**Comprehensive Cancer Analysis: CNN-Based Classification of Malignant vs. Benign Tumors with Staging Insights**

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**Abstract:**

The scope of this study is to build an advanced artificial intelligence system which uses Convolutional Neural Networks (CNNs) to identify and categorize tumors as benign or malignant and to predict the cancer stage for early diagnosis. The suggested model will provide precise and trustworthy diagnostic outputs by utilizing a labeled medical image dataset, enabling prompt cancer detection by medical professionals. Through offering a user-friendly interface which enables real-time analysis and seamless integration with electronic health records (EHRs), this initiative aims to improve treatment outcomes and reduce diagnostic errors. To enhance the solution's potential application, the project also explores 3D tumor modeling, predictive analytics, and multi-cancer detection capabilities. By resolving crucial issues like data accessibility, algorithm sensitivity, and clinical workflow integration, this creative strategy seeks to revolutionize diagnostic tools for patients, researchers, and healthcare professionals. Our ultimate objective is to equip medical professionals with state-of-the-art tools that improve cancer detection, forecast cancer stages, and enhance patient care in general.