

CART263 Creative Computation 2

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Office Hours: Tuesday 12-1

Course Github: <https://github.com/LeeCyborg/CART263-W-23>

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What we'll be doing today

- Introducing: Tricia Enns!
- Live Code Tic Tac Toe together
- Introduce Particles and systems
- Designing your system

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Live code, lets make tic tac toe

- You're all the coders!
- No more than 10 lines per person, then you have to swap.
- The same person can come back and code more after
- Lets help each other!

Learn from what you did previously!

What is a particle system?

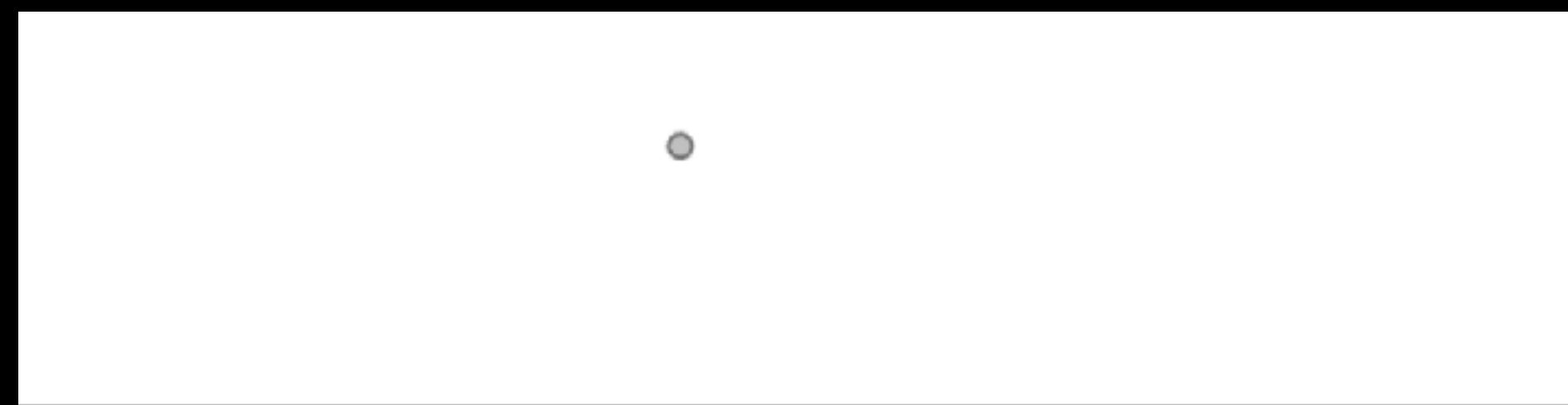
A particle system has many objects that behave autonomously, or can act together.

Often, the interaction isn't that impressive with one particle, but by having many particles it becomes interesting and complex.

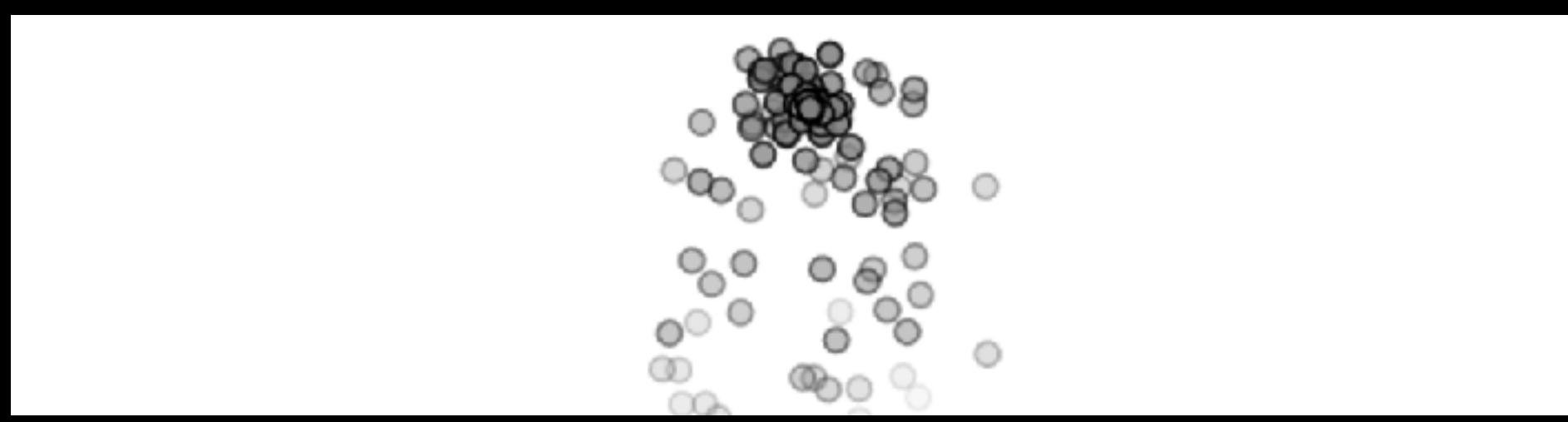
Individual particles can interact with each other, or the user.

