

Assignment #2

Genetic Programming

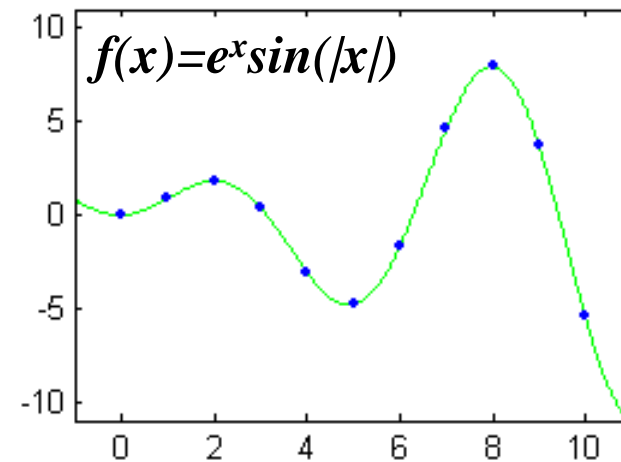
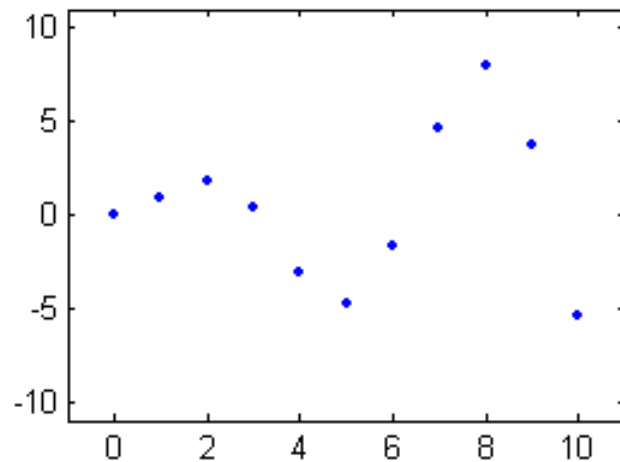
MECS 4510

