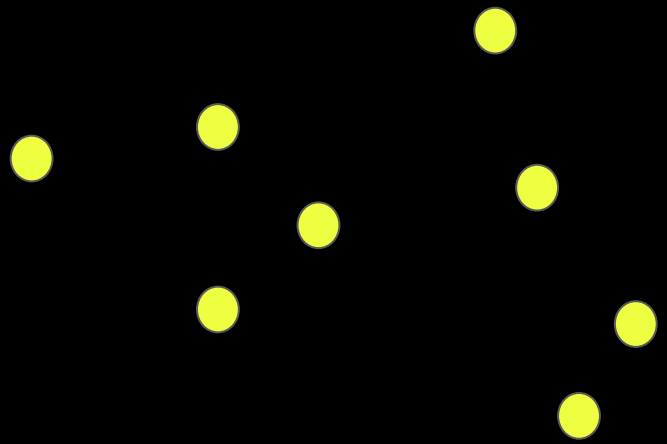
Voronoi Diagrams



Point Sets

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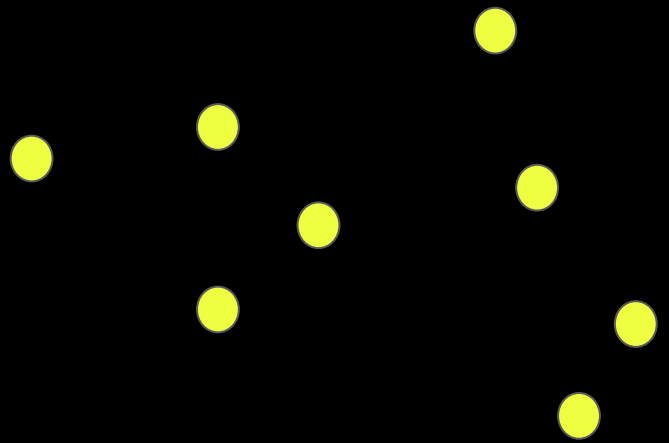

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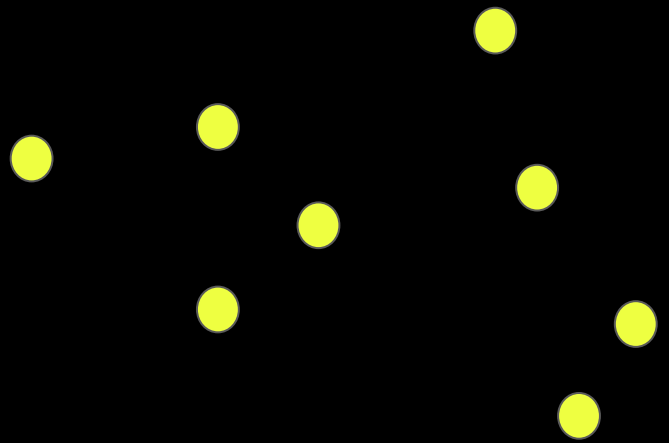

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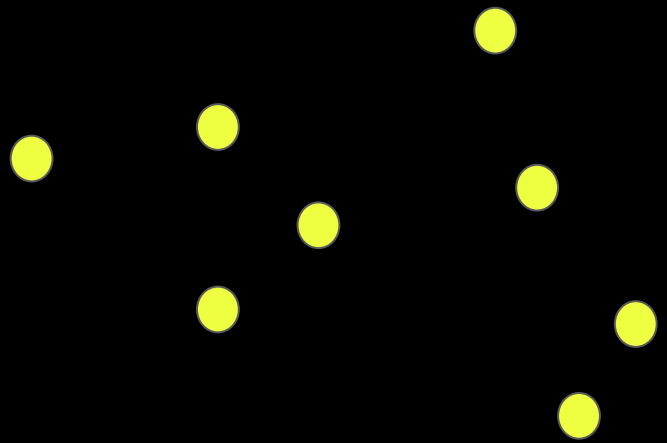
A point set

