

Age Estimator



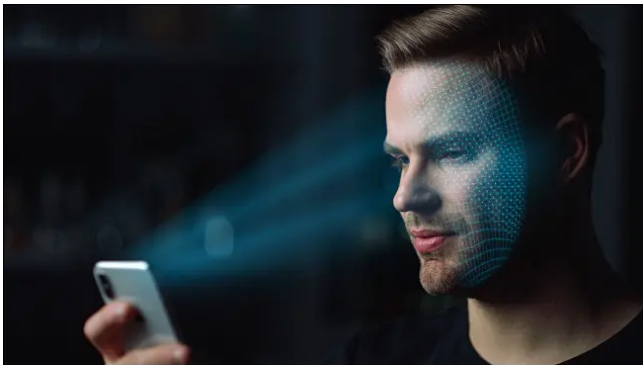
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Introduction

- Goal to build a machine learning model to estimate a persons age
- Used in healthcare, security, beauty industry...



Our solution

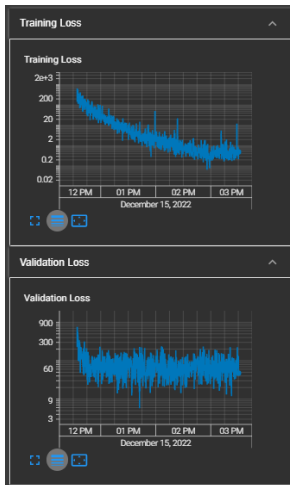
- Convolutional neural networks (CNNs)
- First model: 2 convolutional layers -> 1 fully connected linear layer with age estimate output
- Second model: 5 convolutional layers -> 1 fully connected linear layer
- Third layer: 5 convolutional layers -> 5 fully connected linear layers

The more complex model achieved better results.

Results and comparison to existing work

- model was trained and evaluated on the UTKFace (Zhang and Qi, 2017) dataset
- we evaluated our model on a previously unseen test set containing 25% of the dataset
- we report several measures of our model's performance following existing papers

Mean squared error (MSE) during training

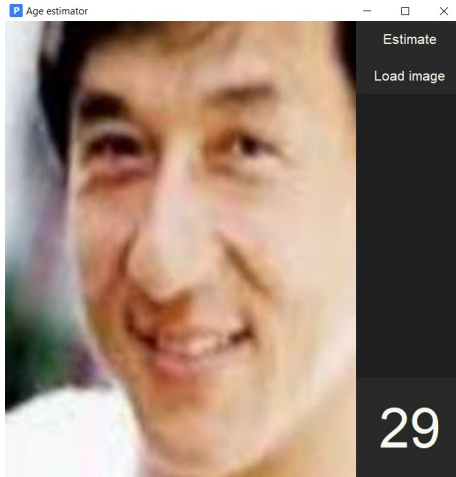


Comparison to existing work

- classification accuracy on the dataset grouped into four age classes: 0 – 12 (childhood), 13 – 19 (teenage), 20 – 59 (adulthood) and 60+ (senior)
- average age-bucket absolute difference (AABD) - the average of the absolute differences between the true age buckets and the predicted age buckets (intervals of ten years)

Measure	Value	Comparison
MAE	5.90	4.37 by (Shin et al., 2022)
Accuracy (four classes)	87.26%	80.76% by (Raman et al., 2022)
AABD	0.57	0.11 by (Abdolrashidi et al., 2020)

Graphical user interface



Conclusion

- we developed a deep convolutional neural network for age estimation, consisting of 5 convolutional layers with $2D$ max-pooling and batch normalization followed by 5 fully connected layers
- we built a graphical user interface for more convenient use
- we find our results comparable to existing work and near state-of-the-art on the UTKFace dataset

Future work

- this work had limited computational power
- experiment with different architectures
- add more layers or increase the size of the layers
- train and/or evaluate our model on different age estimation datasets