Evolutionary Computation

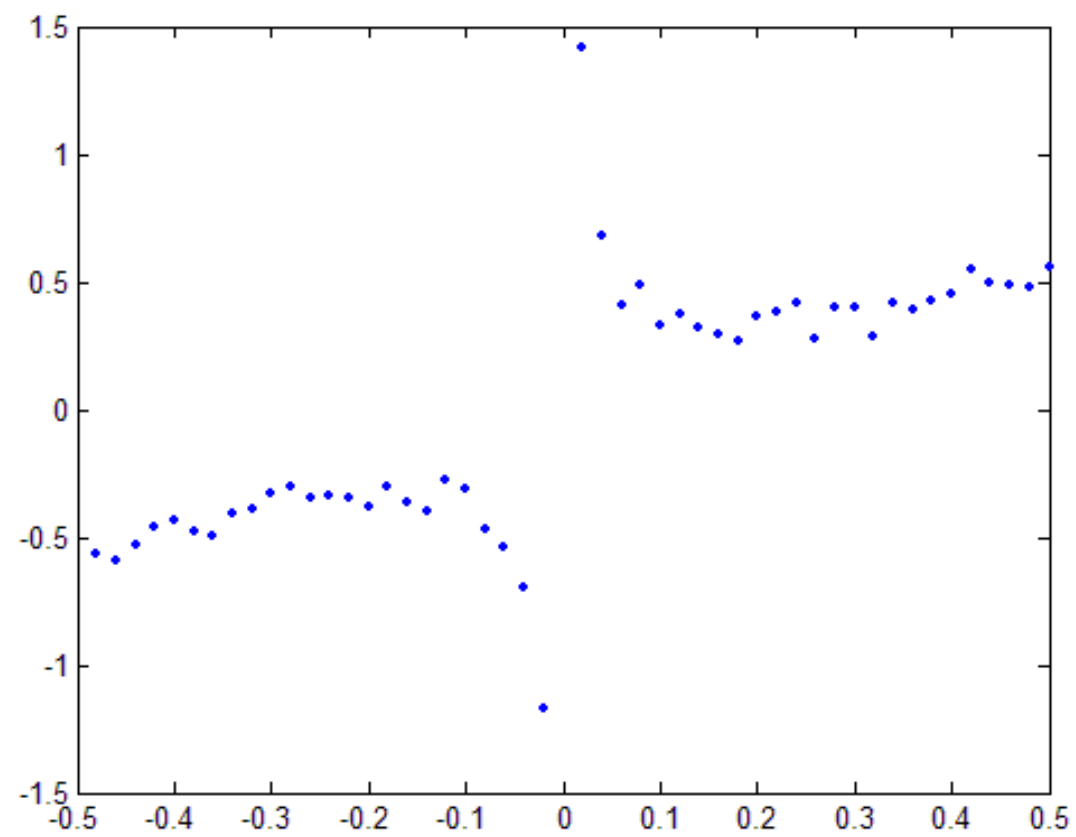
Hod Lipson

