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# IMAGE-BASED 3D RECONSTRUCTION AND ANALYSIS FOR ORTHODONTIA

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Abstract. Among the main tasks of orthodontia are analysis of teeth arches and treatment planning for providing correct position for every tooth. The treatment plan is based on measurement of teeth parameters and designing perfect teeth arch curve which teeth are to create after treatment. The most common technique for teeth moving uses standard brackets which put on teeth and a wire of given shape which is clamped by these brackets for producing necessary forces to every tooth for moving it in given direction. The disadvantages of standard bracket technique are low accuracy of tooth dimensions measurements and problems with applying standard approach for wide variety of complex orthodontic cases. The image-based technique for orthodontic planning, treatment and documenting aimed at overcoming these disadvantages is proposed. The proposed approach provides performing accurate measurements of teeth parameters needed for adequate planning, designing correct teeth position and monitoring treatment process. The developed technique applies photogrammetric means for teeth arch 3D model generation, brackets position determination and teeth shifting analysis.

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