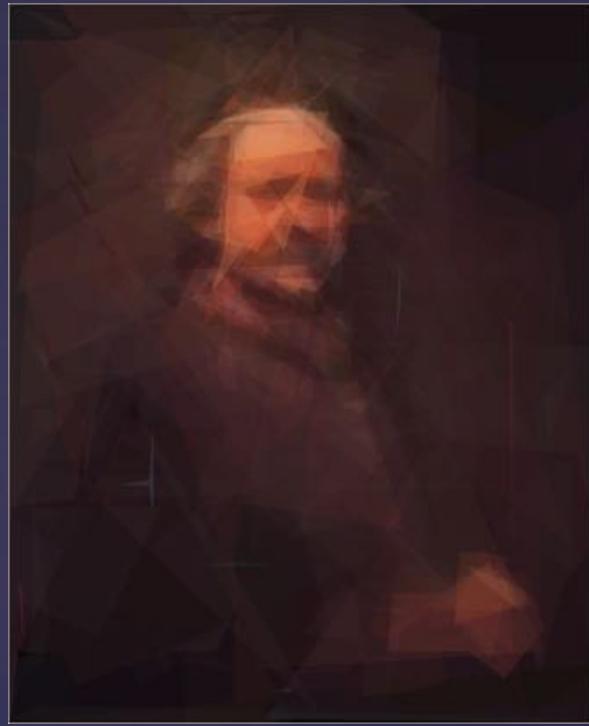


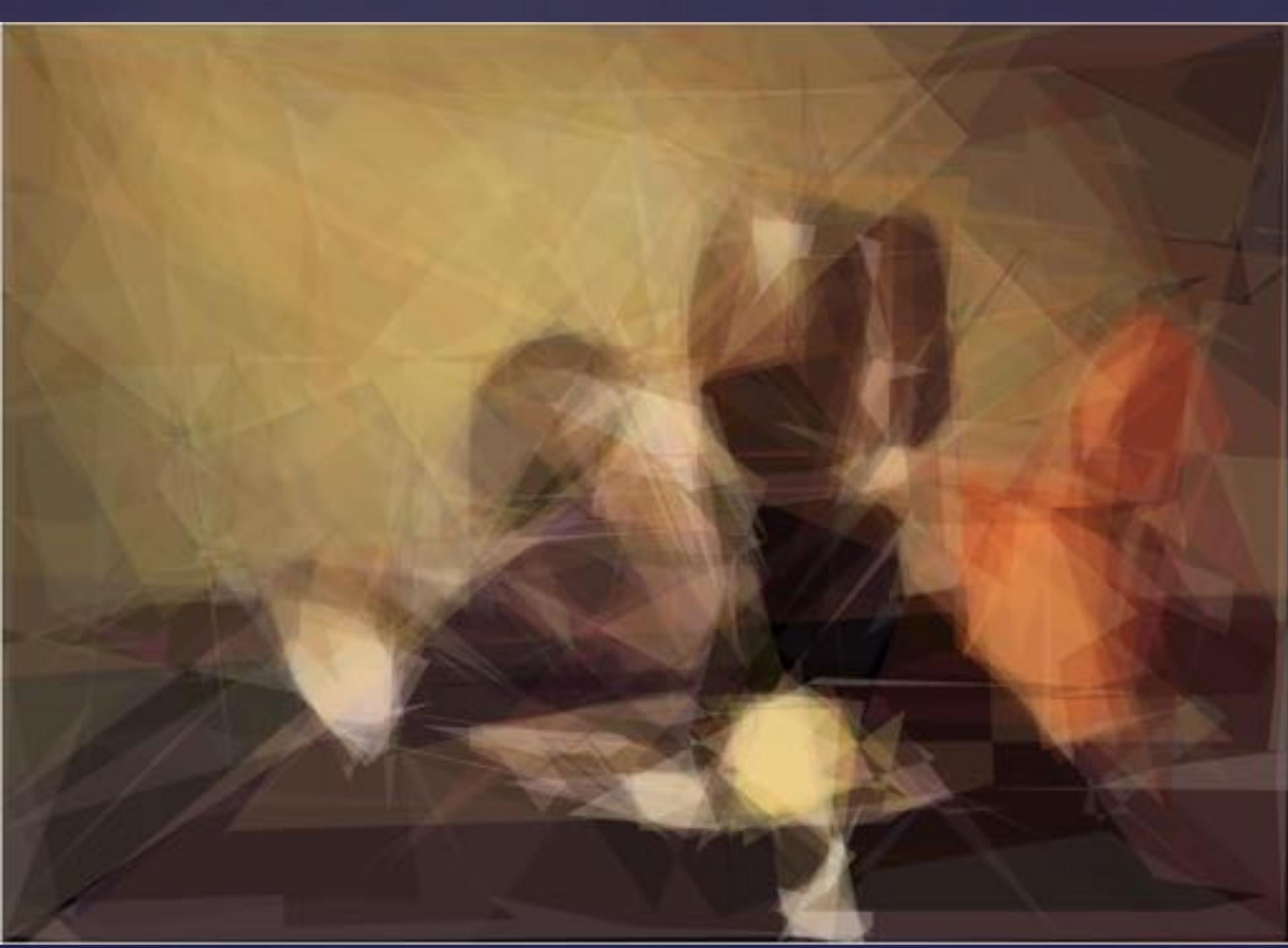
Evo-algorithm and Computer-aided Design

{ BCMI Lab