Particle effects can be used to do practical things like make smoke, fire, or atmospheric effects.

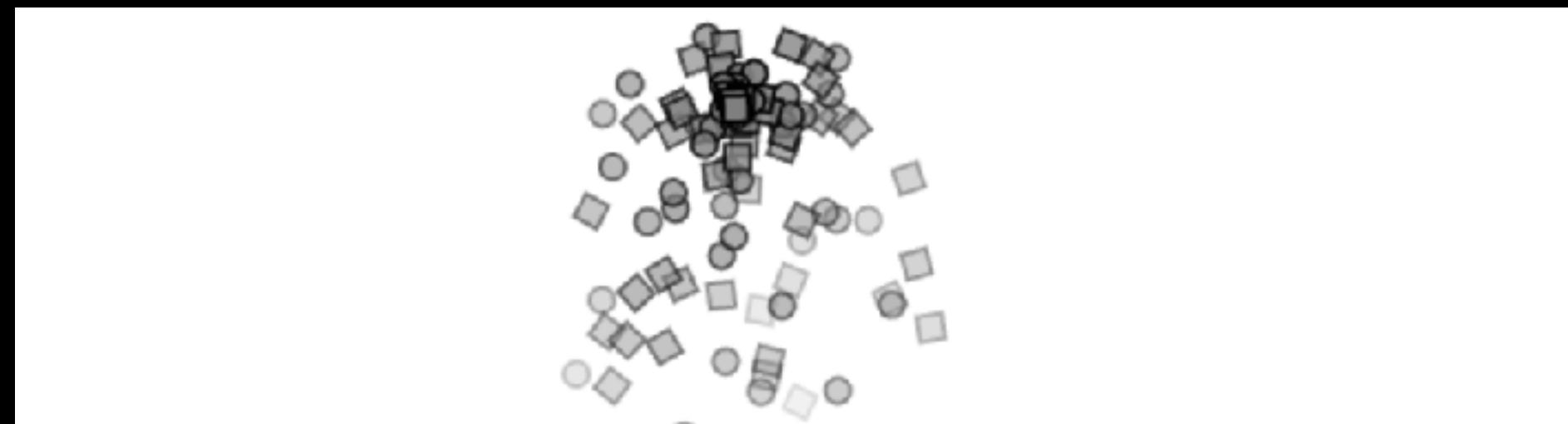
But they can also be used to make interesting artwork.



