Deep learning and Binocular Vision

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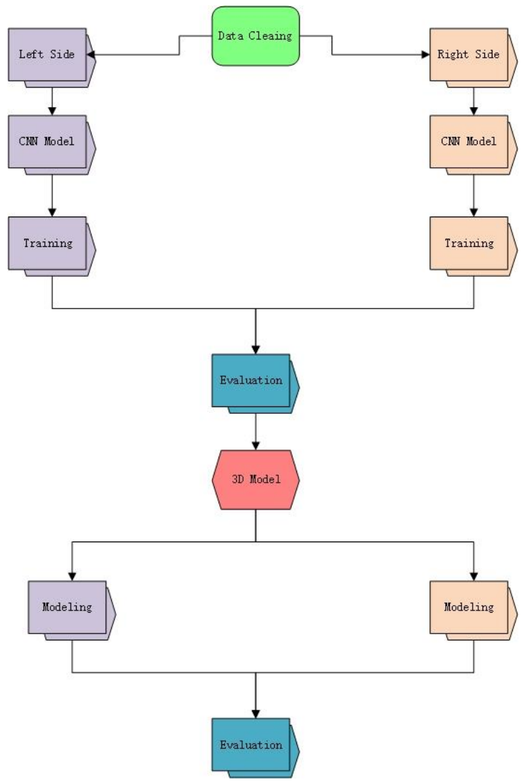
Background & Aim

At present, most of the research on image model and neural network learning related to pictures focuses on monocular vision. Research on the contribution of binocular vision image still lacking.

Comparing the classification models, select binocular signals differentially, and evaluate the contribution of these signals to object classification and 3D image attribute estimation.

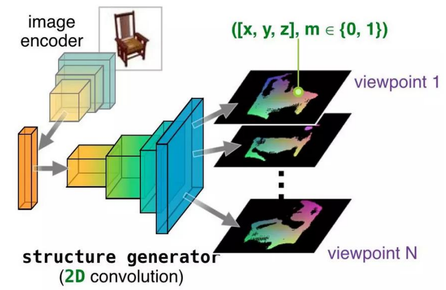
The Process

Through paired input of binocular image signals, the possible selectivity of CNN classification model for paired signals is trained and studied. To assess the role of current classification models. Correction and synthesis of binocular images under irrational conditions are studied, and a 3D image model is constructed.

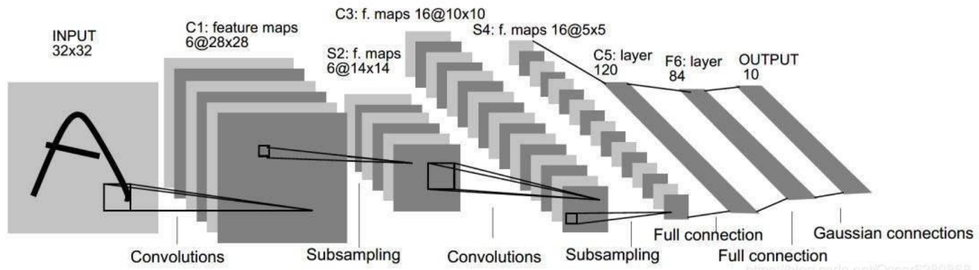


Algorithm&Method

3D image: The mapping of multiple 2D projections from a single image to a point cloud defines a perspective projection as: 2D projection == 3D coordinates (x, y, z) + binary mask (m)



CNN: The LeNet is through a convolution layer, then through pooling, then through convolution, then a pooling layer, and finally three full connection layers. The final output of 10-dimensional vectors is the result of classification.



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