

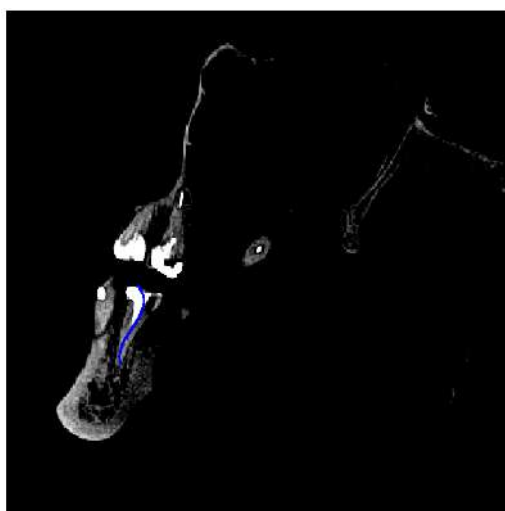
LENGTH MEASUREMENT OF AN OBJECT ON AN X-RAY IMAGE USING POLYNOMIAL APPROXIMATION OF THE SEGMENTED OBJECT'S MIDLINE

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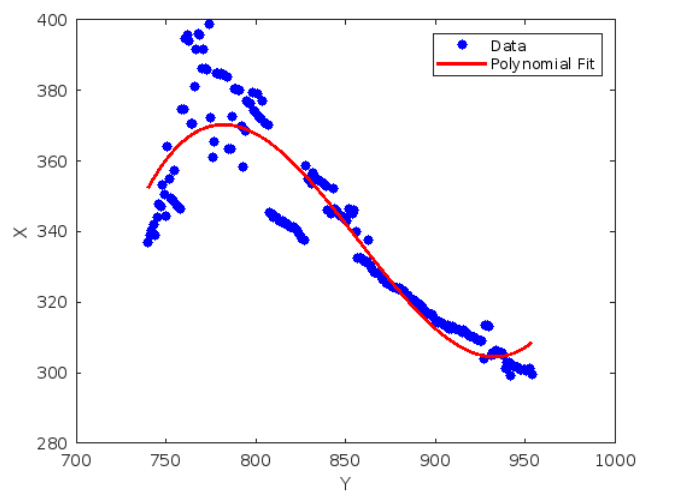
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It is crucial to calculate the length of the root canal before the operation to ensure that the canal is cleaned and shaped to the full length of the root. Leaving any part of the canal uncleaned can lead to the persistence of bacteria and ultimately lead to treatment failure. The program provided is an image processing algorithm that can be used to detect and measure the length of root canals from digital radiographic images. It works by first cropping the image to the region of interest, scaling it, binarizing it, and then applying image processing techniques such as boundary detection, region properties analysis, and filtering to isolate the canal's length. Finally, the program extracts the coordinates of the canal's length, which can be used to calculate its length accurately.

By automating the process of measuring the length of the root canal, the program can save time and improve the accuracy of the procedure, leading to better patient outcomes.



a



b

Figure 1 – Demonstration of the program performance:
a - initial image and curve showing the channel flexure,
b - polynomial approximation of the midline of the tooth

References:

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2. Малахова О.Ю., Носова Т.В., Жемчужкіна Т.В. Про порушення біомеханіки нижньої щелепи внаслідок використання знімних протезів. Сучасні проблеми інфокомунікацій, радіоелектроніки та наносистем СПІРН-2019: Матеріали І Міжнародної науково-технічної конференції. Вінниця: ВНТУ, 2019. С. 157–158.