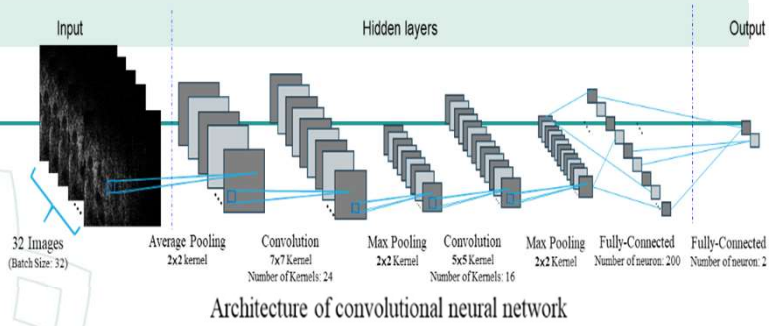
Biotechnology and Healthcare

R&D Endorsement

Title

Convolutional Neural Network Classification of Basal Cell Carcinoma

Abstract	Basal cell carcinoma (BCC) is the most common form of skin cancer, which causes local damage of nerves or tissues. Since the tumor growth of BCC is gradual and painless, instances where tumor detection is too late for effective removal of the expanding mass commonly occur. This technique uses thousands of normal and infected collagen fibers images to train the convolution neural network and initialize the kernels of convolution layer according to the experience of image processing, so that it can accurately and rapidly distinguish between normal and diseased skin from medical device-generated images.
Benefits	Our technique is able to distinguish between normal and basal cell carcinoma within human skin tissues at high accuracy with the following limited requirements: 1. Use non-invasive image with low image quality as training data. 2. Large number of training data not required 3. Adopt the neural network architecture with lower depth compared to modern neural network models
Industry Categories	1.Information Technology 2.Medical diagnosis
Keywords	Skin cancer, Biomedical image, Basal Cell Carcinoma (BCC), Neural Network, Convolutional Neural Network (CNN), Image segmentation, Feature extraction, Gabor filter
Patent No.	US 11,538,158



Architecture of convolutional neural network

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