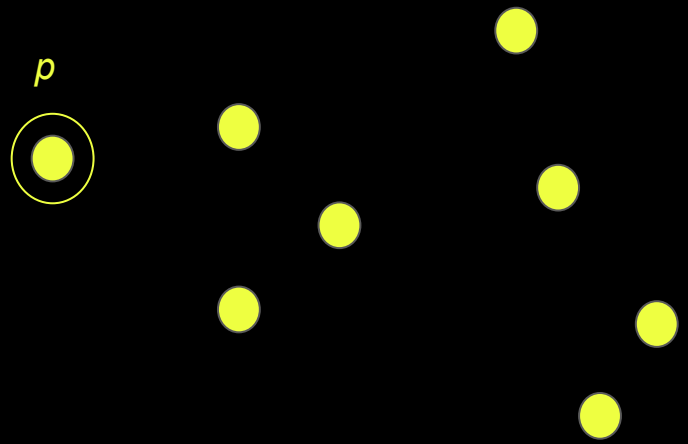
Voronoi Diagrams: what they are

- Suppose we have some point set



Voronoi Diagrams: what they are

- Suppose we have some point set
- Suppose I select some point, and call it *p*



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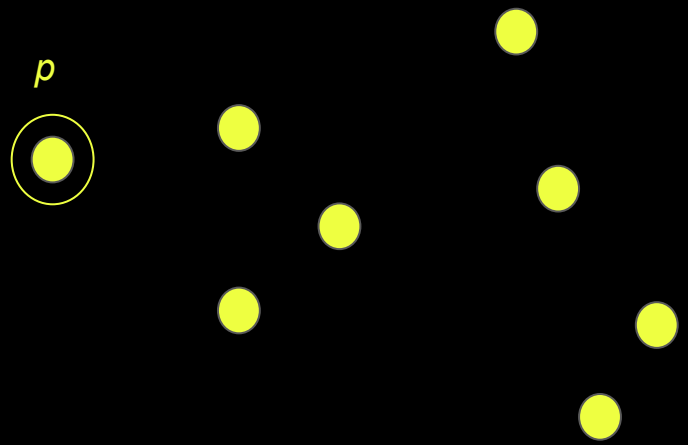

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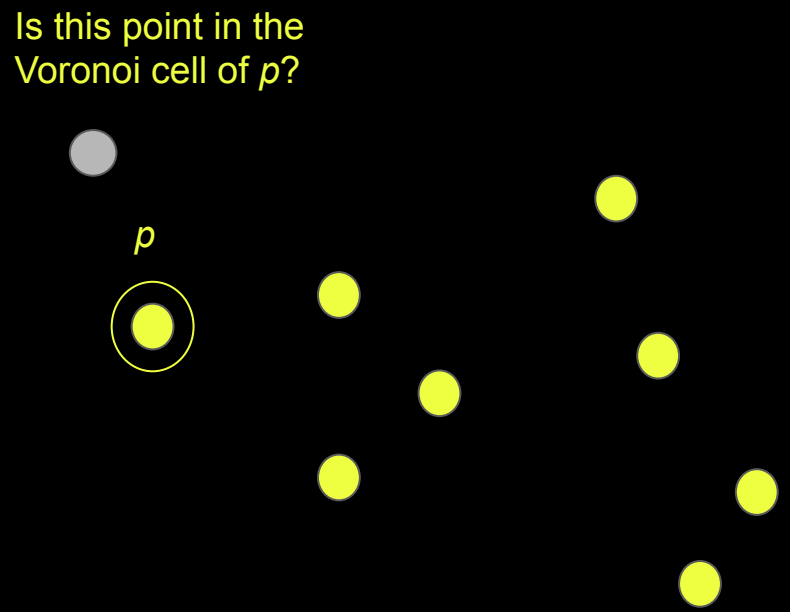