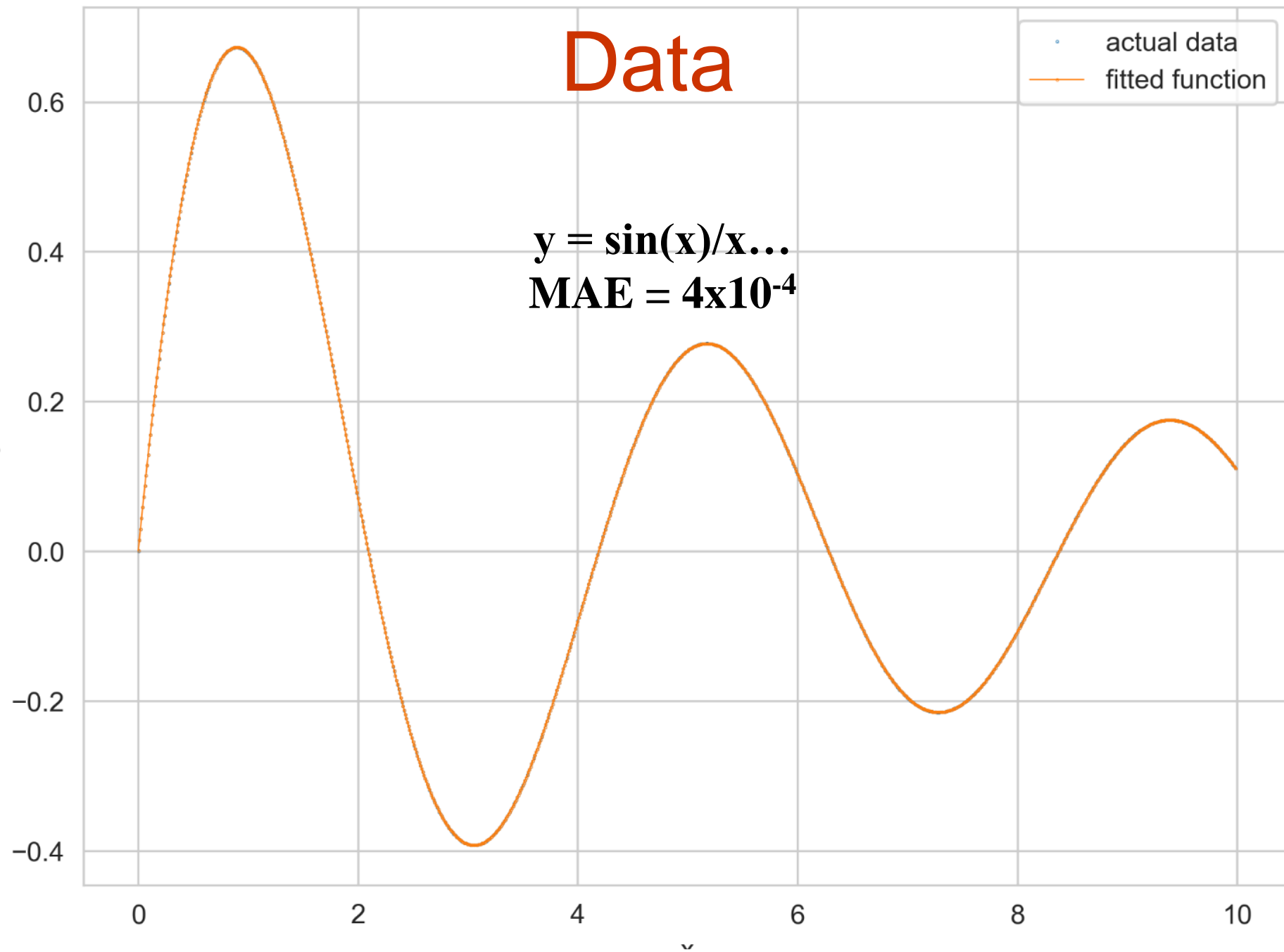
Symbolic Regression

What function describes this data?



