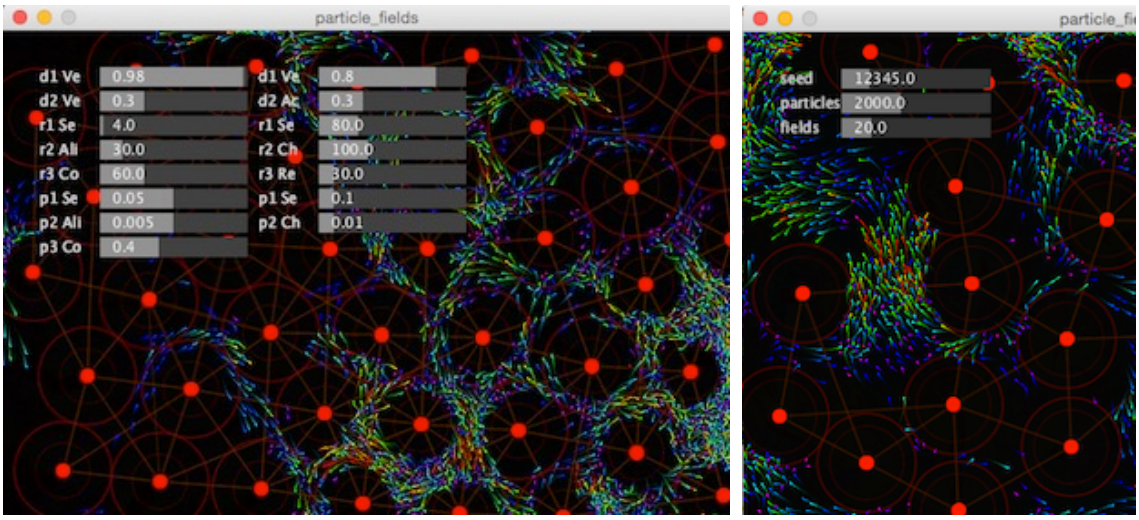
VERSION 1.0 - Static Fields

Manual:

• '**m**' key to make the Menu visible, the left column is for the Particles, the right for the Fields.
• '**n**' is to adjust the number of Particles and Fields and start a New simulation.
• '**s**' is to Save a scene.
• '**l**' to Load a scene.
• Any other key will pause the simulation.



A. Particles

d1 Ve : damp Velocity
d2 Ac : damp Acceleration

r1 Se : radius Separation
r2 Ali : radius Alignment
r3 Co : radius Coherence

p1 Se : potential Separation
p2 Ali : potential Alignment
p3 Co : potential Coherence

B. Fields

d1 Ve : damp Velocity
d2 Ac : damp Acceleration

r1 Se : radius Separation (visible)
r2 Ch : radius Chase
r3 Re : radius Repel (visible)

p1 Se : potential Separation
p2 Ch : potential Chase

—

To prevent the simulation from running out of control there is a damping factor for the velocity **(d1 Ve)** and for the acceleration **(d2 Ac)** for particles and fields.

—

A. Particles Rules:

1. Separation says that particles should try to get at a minimum distance from other particles. The rule kicks in when another particle is within a certain radius **(r1 Se)** and influences the forces added to the acceleration, this can be adjusted with the parameter **(p1 Se).**

2. Alignment says that particles should adjust their velocity to particles near them. This rule kicks in when another particle is within the radius **(r2 Ali)** and can be adjusted with the parameter **(p2 Ali)**

3. Coherence says that particles should try to get to the center of the particles around them. The radius where this rule applies in is **(r3 Co)** and the parameter can be adjusted with the parameter **(p3 Co)**

B. Fields Rules:

1. Separation tells the fields to keep a certain distance to all other fields. The distance is influence with **(r1 Se)** the strength of the separation forces is adjusted with the parameter **(p1 Se)**

2. Chase makes the fields chase after particles within a certain radius. The radius can be adjusted with the parameter **(r2 Ch)** and the strength of the force can be adjusted with the parameter **(p2 Ch)**

3. Repulsion makes the fields repel the particles. The radius of the fields can be adjusted with the parameter **(r3 Re)**

VERSION 2.0 - Dynamic Fields

Changes & Extra's:

• The fields in this version are based on the TapeWorm-model (www.openprocessing.org/sketch/6886), so now they move freely vs. the Boids-model in the previous version. In the TapeWorm model the Fields have a steady velocity which can be adjusted with the **'Speed'** slider. No longer using the boids-method means that the Chase options (r2 Ch & p2 Ch) are set to zero.

• Now that the Fields can shrink or expand the Fields we have to set a maximum radius (r1 Se) and a minimum radius: **'%minFR1'**.Repulsion radius of the Fields (r3 Re) needs to be set accordingly.

• **'parNThresh'** adjusts the sensitivity of the Fields expansion in relation to the number of particles.
• **'n'** has the possible to set the size of the area **'width'** and **'height'**.
• **'h'** (help) gives an overview of all the key options.
• **'c'** show/hide visual extra's.
• **'i'** inverts the 'parNThresh', making Fields shrink vs. expand.
• **'r'** records (on/off) the simulation to an automatically created 'Output' folder in the directory of the Processing application.

Note: There is a safety measure to not overcrowd the area. This means that to increase the number of Fields at 'n' you first need to lower the maximum radius of the Fields (r1 Se) at 'm'. Once the new number of Fields is set you can again increase the radius of the Fields (r1 Se).