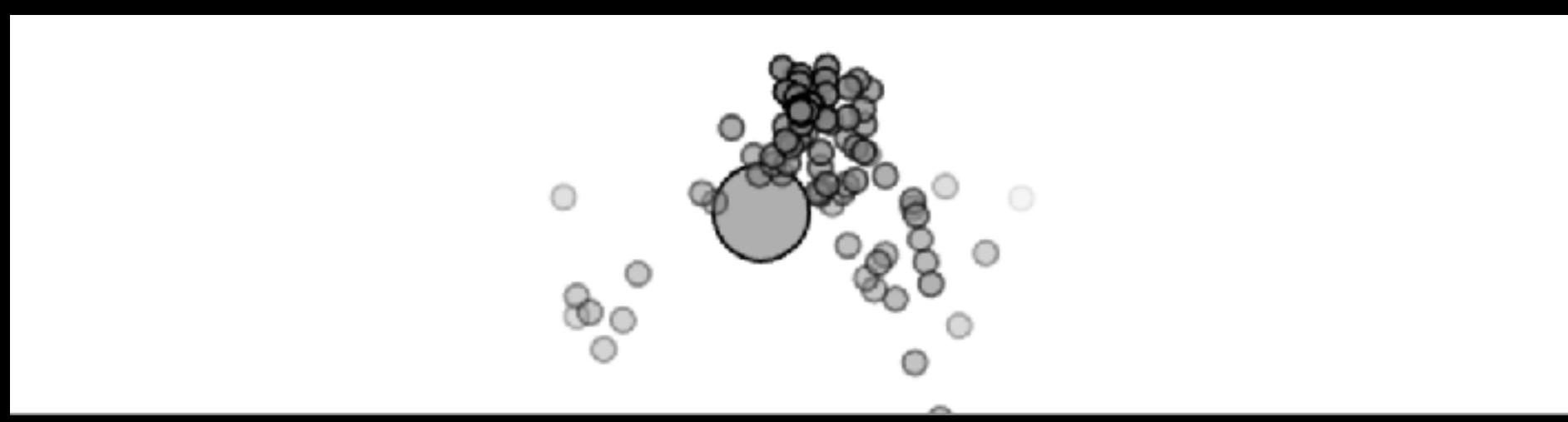
A single particle



A particle system



A system with 2 types of particles



Particles interacting with each other



Pretty particles

A simple system

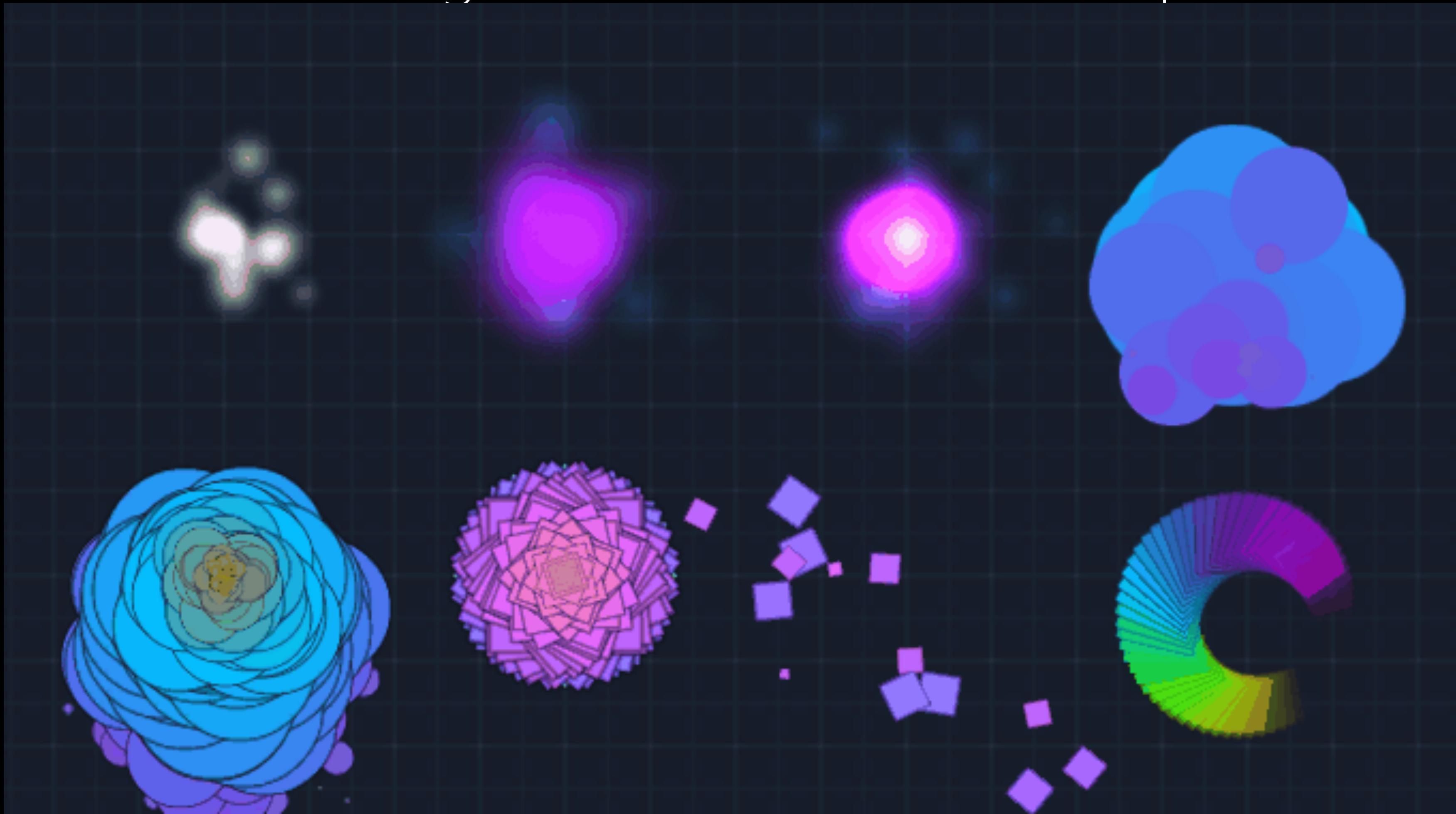


<https://p5js.org/examples/simulate-particle-system.html>