ACM Class, Zhiyuan College
Huang Zen





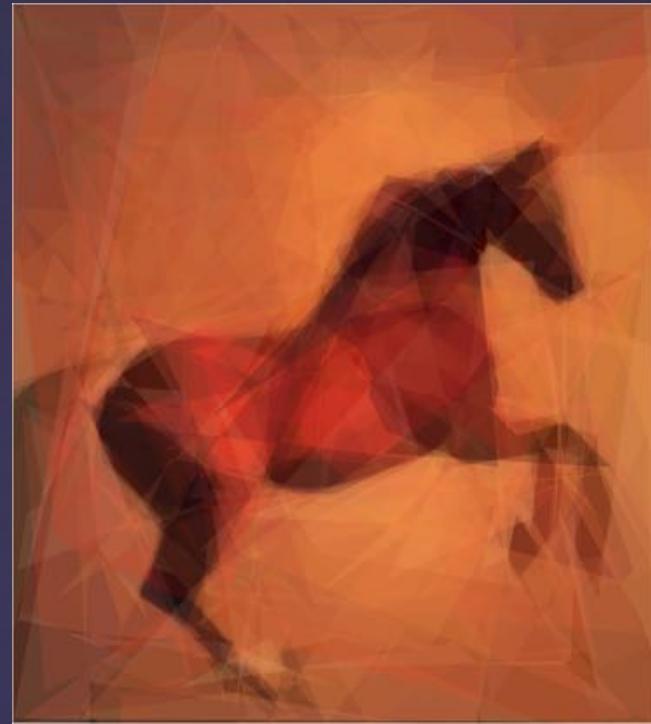
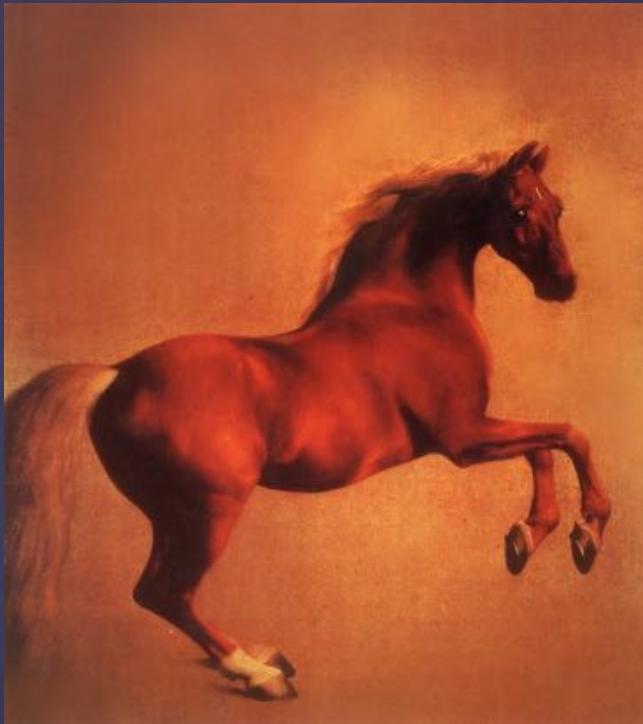
Self portrait *Rembrandt*



