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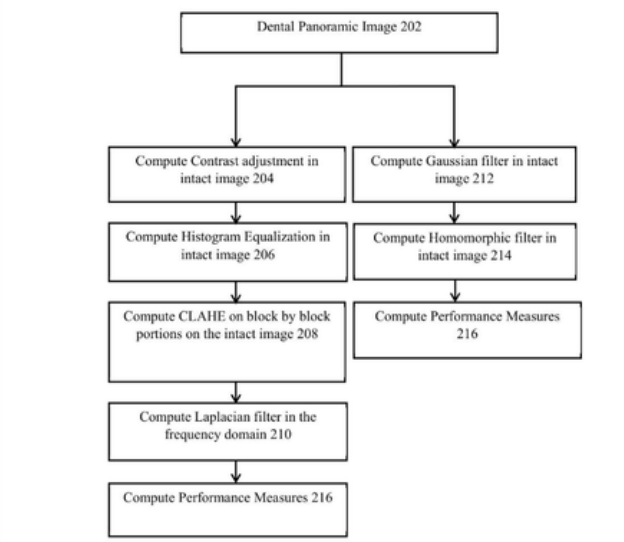
SYSTEM AND TECHNIQUE FOR DETECTING INFERIOR ALVEOLAR NERVE CANAL IN DENTAL IMAGES

Seeking parties interested in licensing and commercialization of technology.

Technology Brief

This technology discloses an advanced image processing system and computer-implemented method for enhancing and accurately detecting the Inferior Alveolar Nerve Canal (IAC) in panoramic dental images obtained from various imaging modalities. The core architecture integrates new-intensity-range contrast adjustments, global histogram equalization, and block-by-block Rayleigh distribution-based contrast enhancement alongside frequency-domain Laplacian filtering to intensify subtle edge details. By further incorporating Gaussian low-pass, homomorphic, and sharpening filters, the system significantly improves visualization and precise localization of the nerve canal without loss of structural details or degradation of image quality.

Block Diagram



Technical Applications

This nerve detection technique is primarily designed for dental diagnostic software, digital radiography workstations, and computer-assisted maxillofacial surgical planning systems. It provides critical decision support during pre-operative evaluation for dental implant placement, wisdom tooth extractions, lower jaw osteotomies, and endodontic procedures to minimize the risk of accidental nerve injury and neurological complications.

Salient Features

- Multi-Stage Adaptive Enhancement
- Frequency-Domain Laplacian Edge Refinement
- Preservation of Radiographic Details

Glimpse of the Technology

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TECHNOLOGY SECTOR
Biotech & Healthcare

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TRL 3

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