Data

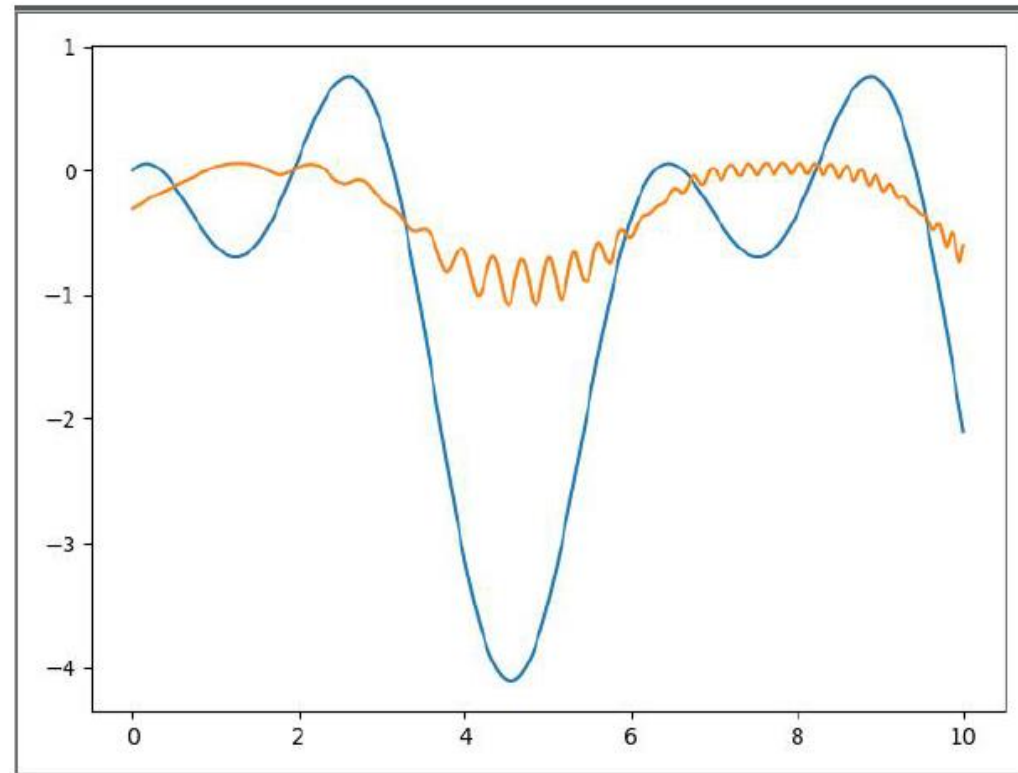




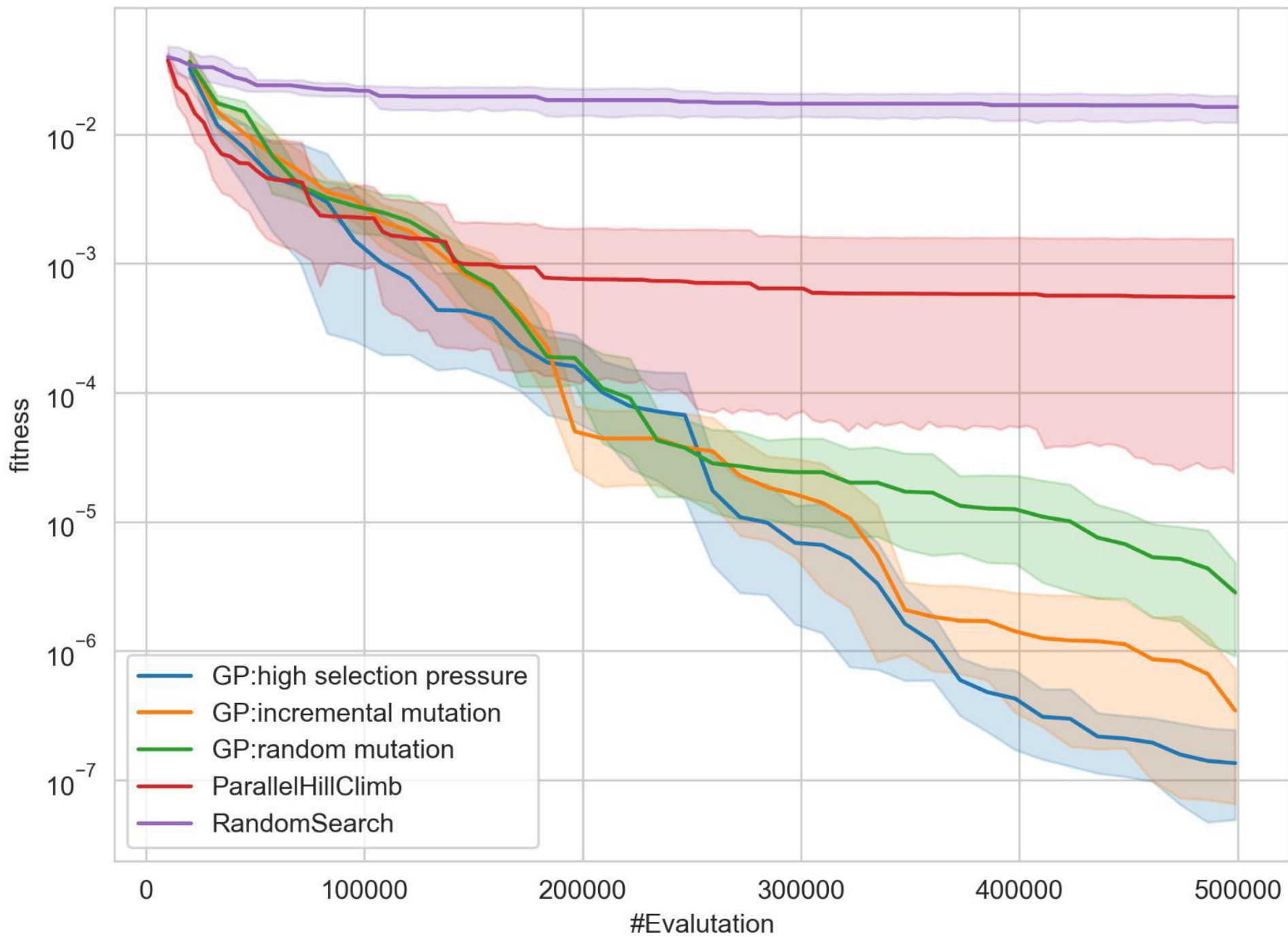
Week 1: Random function

equation = $\cos(\cos(\cos(x*x))*\sin(\sin(x))+$
 $x/x*(-9.247776198625752)+$
 $(-8.62238505749605)/(-4.15149813701656))-$
 $\sin((1.2185149095292367))$