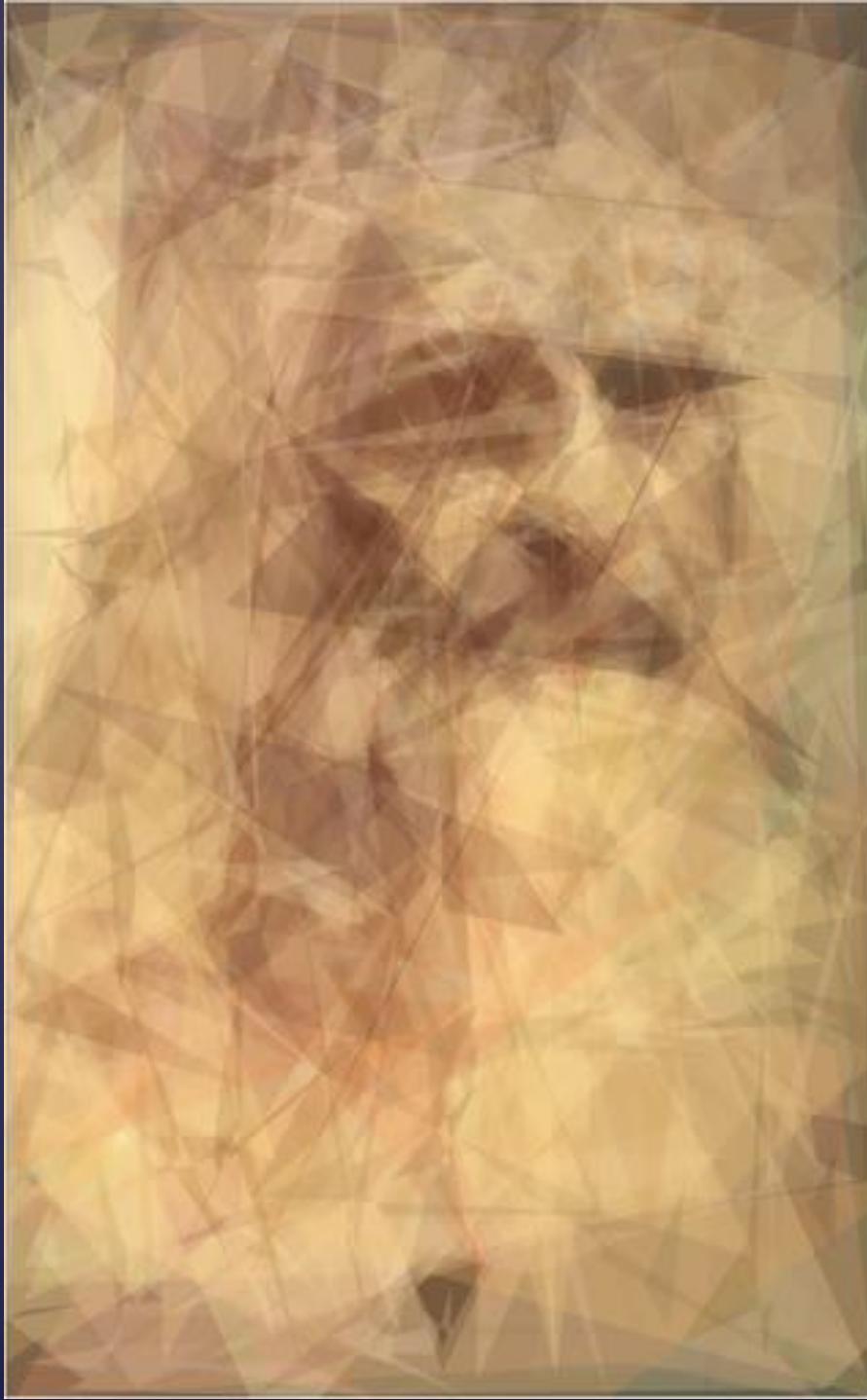


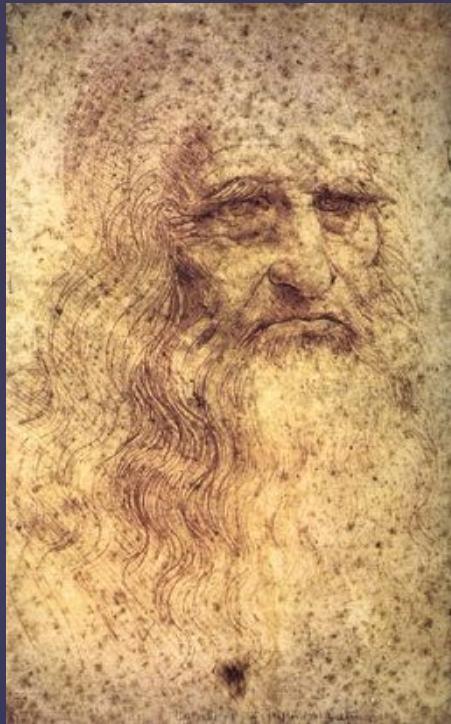
Still life *Willem Claeszoon Heda*





Whistlejacket *George Stubbs*





Self portrait *Leonardo da Vinci*





The Basket of Apples *Paul Cézanne*

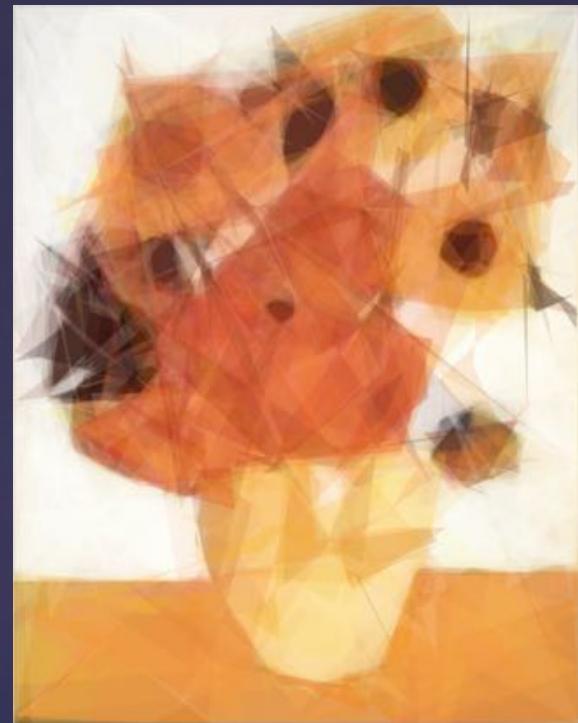
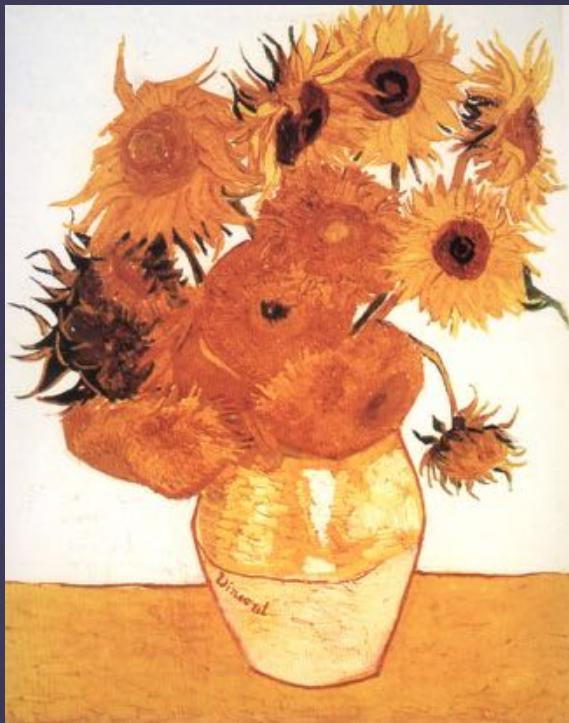




