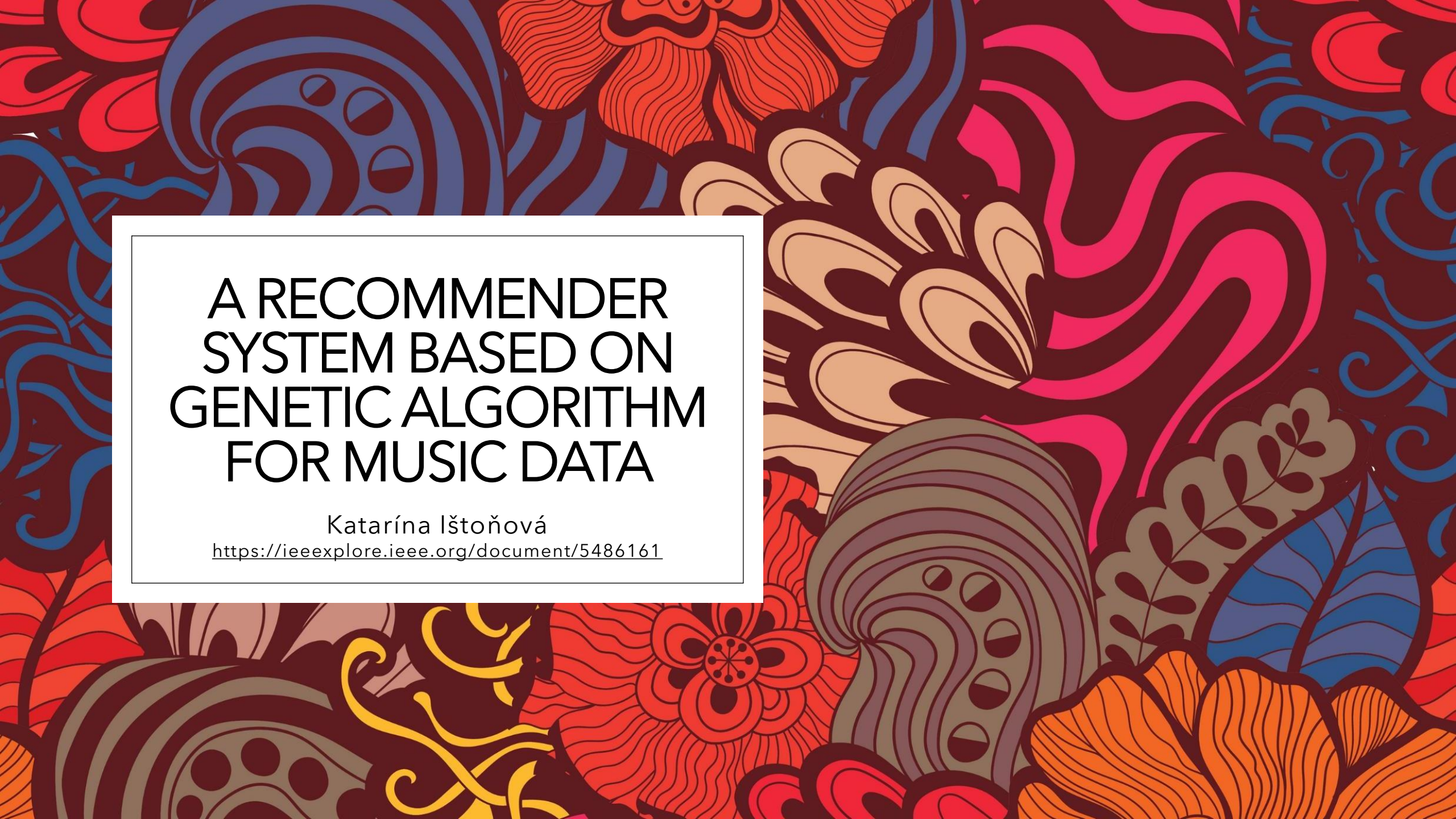

A RECOMMENDER SYSTEM BASED ON GENETIC ALGORITHM FOR MUSIC DATA