Describe the particles in each system:

While particle are often represented as dots, they don't have to be. They can have any shape and behaviour you want!

Particle system examples



Via Zachary Croslow

Particle system examples

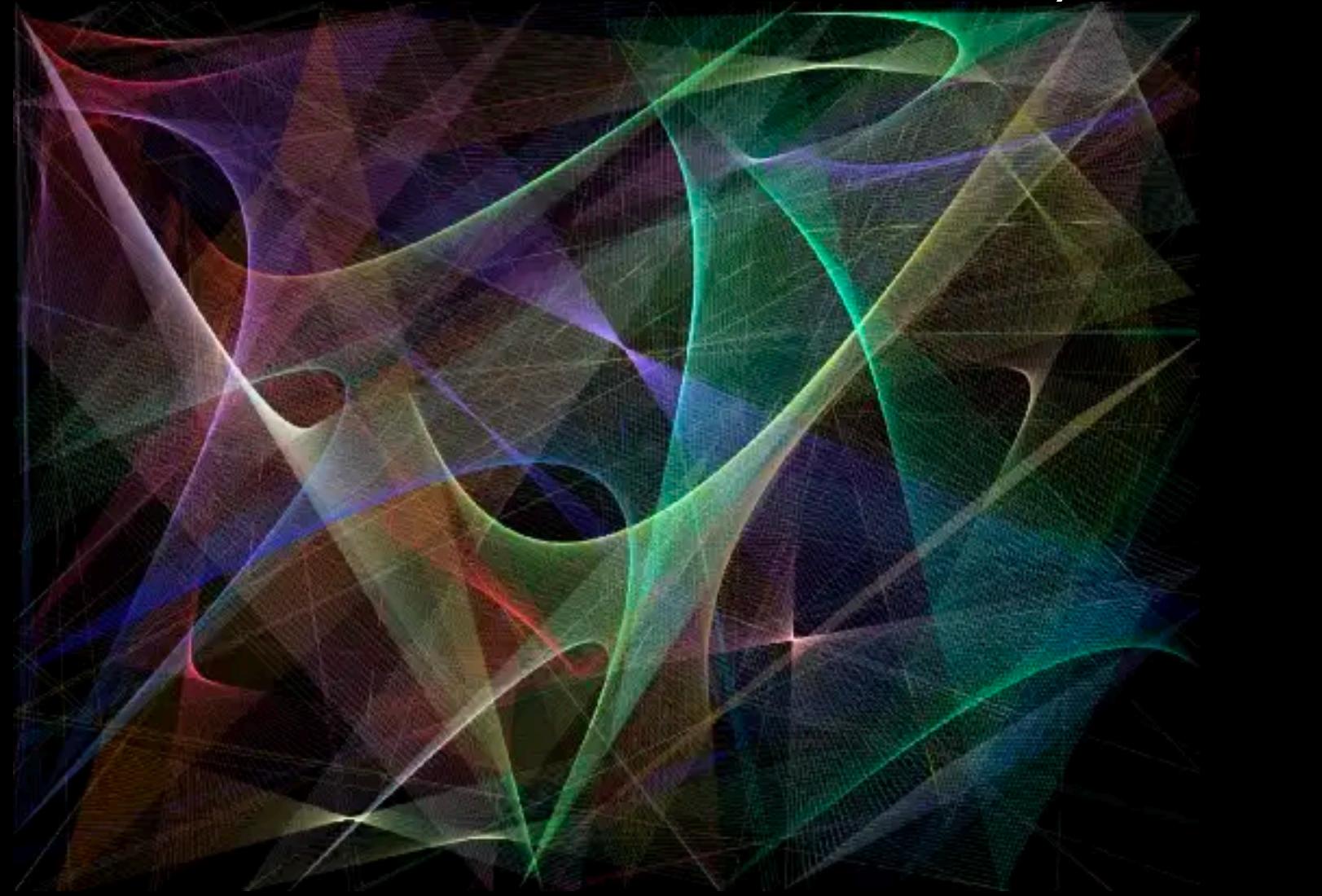
<https://openprocessing.org/sketch/1759390> Using the camera