Portrait of an Unknown Woman

Ivan Nikolaevich Kramskoi



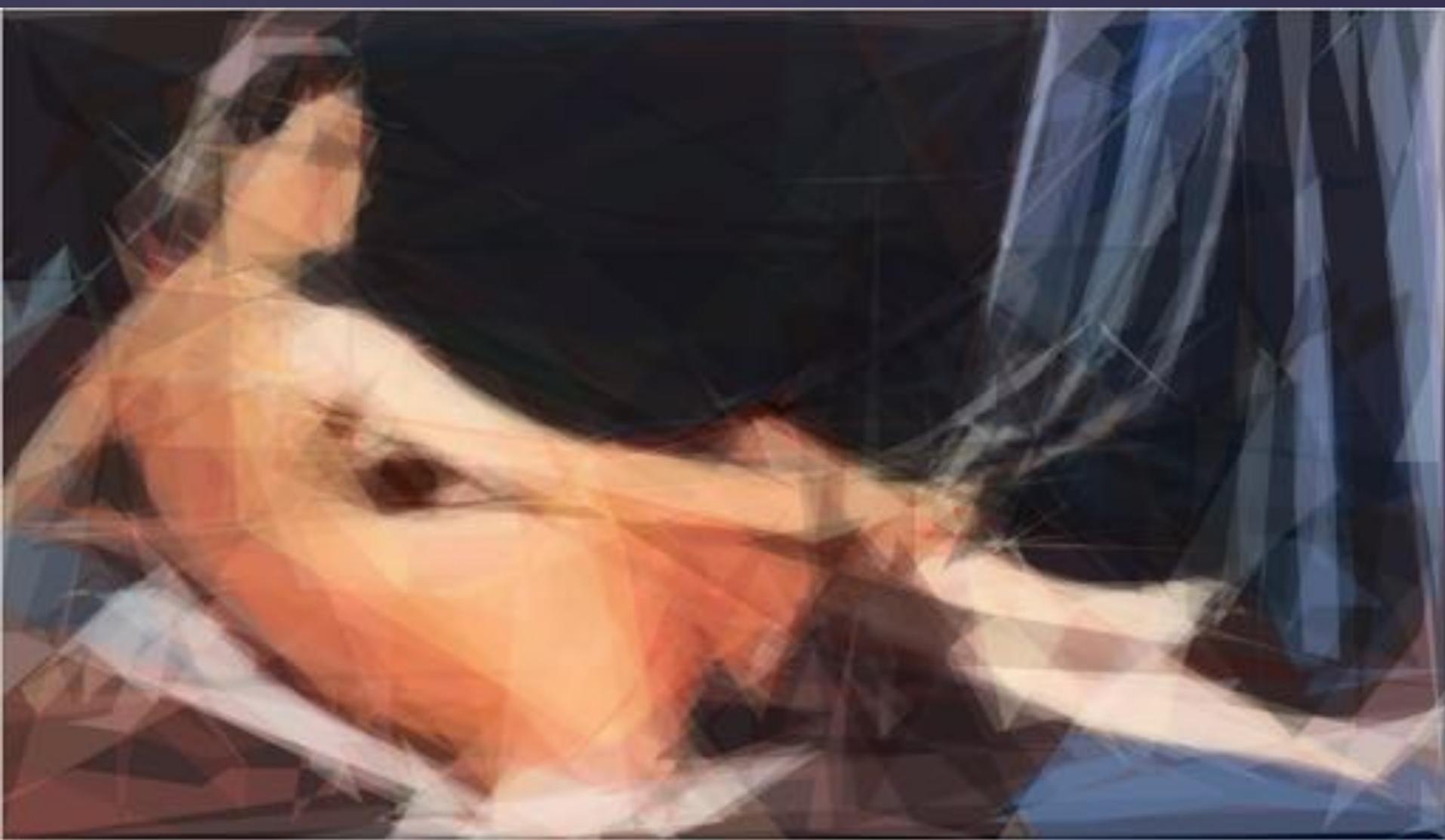


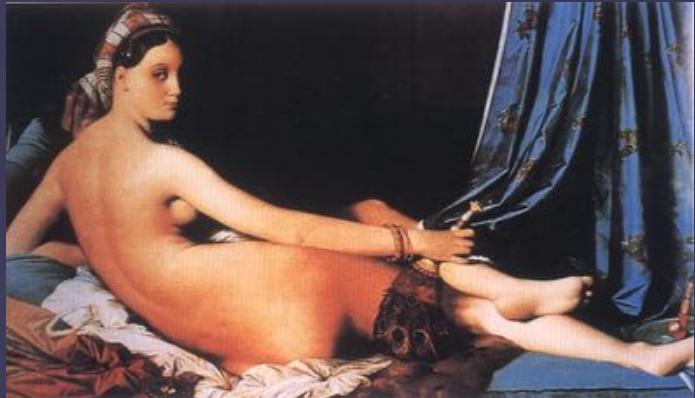
Vase with Fifteen Sunflowers
Vincent Willem van Gogh





