Image strokes generation

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Objective

The objective of this project is to develop an LSTM-based model that predicts and generates the missing parts of a half-complete image, creating a visually seamless full image. By leveraging LSTM's ability to capture sequential dependencies, the model will infer missing details from the partial input and a given reference Image, supporting applications in image restoration and completion, The predicted strokes can then use by a robotic arm to draw that image.

Dataset : [for link please click here](#)

The Quick, Draw! dataset is a large collection of hand-drawn doodles created by users in a game developed by Google. It contains over 50 million drawings across various categories, including objects, animals, and symbols. Each drawing is represented as a sequence of strokes, making it especially suitable for sequence-based models like LSTMs.

For your image completion project, this dataset provides an ideal resource because the data is in the form of stroke-based vector drawings rather than pixel-based images, allowing the LSTM model to predict the sequence of remaining strokes for a partially completed sketch. This approach leverages the temporal and spatial relationships in the drawing process to create more accurate and realistic image completions.
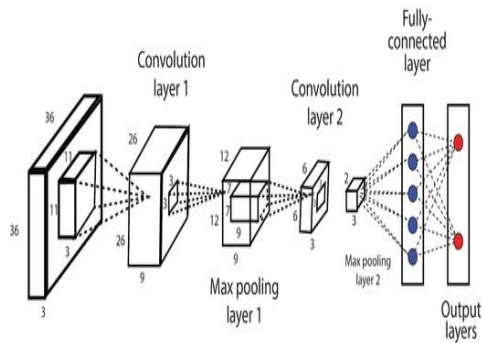
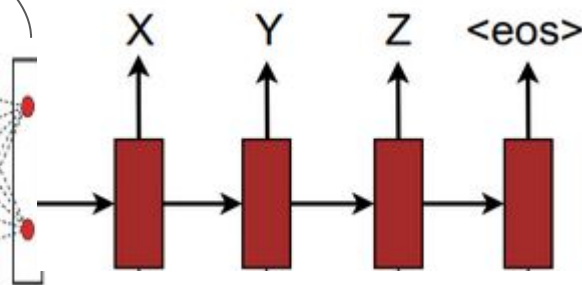The below drawn is an image of airplane from the dataset
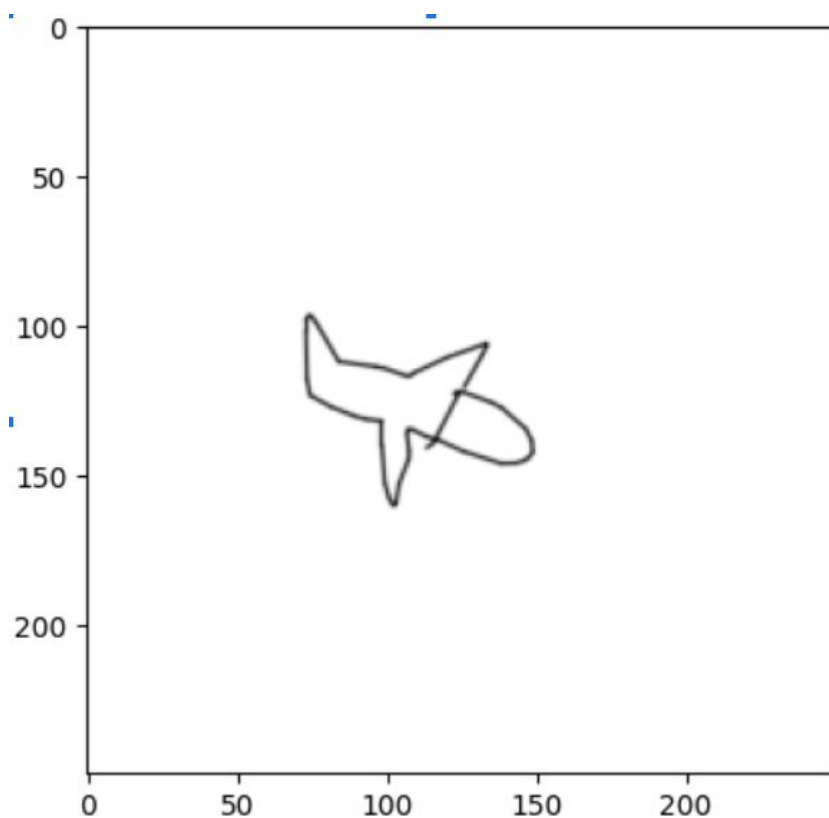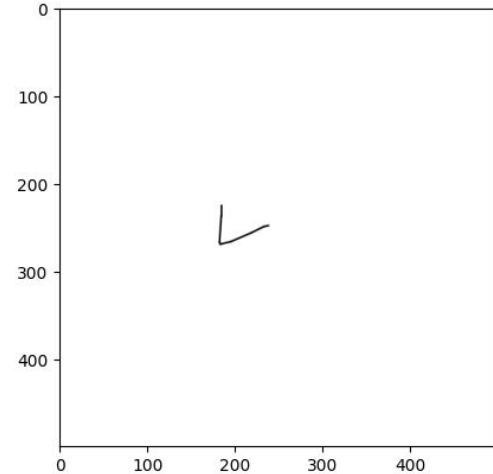
Model Architecture
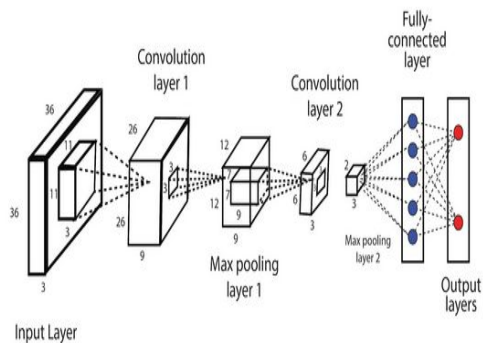
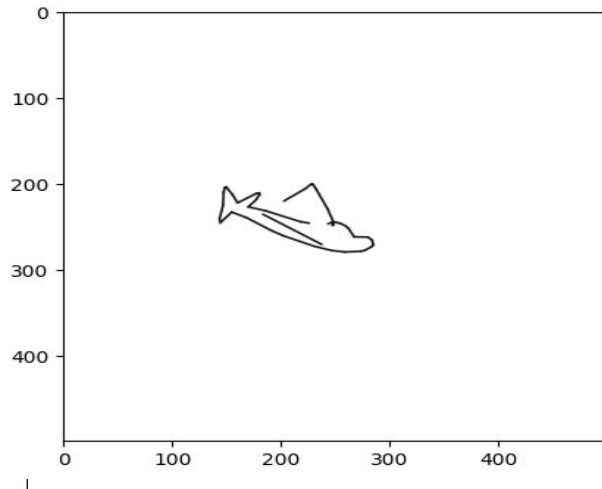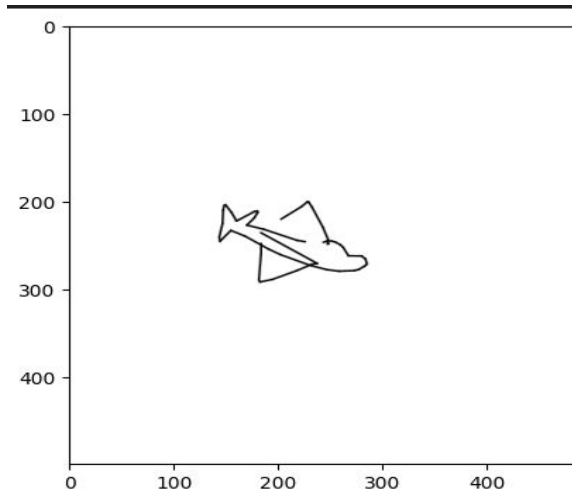Half Image