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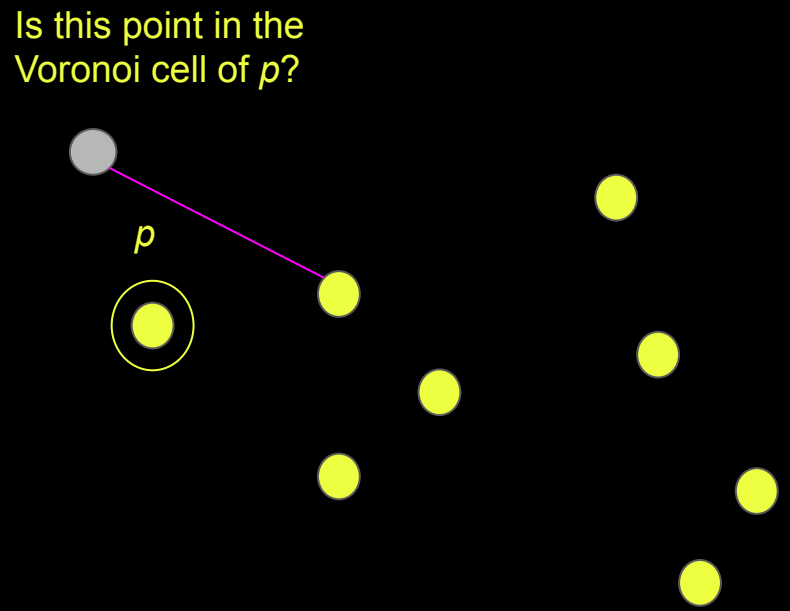

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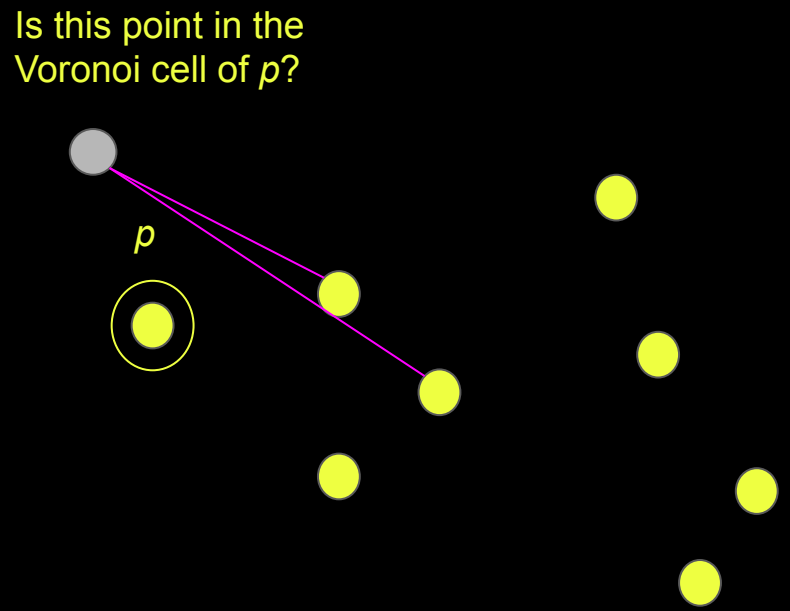

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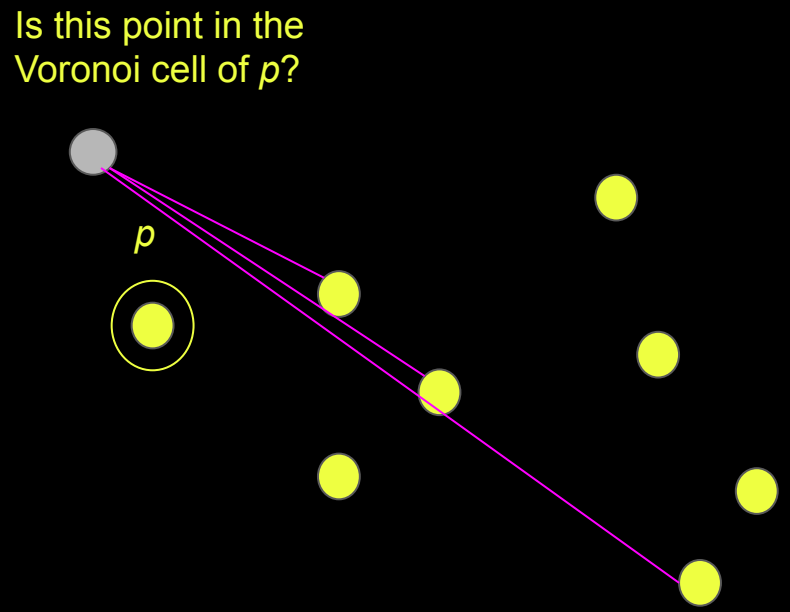