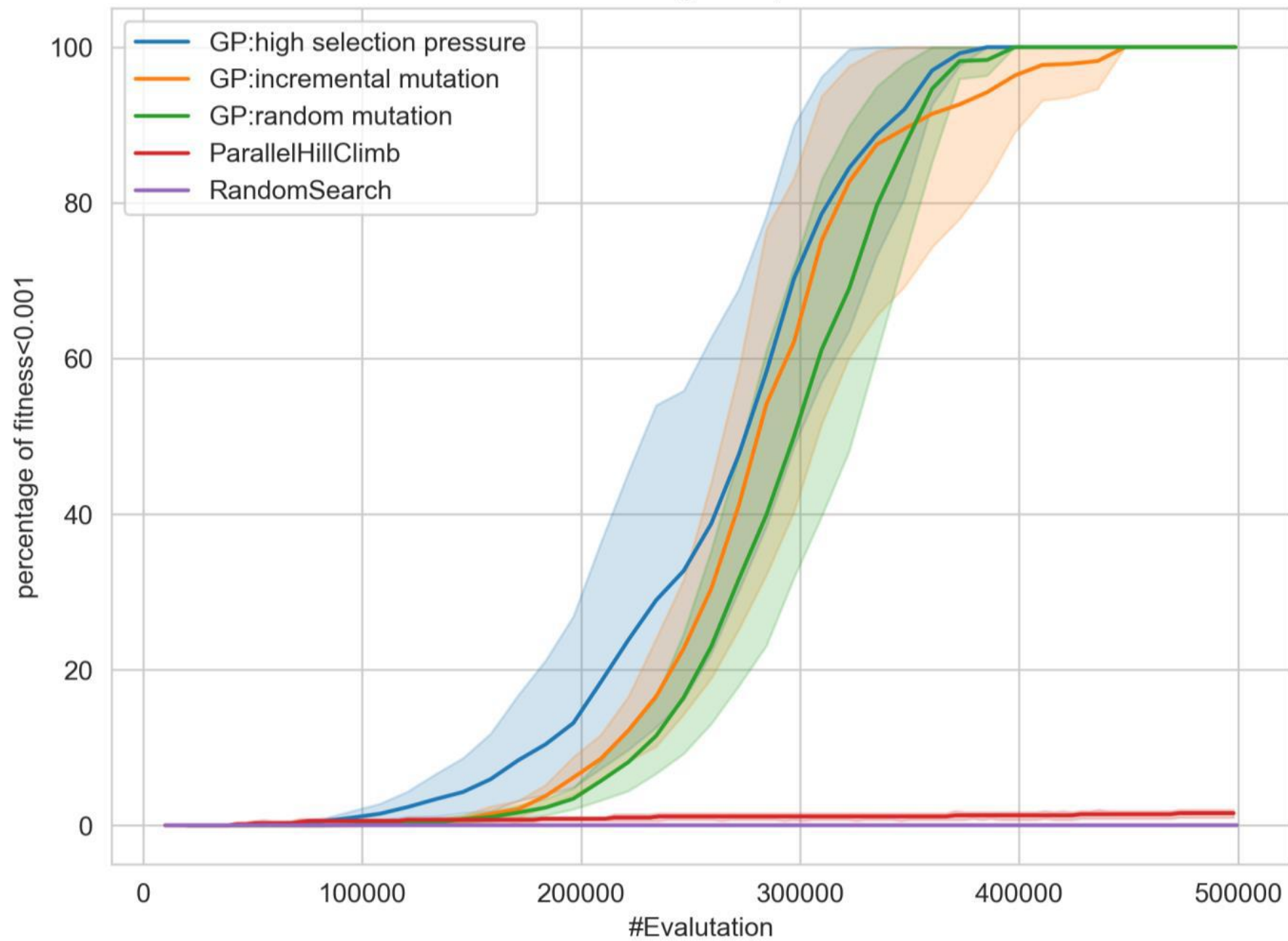
MSE = 1.5227438847355902



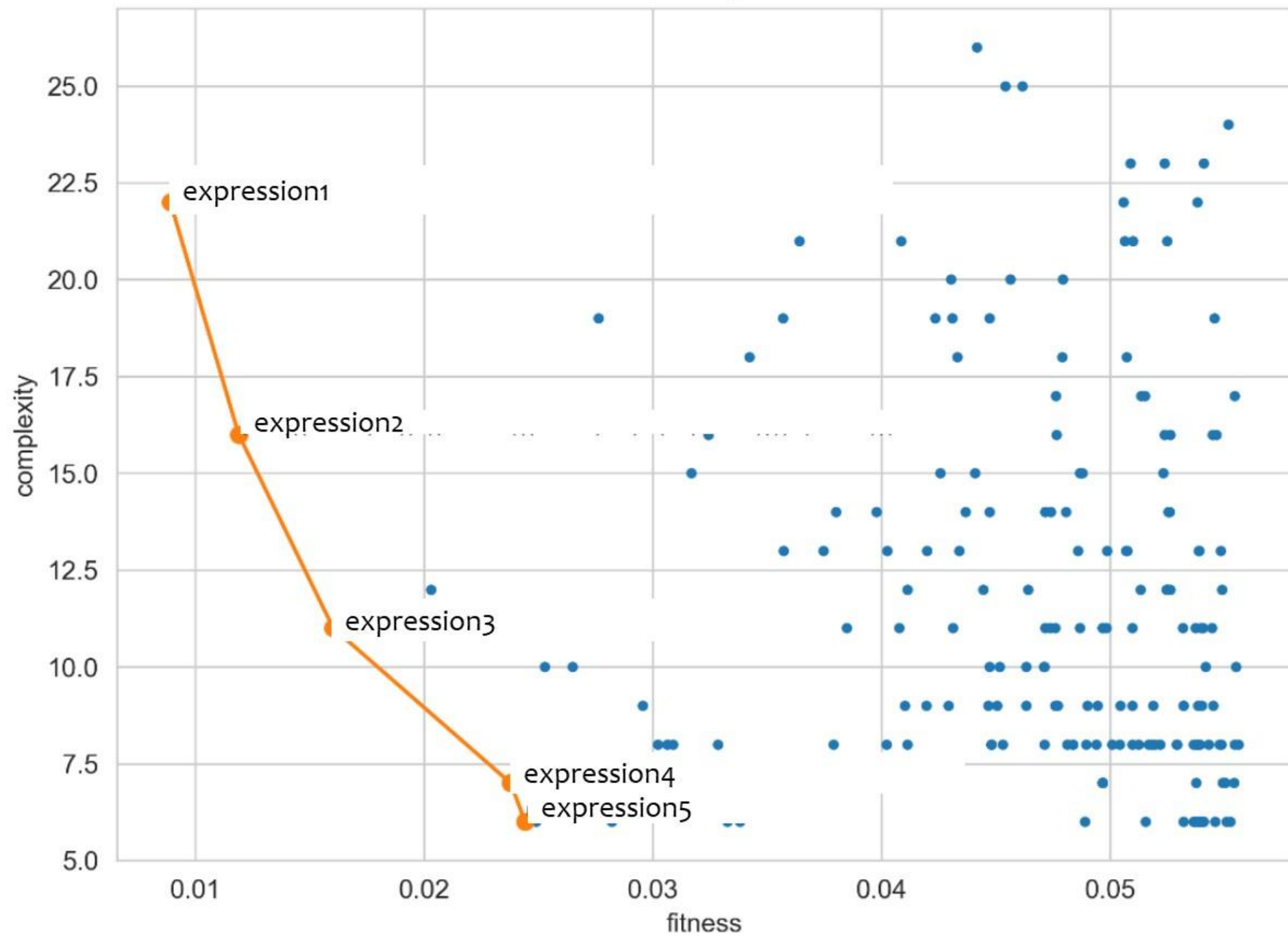
