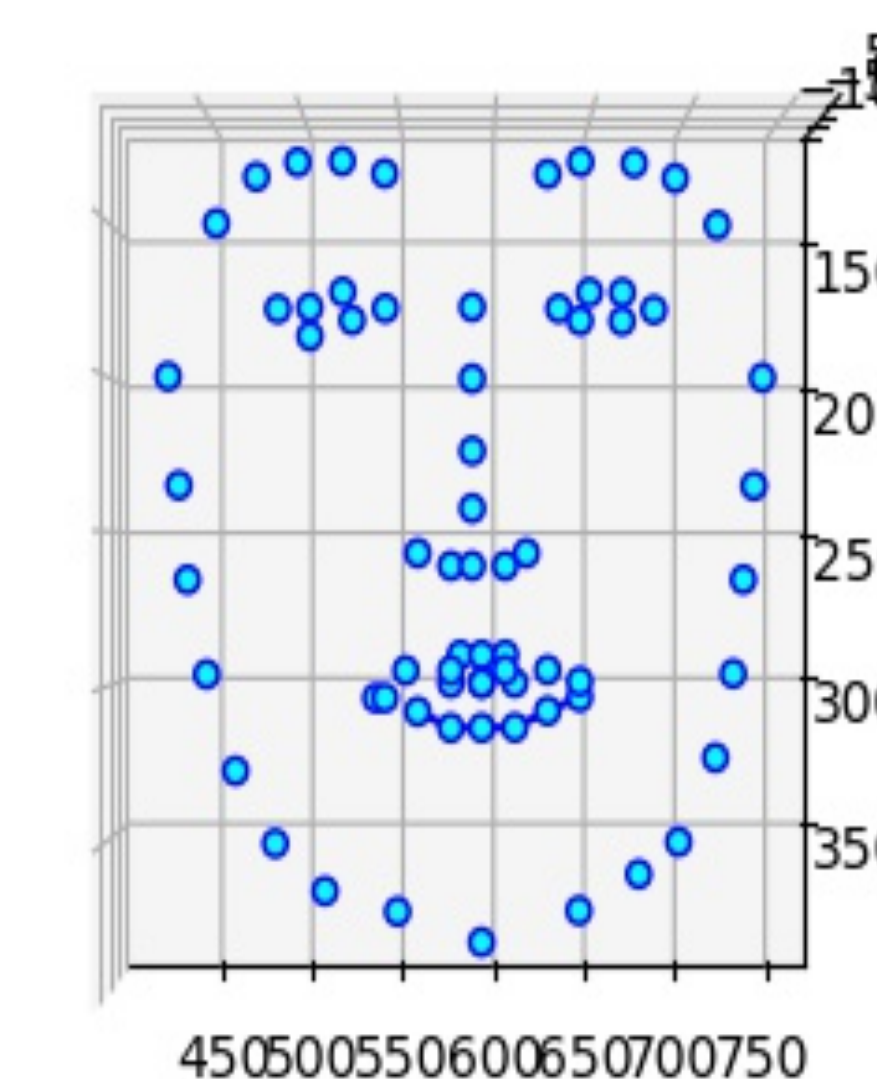Detecting subcategories of happiness
- Happy smiles
- Fake smiles

Smile (standard)	Happy Smile	Fake Smile
89.6059	87.6098	87.2275

Facial Landmarks
Facial landmark detection is the process of finding points of interest in an image of a human face.
Facial landmarks used in this research:
- Dimpler
- Outer brow raiser

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