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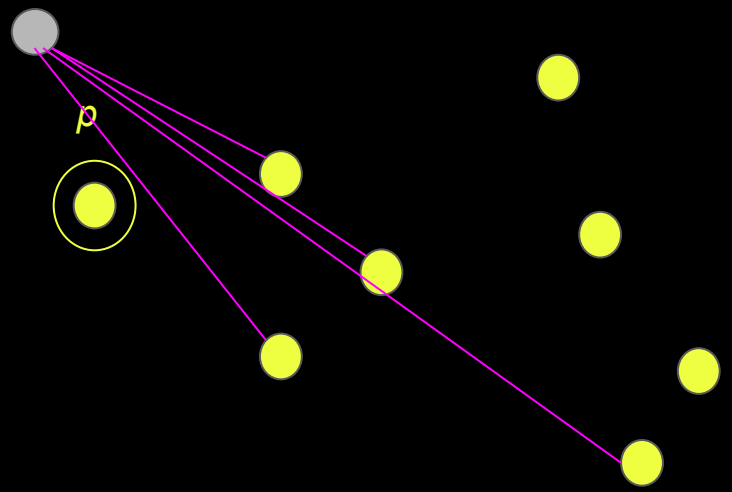

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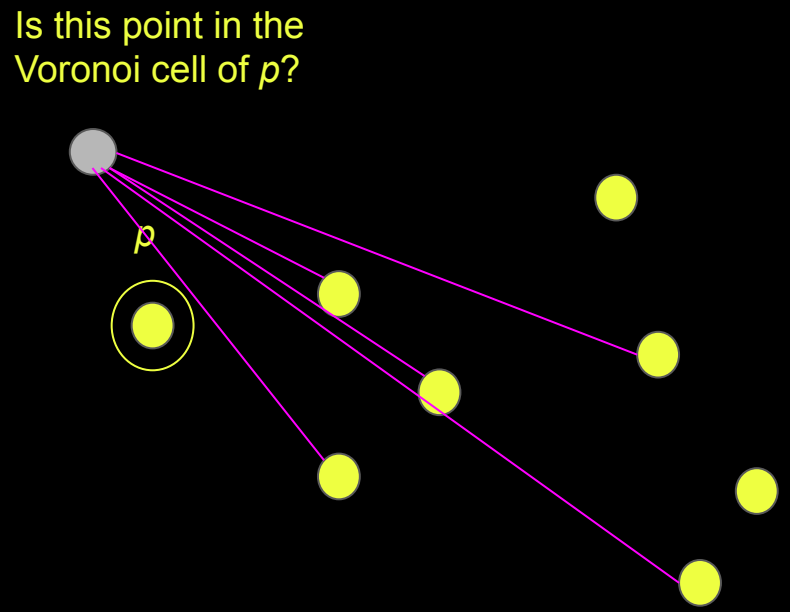

