

What are you curious about?

Ozgur Gulsuna

idea board, more like a idea list, on the machine learning project.

Thought Sketches

Higher Dimensional Point Cloud Data Analysis

- Classification, Completion, Corner/Feature Detection, etc.
- Spatial meaning in 3D, what can be captured in multi-D, can learning based models grasp the meaning.
- Getting familiar with point cloud data, easy to capture convert.

/ Inflate / Deflate /

- input: 3D point cloud data, output: 3D point cloud data that is inflated or deflated.
- Can difficult transformations that has physical/simulational meanings be imitated faster ?
- 3D programs to create the data in bulk. Large model to train.

Attractors: Mathematics behind the Chaos

- Dynamic systems that have point cloud representations. Can be in any dimensional size and be projected onto other.
- Starting with classification in order to select a close enough model. Again cubic kernels might be utilized. Layered parameter extraction from point clouds with different initialization samples.
- Can we find a way to represent the attractor in a lower dimensional space / how is it resemble the higher dimension nature.
- Hourglass network, adversarial training to "create" new attractors.

Style Transfer from Natural Phenomena

- Can we learn the style of a natural phenomena and transfer it to an image creation problem.
- Canopy structure with a shading surface that imitates the natural shadow fall.
- sea waves, clouds, foliage, etc.
- more depth by 2D layered to increase dimensionality with temporal coherence.
- Laser cut. "Analysing Oriented Patterns" paper. [Adversarial training, GAN, etc.]

Predict the Evolvement of a System

- Can we predict the evolvement of a system, given the initial state and the rules of the system.
- Cellular automata, game of life, etc.

- Bacteria growth, plant growth, cloud formation, texture genesis such as rusting and dying, flocking birds and fish etc.
- The system would identify the given input and iterate on it with its way.
- Given that a basic image sequence, a data for training is easily created.
- Iteratively predicting the next state from the previous state. An animation of the evolvement can be created. [rotation, scale, translation, etc.]

Plotter Problem

- can we create a vector image from a raster image.
- vector, mathematical functions.
- MNIST dataset in vector form.
- first step vector from raster. second step a complete new vector image.
- Stippling and other techniques can be imitated ?

Font Classification and Generation

- Typography, font classification, font generation.
- Sherif, Sans, Serif, etc.
- A complete new understanding of fonts in higher dimensions, "3D fonts" [Chinese Cangjie].
- What would happen with a figure rather than font.

synesthesia

- Inter dependent relation of mass senses collaborate to create a response to an input.
- the system is trained with inner layers. Outer system is observed.
- can machines feel the synesthesia.

Extra

- Shadow Position Estimation for an Intelligent Canopy
- Camera Intrinsics and Extrinsics Estimation
- ErdemBOT - Clone anyone