Learning curve



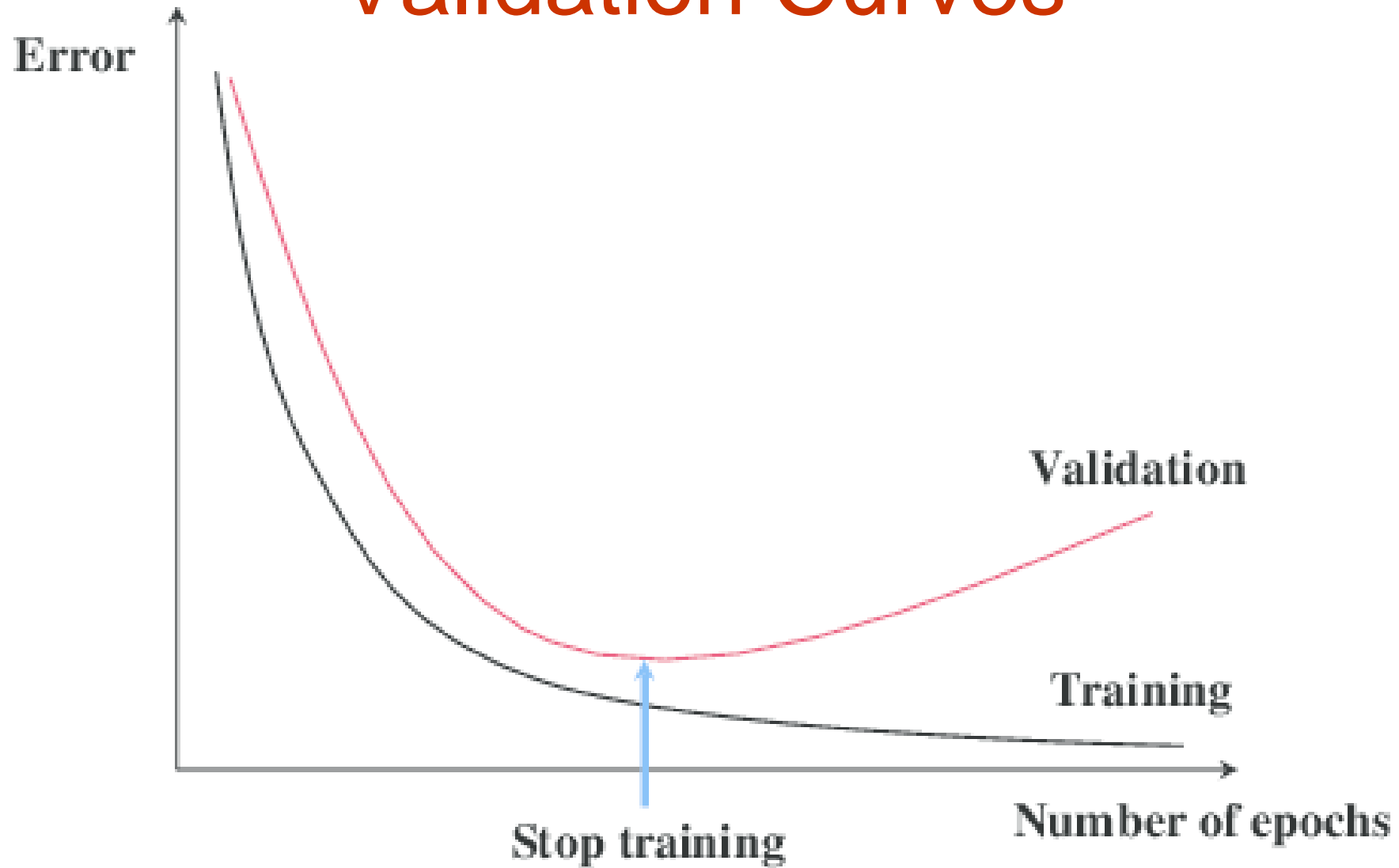
Convergence plot