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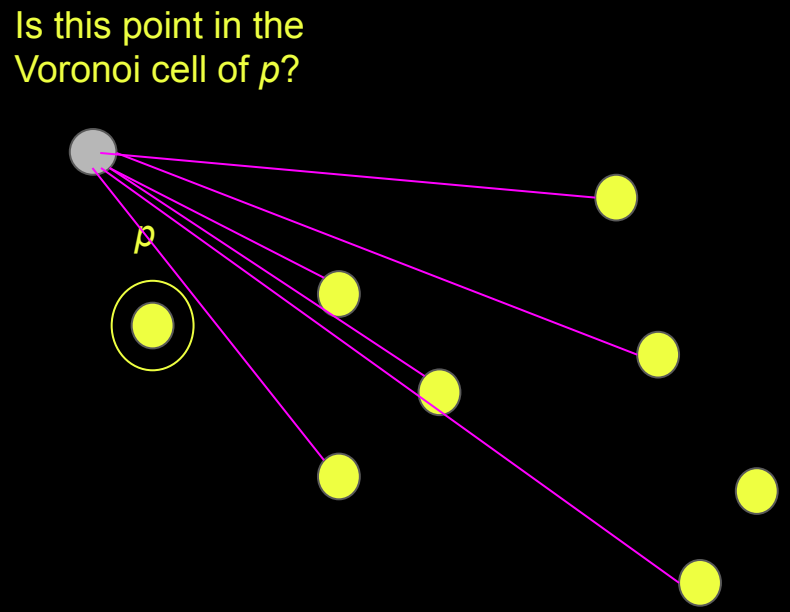

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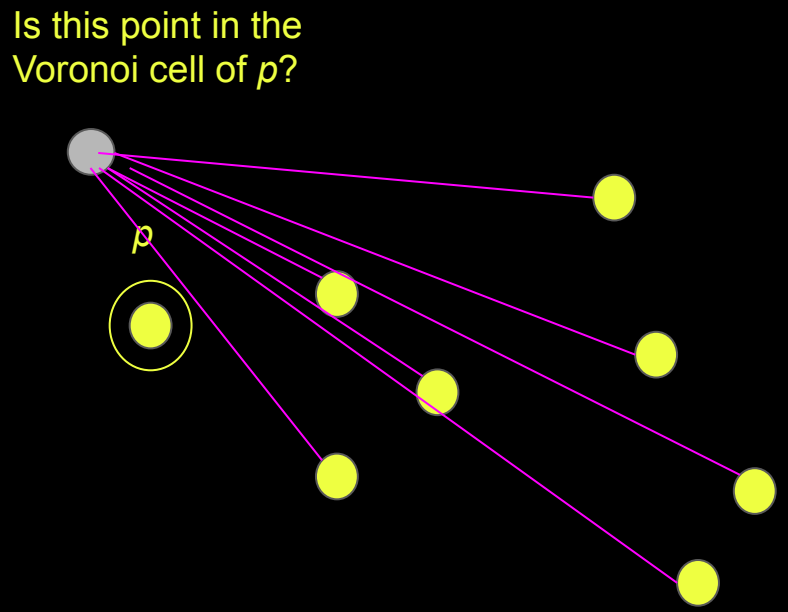

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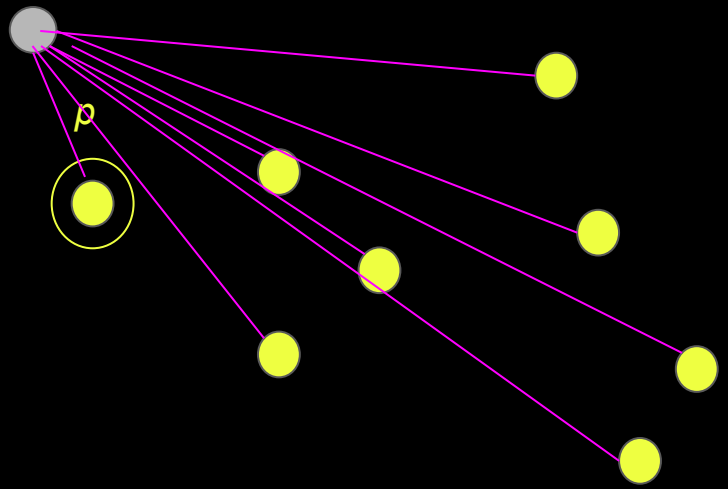