<https://openprocessing.org/sketch/1771251> Connecting dots

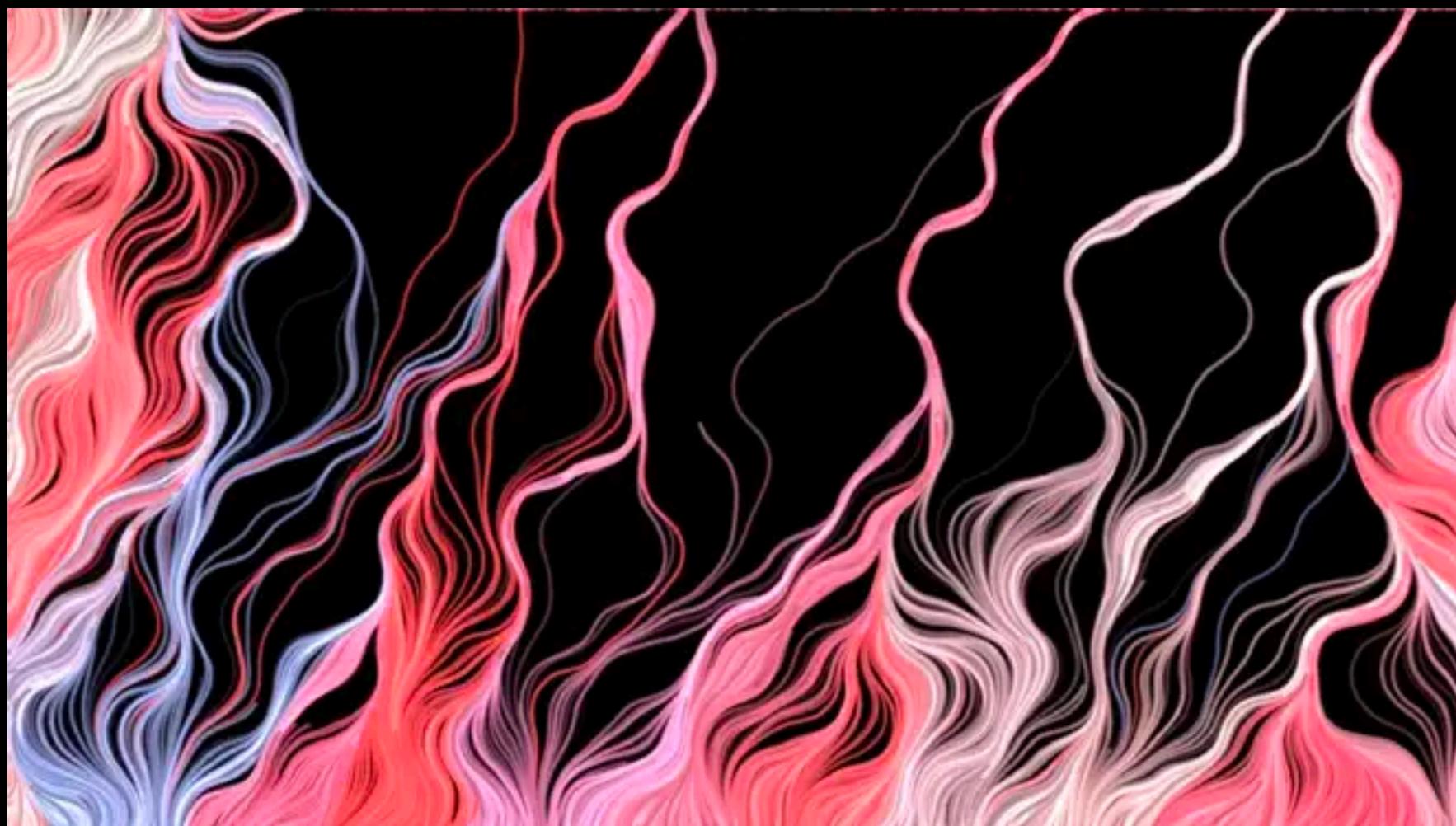
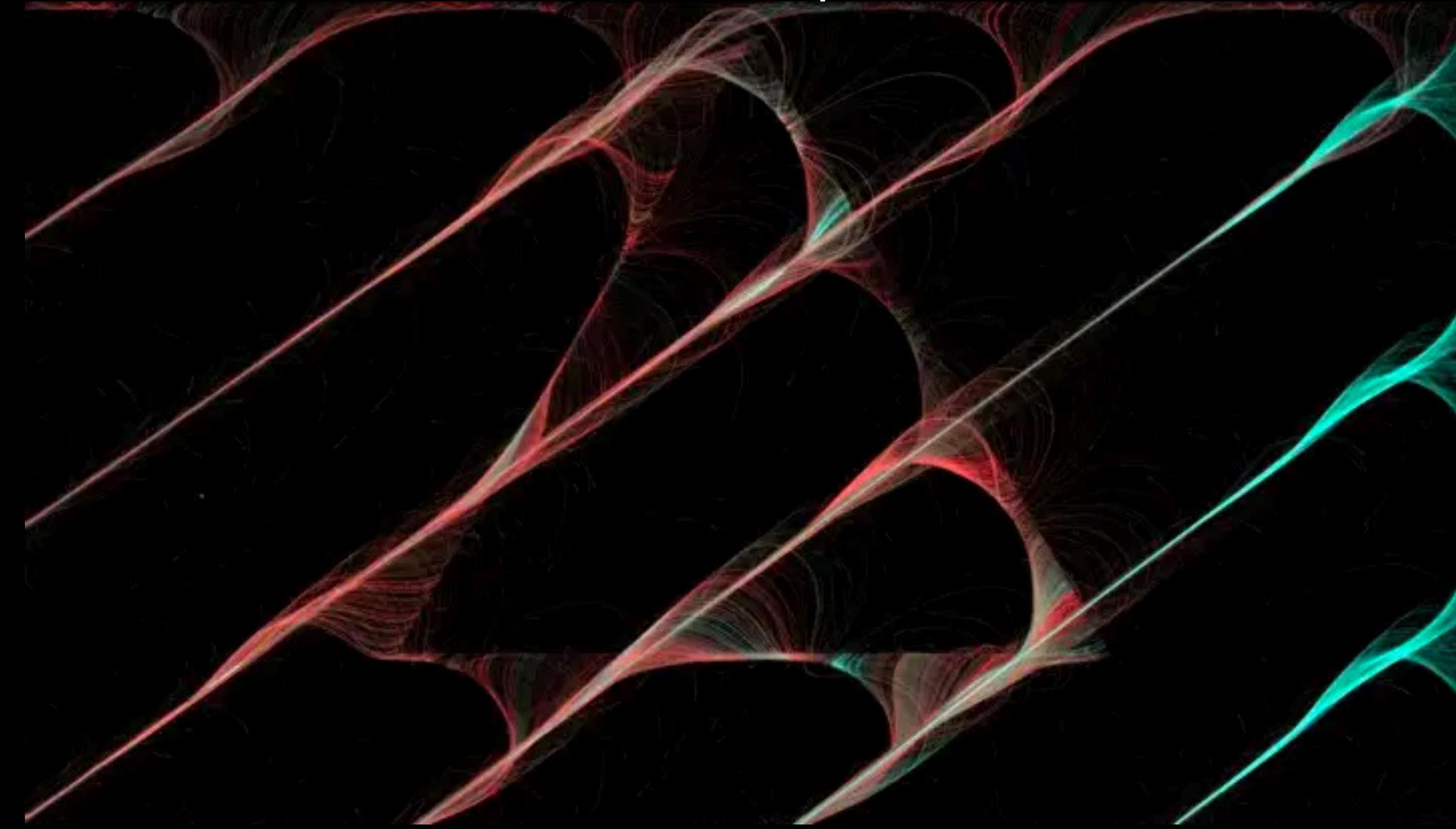
Other examples on Open Processing <https://openprocessing.org/browse/?time=anytime&type=all&q=particle%20system#>