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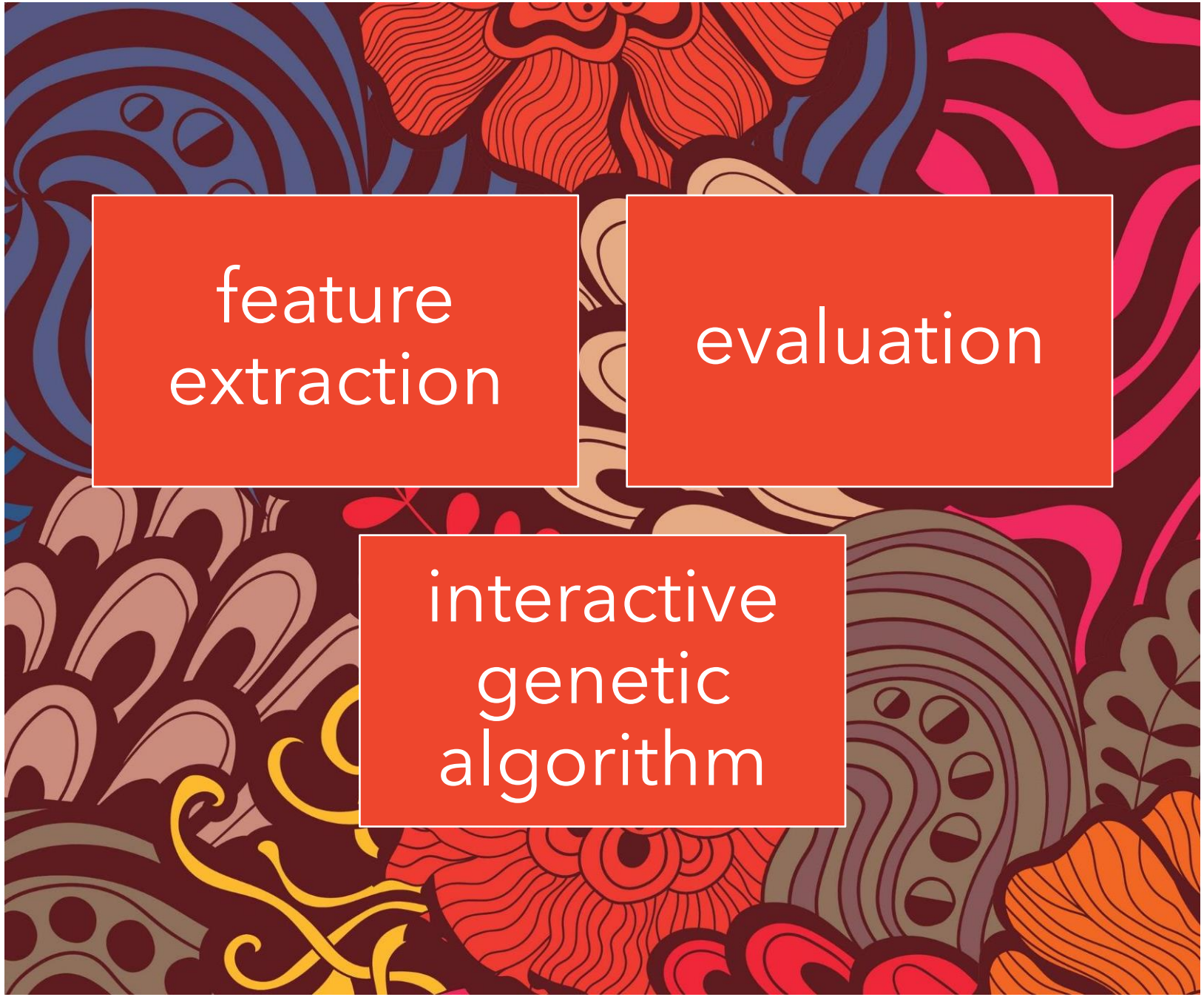
https://ieeexplore.ieee.org/document/5486161