Portrait of Innocent X *Diego Velázquez*





la Grande Odalisque

Jean-Auguste-Dominique Ingres





Photography example
Me





Photography example
Me



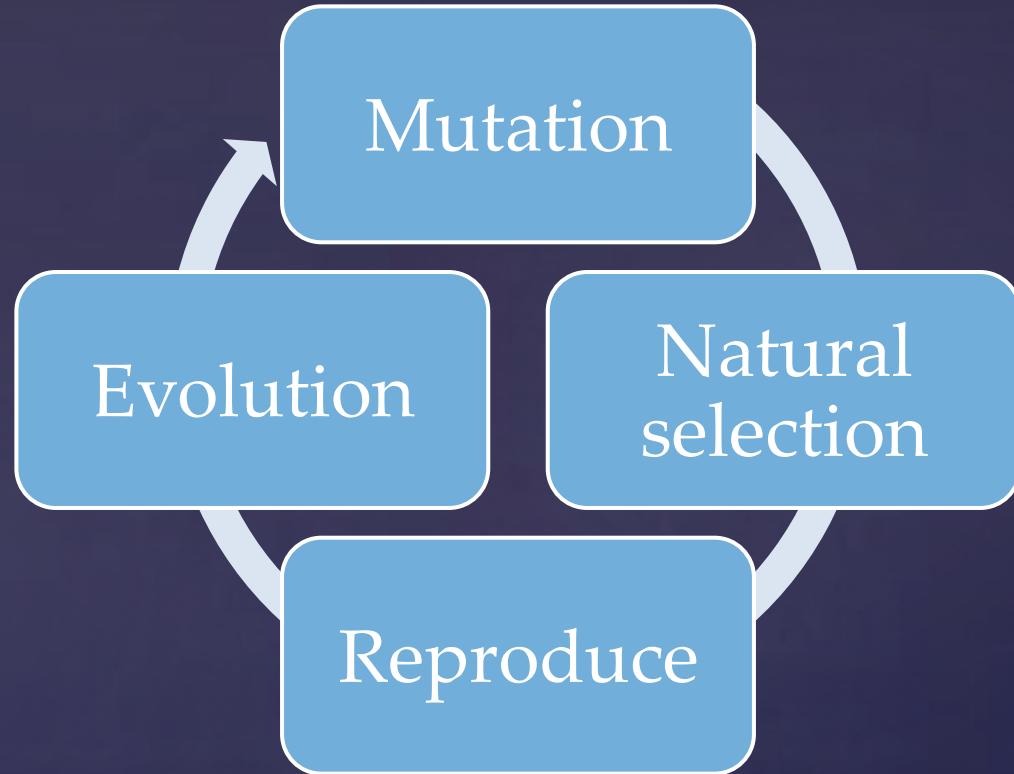


Photography example
Me

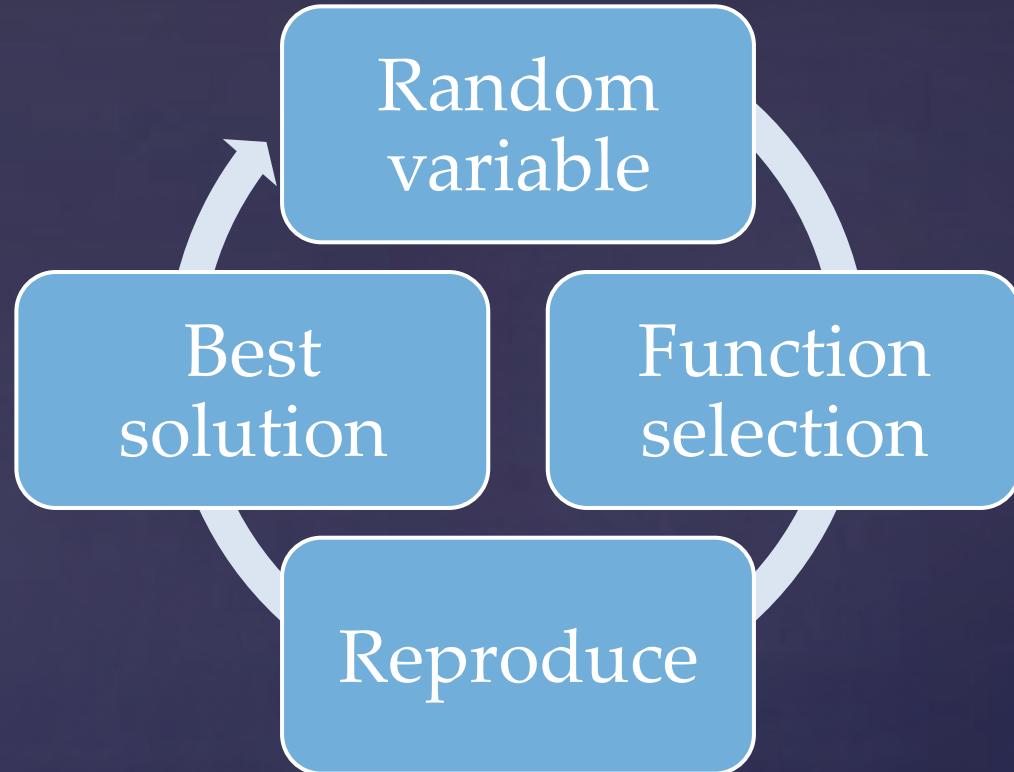
Evolution

{

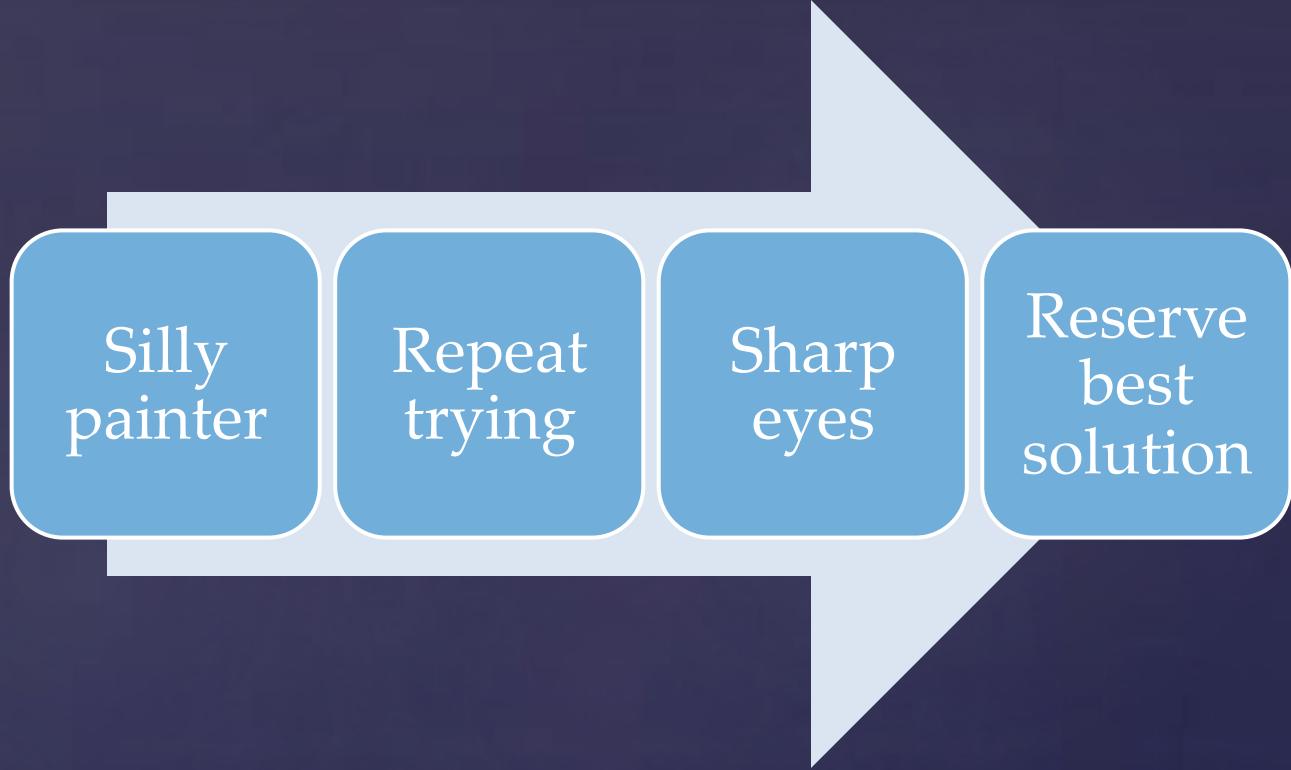
Genetic algorithm in painting simulation



Theory of evolution *Charles Darwin*



Main idea of **Genetic algorithm**



Silly
painter

Repeat
trying

Sharp
eyes

Reserve
best
solution

Simulating painting

A polygons image-approaching algorithm

{ Inspired by Roger Alsing

Point

Polygon

Brush

Canvas

DNA

Generation

Species

Fitness
Calculator

Render

Select

Data

Algorithm

IO

Graph

Main

Setting

Core

GUI

GeneArt



&Evolution !

