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Two-Stage AI Pipeline for Liver Disease Detection and Classification Using Liver Function Tests

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ABSTRACT

This paper presents a novel two-stage artificial intelligence approach for liver disease detection and classification using standard Liver Function Test (LFT) parameters. While numerous studies have addressed binary classification of liver disease presence, few have attempted to identify specific liver conditions using only LFT data. Our approach combines a Neural Network for initial disease detection (95.9% accuracy) with a Support Vector Machine for specific disease classification (79% accuracy), enabling identification of hepatitis, fibrosis, and cirrhosis. This practical approach utilizes commonly available blood test parameters, ensuring its suitability for healthcare settings with limited resources while maintaining strong diagnostic accuracy.

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