<https://www.instagram.com/zach.lieberman/> Zach Lieberman

Particle system examples



Shahriar Shahrabi

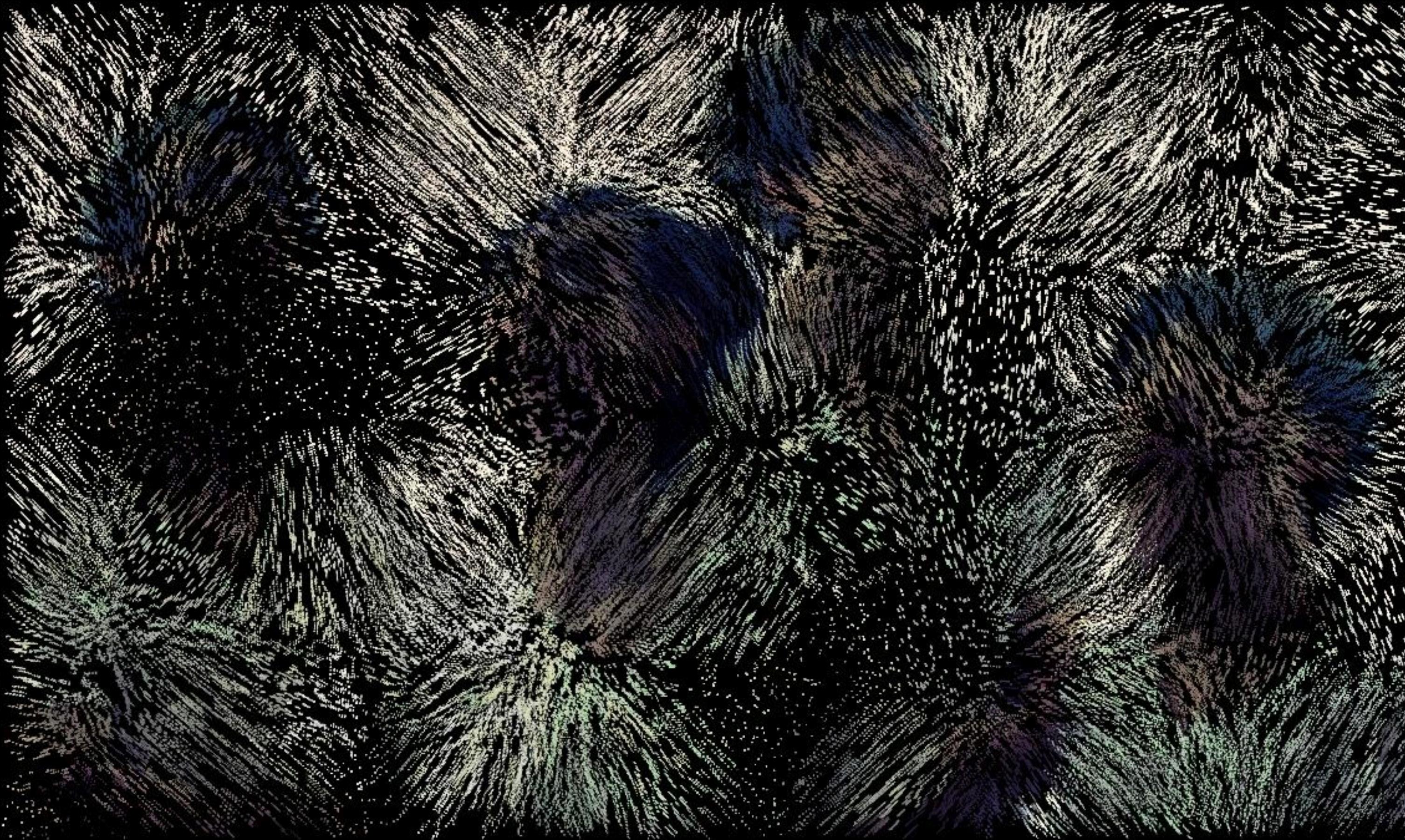


Particle system examples



<https://spatialpixel.com/painting-with-particles-in-processing/>

Particle system examples



<https://visualcodepoems.tumblr.com/post/133663246053/braids-particle-system-processing>

Project 1: Particles with personalities

Due: Week 5 at midnight, bring to class for critique

Each student will create a particle system using Object Oriented Programming (OOP). Everyone will be assigned a "personality" for their system, which should be embodied using movement, colors, and behaviors of your particle system. Consider:

- Color and shape
Speed, movements, or easing
Number of particles and how they interact with each other
Interactions or behaviours of the system with the user or environment
Other creative elements like sounds, changes over time, or other ways of expression.

Be creative, look up particle systems and see what's possible, but don't feel limited by what most particle systems look like. How can you re-imagine this code framework to make many small parts that work together (or against each other)?

Exercise 1: Getting back into code

- Code is commented clearly and concisely, it is uploaded to Moodle and Github
- Your repository has screen shots, mockups, and a [readme.md](#) file clearly explaining your project
- Code uses OOP concepts correctly and effectively, and runs properly without crashing, lagging, or other mishaps
- Program is creative and clearly embodies the personalities assigned
- Overall complexity and implementation
- Progress from initial design concept to end result

Exercise 1: Getting back into code

- Check out the notes in class! Ask your peers, use the P5JS Discord!
- P5.JS Objects on the P5 Reference and example code
- The Nature Of Code chapter 4 on particle systems
