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Thyroid Diagnosis using Deep Learning

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Abstract: *This paper presents an AI-powered system designed to detect thyroid disorders quickly and accurately using deep learning and voice interaction. By analyzing ultrasound images with models like CNN, ResNet-50, and VGG16, the system can identify conditions such as hypothyroidism, hyperthyroidism, thyroiditis, nodules, and thyroid cancer. It's especially helpful for users in remote or underserved areas.*

To make the experience more user-friendly, a voice-enabled chatbot—built with DialoGPT—answers common thyroid-related questions. The system includes speech recognition, text-to-speech, and a simple Tkinter-based interface with secure login.

Overall, this solution combines smart diagnostics with natural, hands-free interaction to support early detection and user engagement. Future upgrades may include support for more diseases and hospital system integration.

Keywords: Thyroid detection, Deep learning, Voice interaction, AI in healthcare, CNN, ResNet-50, VGG16, Chatbot, Ultrasound, Tkinter

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