

# Image Enhancement for Facial Landmark Detection

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Facial landmark detection (FLD) is a field of study in computer vision that specializes in detecting and tracking key points from human faces. There are many applications, such as detecting a human's head pose (position and rotation), tracking whether drivers are paying attention or not, applying augmented reality, etc. Common problems for FLD algorithms include occlusion and pose variation. Mapping errors have a high chance of occurring because the problem implies a transformation from a tri-dimensional space into a two-dimensional one. Furthermore, because the environmental conditions in which the picture was taken affect the quality of the photo, the landmark detection algorithms may misinterpret the key points. This paper proposes to evaluate and decide what are the optimal techniques of image enhancement that can be used to improve different algorithms of FLD. After proposing different pipelines of contrast enhancement and grayscale conversion to enhance the image before applying the FLD algorithm, the results show that the performance will not increase drastically if an image enhancement pipeline is used, but for the reason that this step will not consume a lot of time in the process of detection, it is a step worth considering.

**Authors:** Mr CIUNTU, Victor (University Politehnica of Bucharest); Mr CHIORNITĂ, Traian (University Politehnica of Bucharest); Prof. BOIANGIU, Costin-Anton (University Politehnica of Bucharest); Mr TARBĂ, Nicolae (University Politehnica of Bucharest); Mr VONCILĂ, Mihai (University Politehnica of Bucharest); Prof. ROSNER, Daniel (University Politehnica of Bucharest)

**Presenter:** Mr TARBĂ, Nicolae (University Politehnica of Bucharest)

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