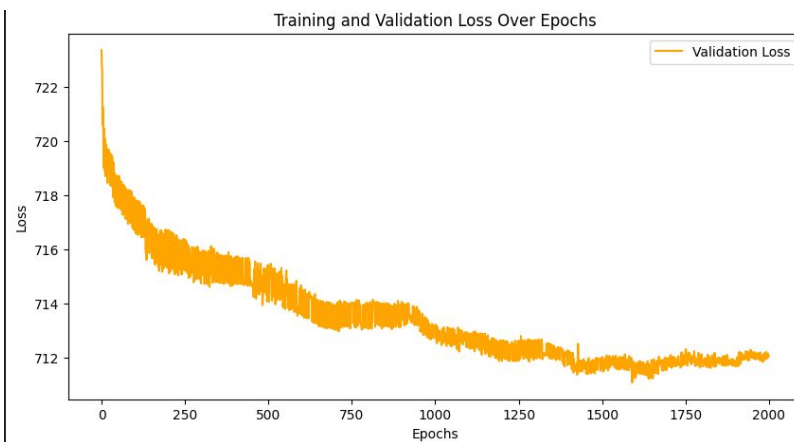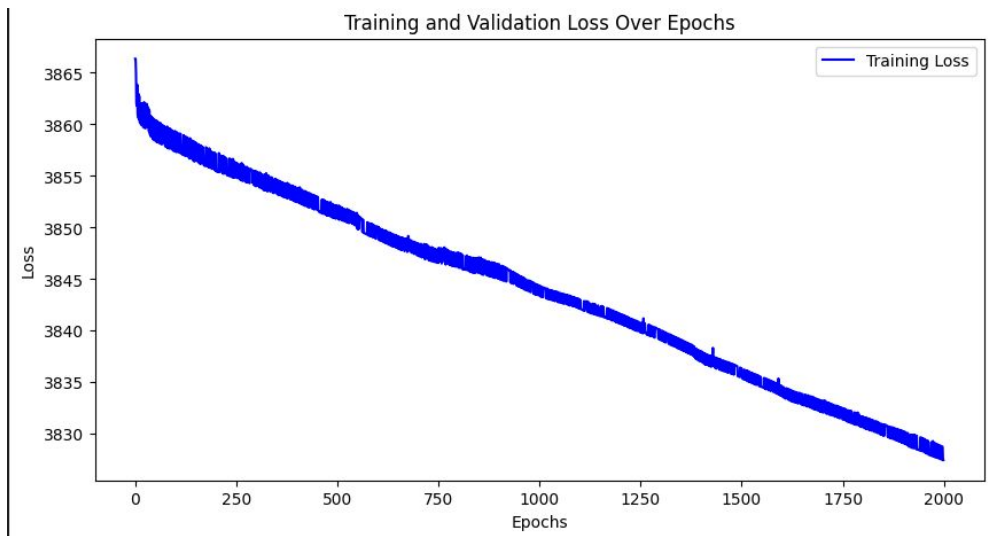Reference Image

Predicted Strokes

X   Y   Z   <eos>

LSTM

Concatenated Embedding
for applying conditions

Combined Image , Given Image and last predicted last strokes

Losses

Architecture_2 for real time prediction