RECOMMENDER SYSTEMS



PHASES OF RECOMMENDER SYSTEM

Feature extraction

- CLAM music extraction
- extraction results as XML file

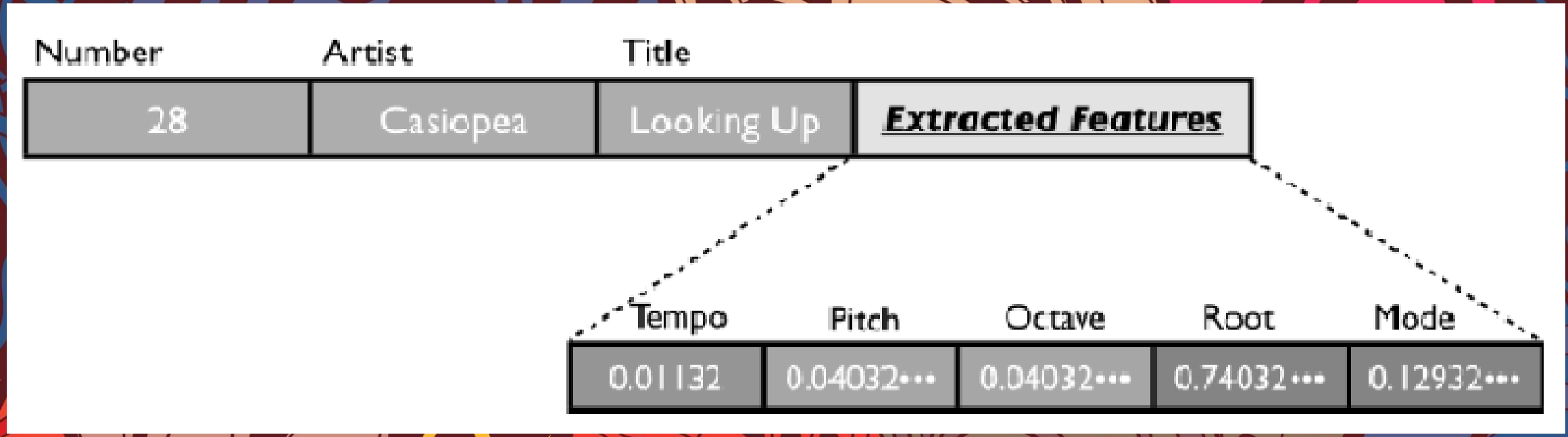
Evaluation

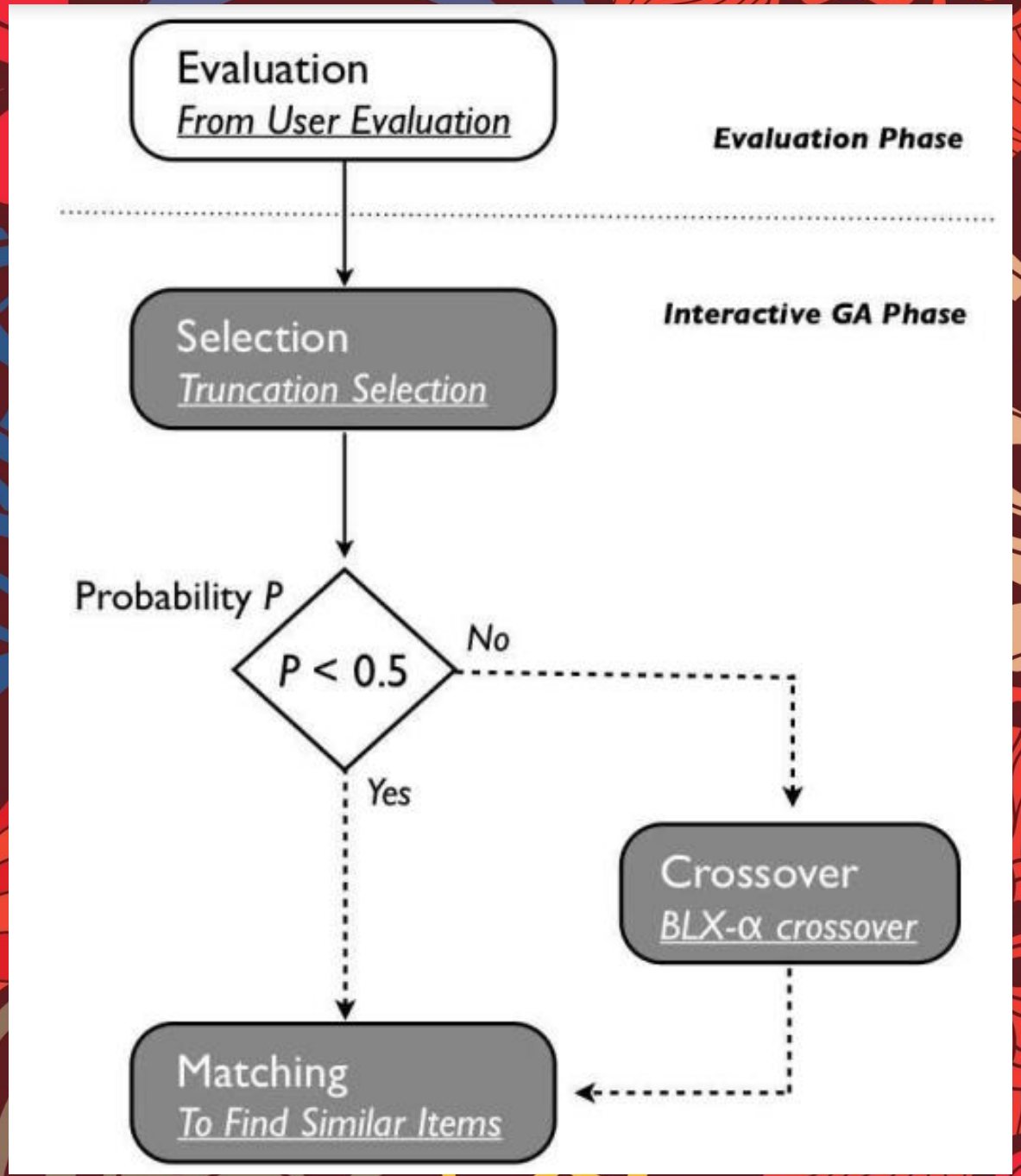
- user as a fitness function
- own rating score according to their preferences
- system evolves a population based on user evaluation data