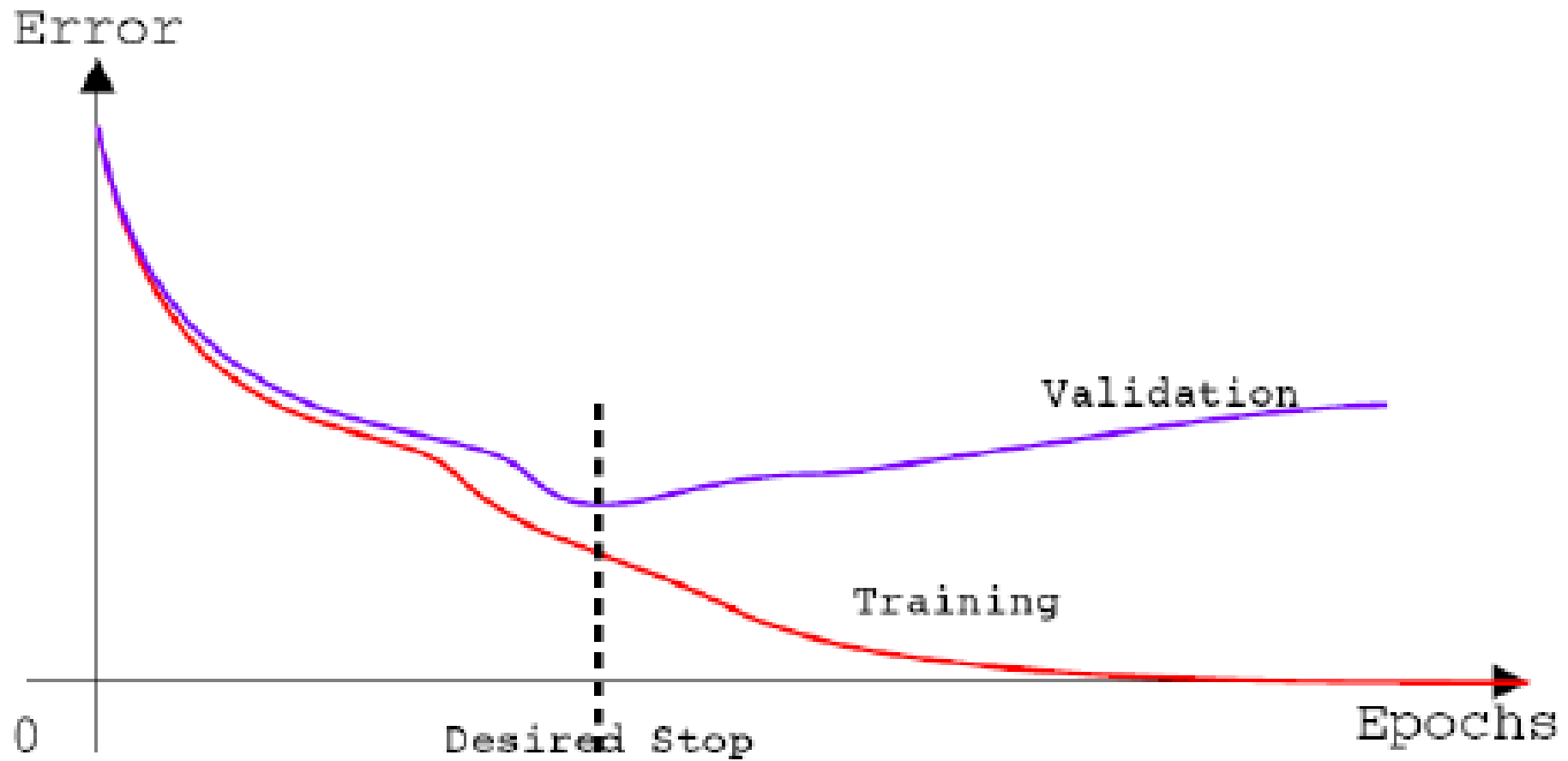


Pareto plot



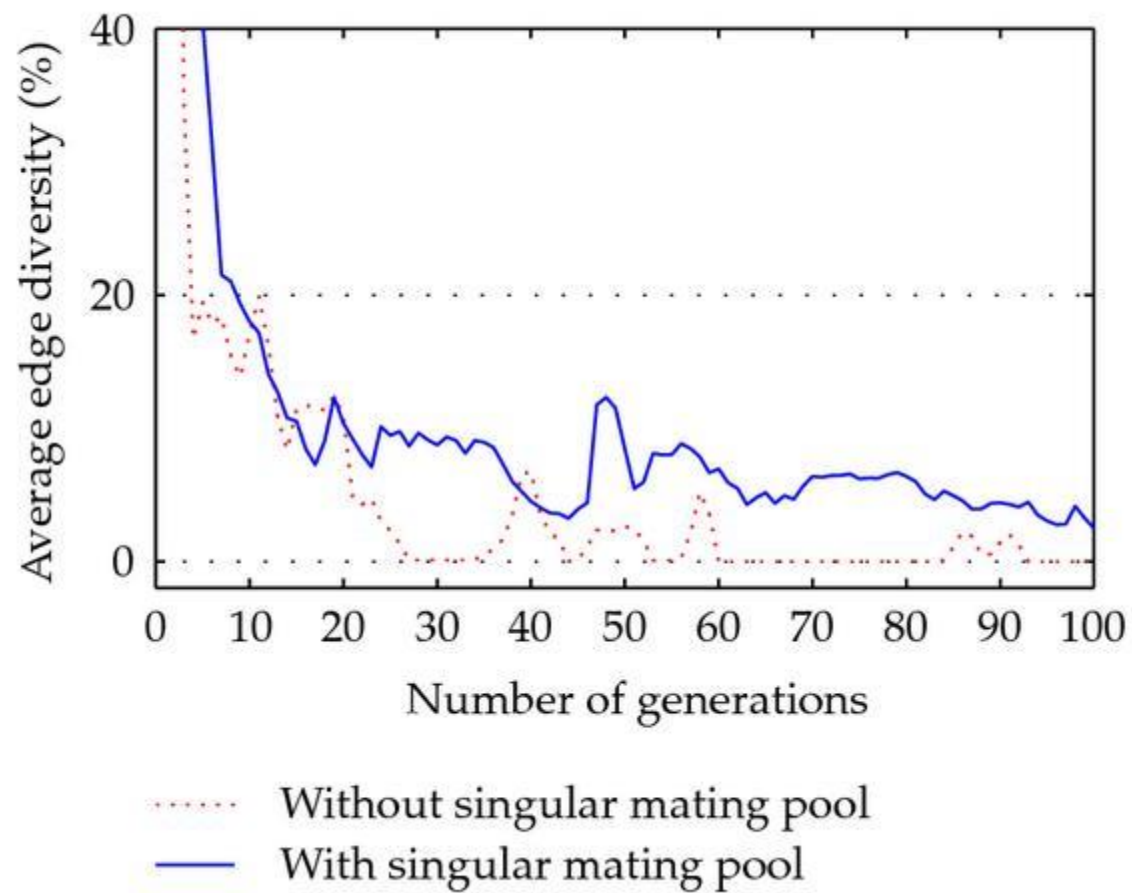
Validation Curves





https://en.wikipedia.org/wiki/Early_stopping

Diversity



Symbolic Regression MSE: 289719.67748153