- Another Explainer

Design your system - Code intentionally!

If you can't describe what you want to do, how is the computer supposed to know?
Here are a few things we can plan out before we even begin to code:

- What does the system look like?
- What kind of movements, colours, and shapes are involved?
- What does a particle being created look like? How long does it live? How does it get destroyed?
- How long does a particle last? Forever? Until something happens to it?
- Are there multiple types of particles? Do they interact with each other or themselves?
- How do the particles interact with each other? How do they interact with the browser or canvas borders?
- Do the particles interact with the viewer? If so, how?
- Are there time considerations? Do the individual particles change during their lifespan? Does the lifespan of the entire particle system change over time?

Feel free to draw it out and find examples. Before you even begin to code, you should have a good idea of your end result. Its okay if you don't get there, but it will help you know your next steps more clearly.

Design your system - Code intentionally!

Consider how you can embody your theme within your particles,
consider:

- Be abstract rather than representational.
- Make a mood board of colours or shapes that reflect his feeling
- Is the interaction between the user, or the particles?
- Is it a game? Is it playful? How do the particles move?
- What reminds you of this situation?
- Could constructive a narrative help?

You can swap your theme once, only once!

Design your system - Code intentionally!

Use this time to create a mockup of your particle system. You can create a mood board, draw something, write down ideas. Create a README file for your particle system that describes your prompt, and also your desired end result and start your project on GitHub.