Composition in Red, Blue, and Yellow
Piet Mondrian



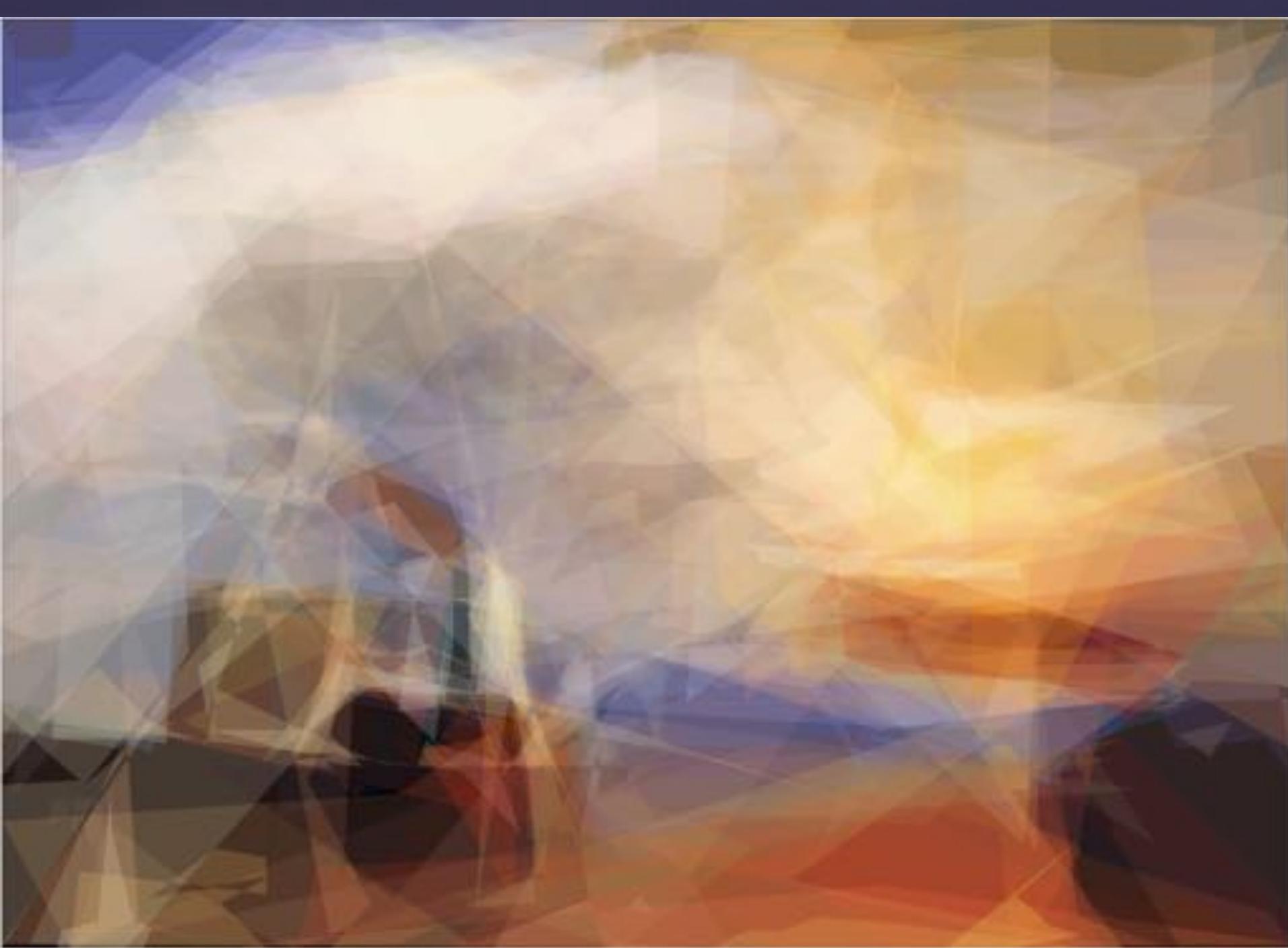
&Evolution !

