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(54) **Title:** BIOLOGICAL IMAGE TRANSFORMATION USING MACHINE-LEARNING MODELS

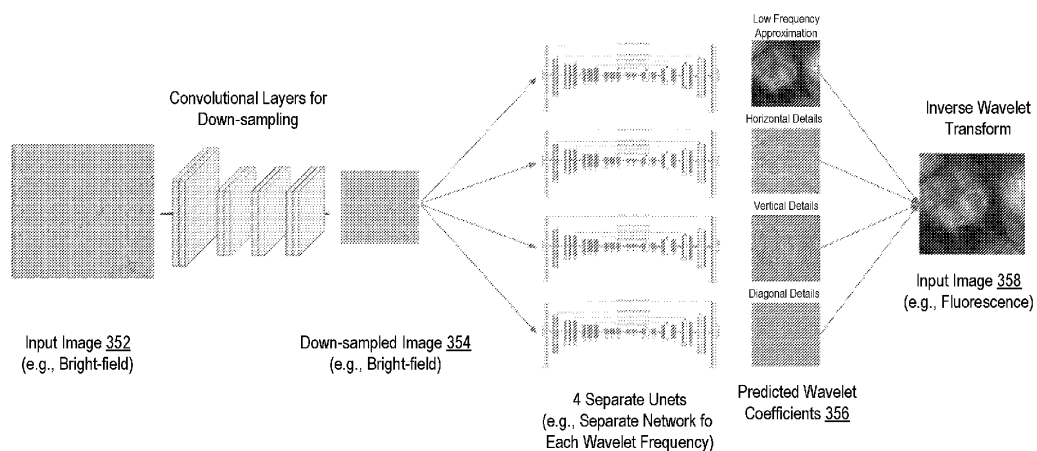


FIG. 3B

(57) **Abstract:** Described are systems and methods for training a machine-learning model to generate image of biological samples, and systems and methods for generating enhanced images of biological samples. The method for training a machine-learning model to generate images of biological samples may include obtaining a plurality of training images comprising a training image of a first type, and a training image of a second type. The method may also include generating, based on the training image of the first type, a plurality of wavelet coefficients using the machine-learning model; generating, based on the plurality of wavelet coefficients, a synthetic image of the second type; comparing the synthetic image of the second type with the training image of the second type; and updating the machine-learning model based on the comparison.

[Continued on next page]

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