Interactive genetic algorithm

- propose promising items
- IGA also works on the basis of genetic inheritance and it has evolutionary operators

Individual


Number
Artist
Title
28
Casiopea
Looking Up
Extracted Features
Tempo
Pitch
Octave
Root
Mode
0.01132
0.04032•••
0.04032•••
0.74032•••
0.12932•••



BLX-*α* Crossover

1. Select two items $X_{(t)}$ and $Y_{(t)}$
2. Create two offsprings $X_{(t+1)}$ and $Y_{(t+1)}$ as follows:

For i = 1 to *n* *(length of chromosome)* do

(1) Calculate Distance between $X_{(t)}$ and $Y_{(t)}$

$$D_i = | X_{(t)} - Y_{(t)} |$$

(2) Choose an uniform random real number u from interval

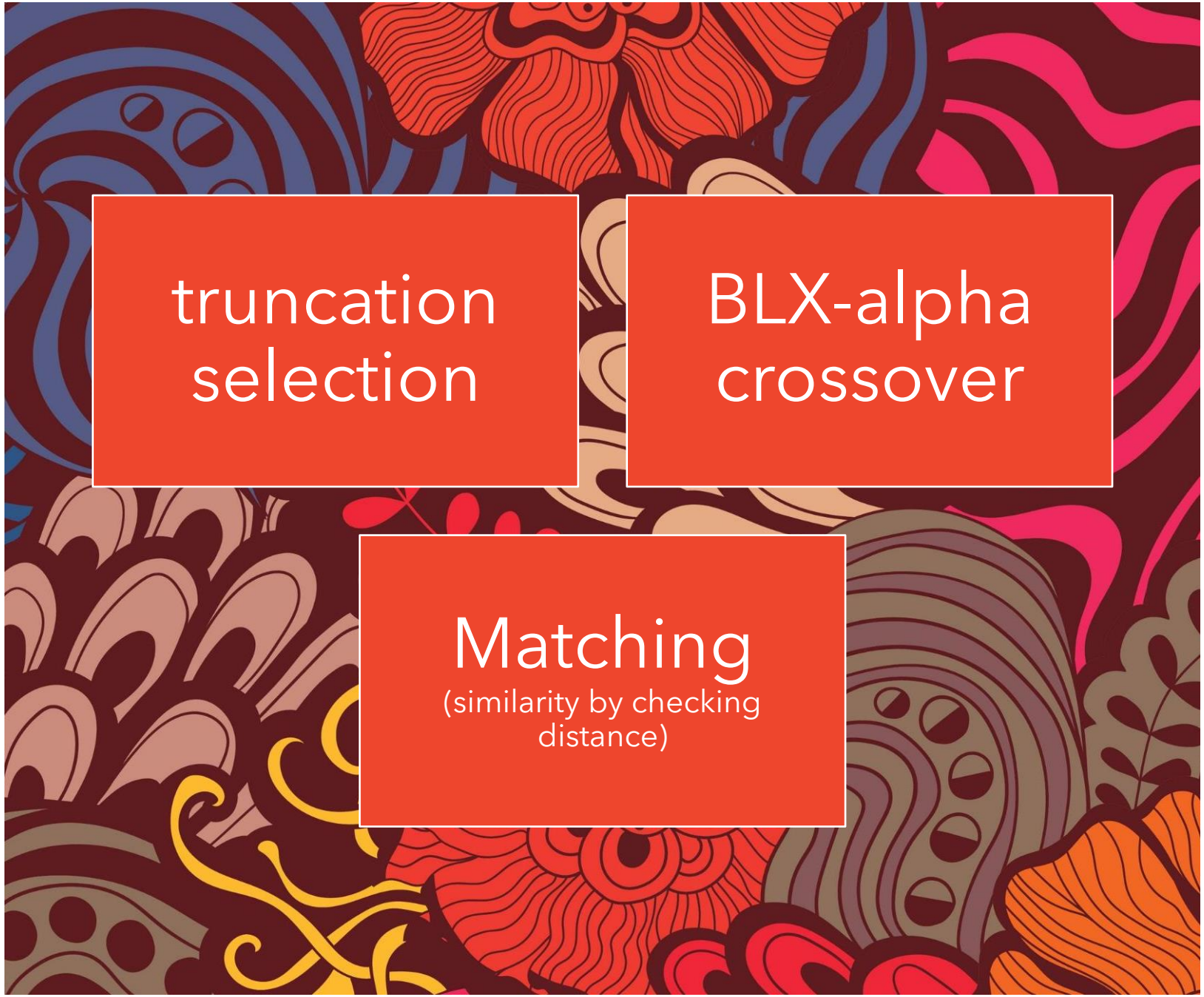
$$< \min(X_{(t)}, Y_{(t)}) - (\alpha * D_i), \max(X_{(t)}, Y_{(t)}) + (\alpha * D_i) >$$