La scuola di Atene
Raffaello Sanzio da Urbino





Starry Night *Vincent Willem van Gogh*



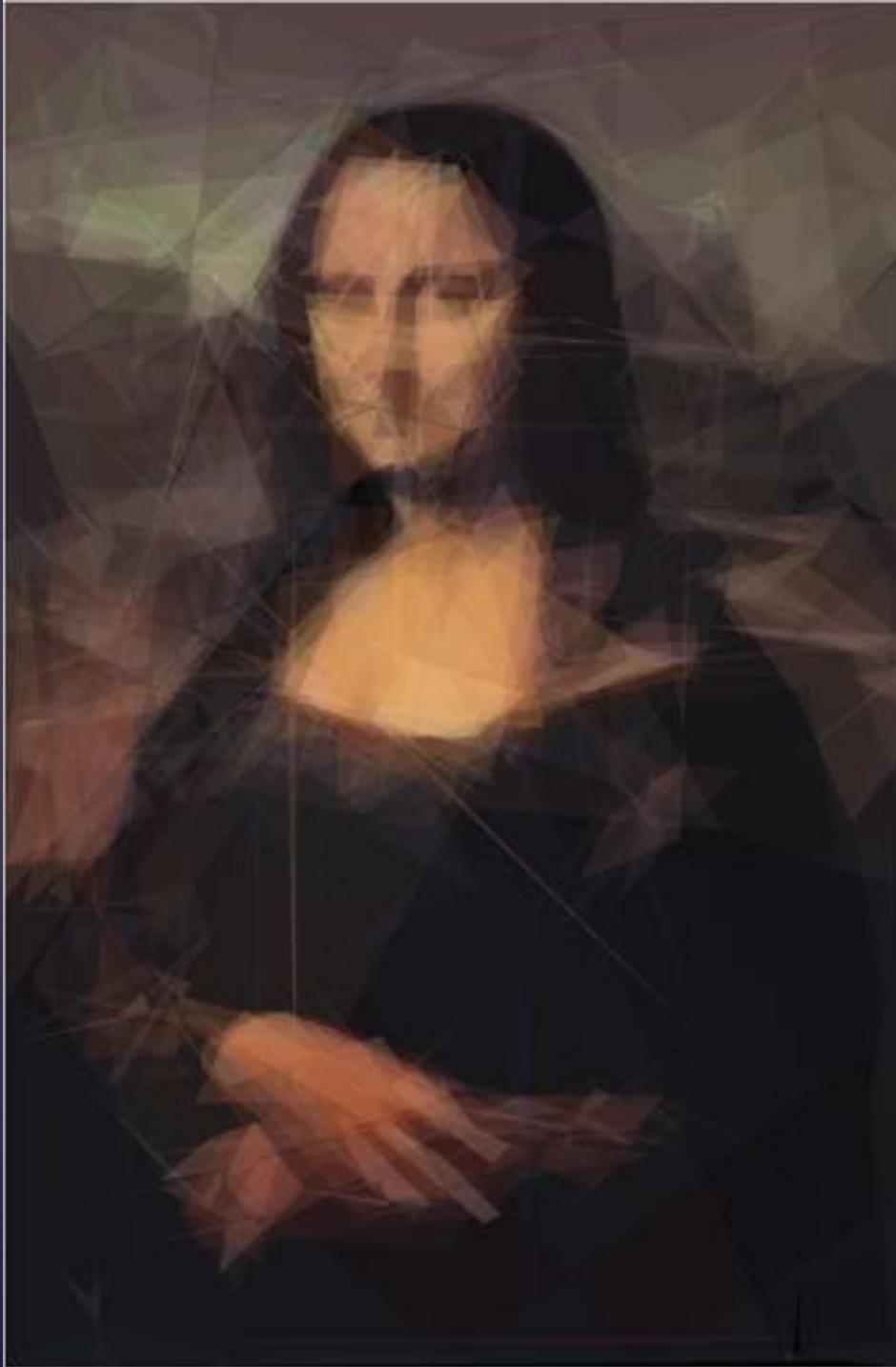


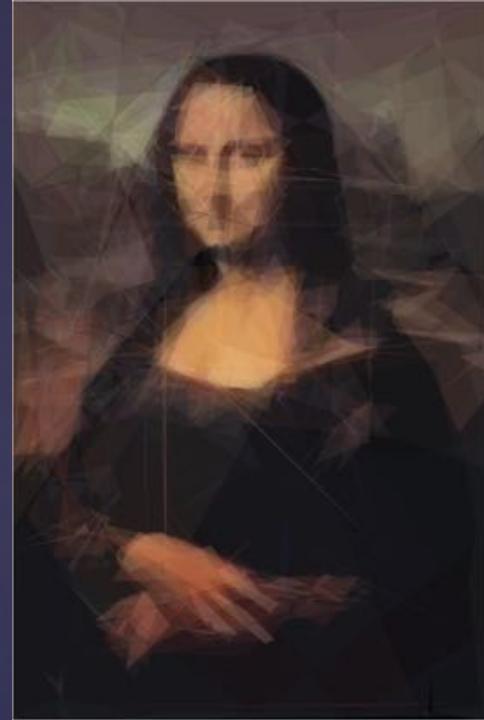
The Fighting Temeraire tugged to her last berth to be broken up
Joseph Mallord William Turner





The Gleaner *Jean-Francois Millet*





Mona Lisa *Leonardo da Vinci*



Artificial Intelligence



Computer- aided Design

Summary & Question

- & Charles Darwin
Introducer of Natural Selection
- & Roger Alsing
idea & code origin
- & Tian Boyu, ACM class
Introduce this idea to me
- & Genetic Algorithms and Deep Learning for Automatic Painter Classification
- & Genetic Algorithms in Computer Aided Design
- & BoxCar 2D

Reference & Thanks to



Thank you.