$$X_{(t+1)} = u$$

(3) Repeat step (2) as same as $X_{(t+1)}$

$$Y_{(t+1)} = u$$

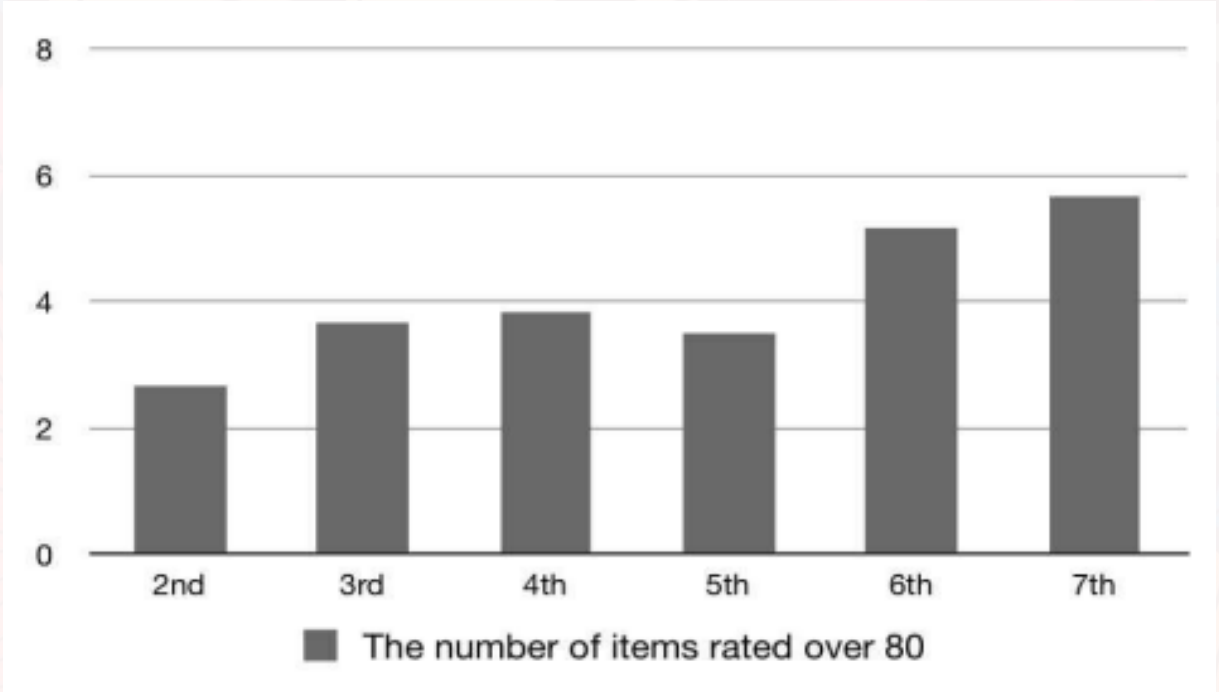
End do



STEPS OF INTERACTIVE GENETIC ALGORITHM

Experiment

- 200 MP3 music files
- website for an experimental environment
- rating 0 – 100
- each time a user evaluate a page of 10 items
- 10 users – 70 items




THANK YOU FOR YOUR ATTENTION