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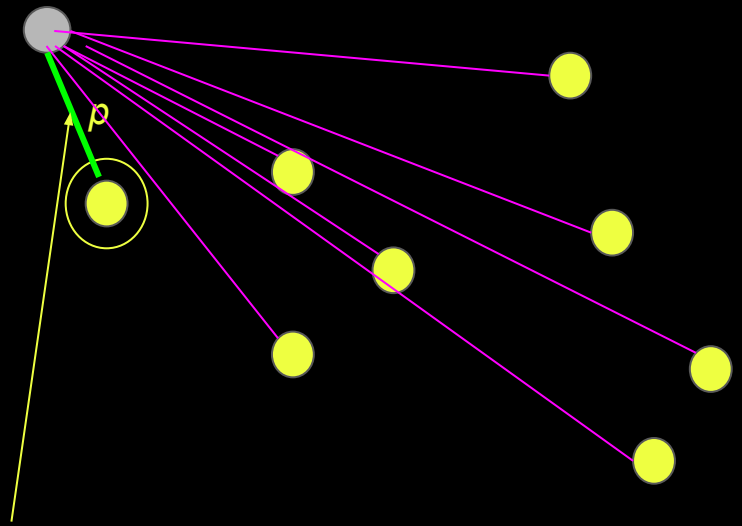

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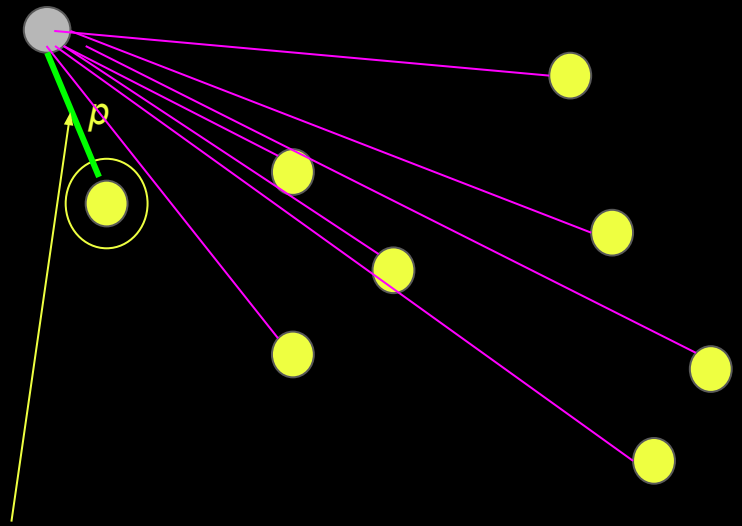

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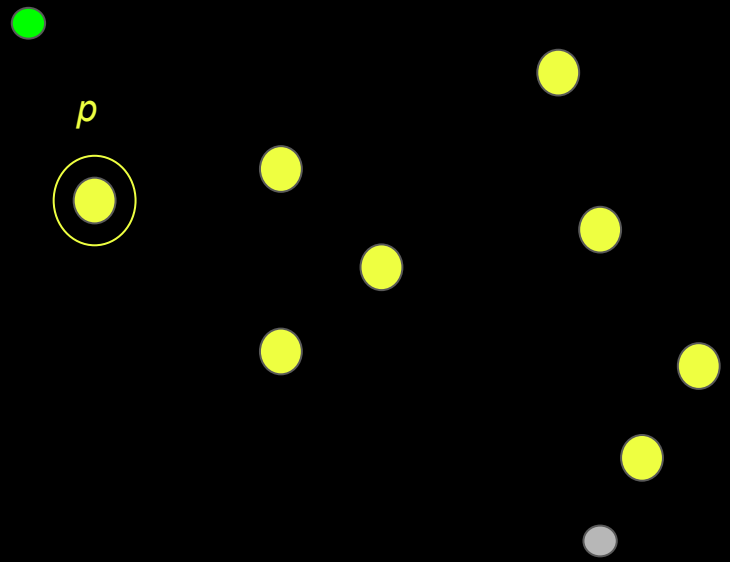

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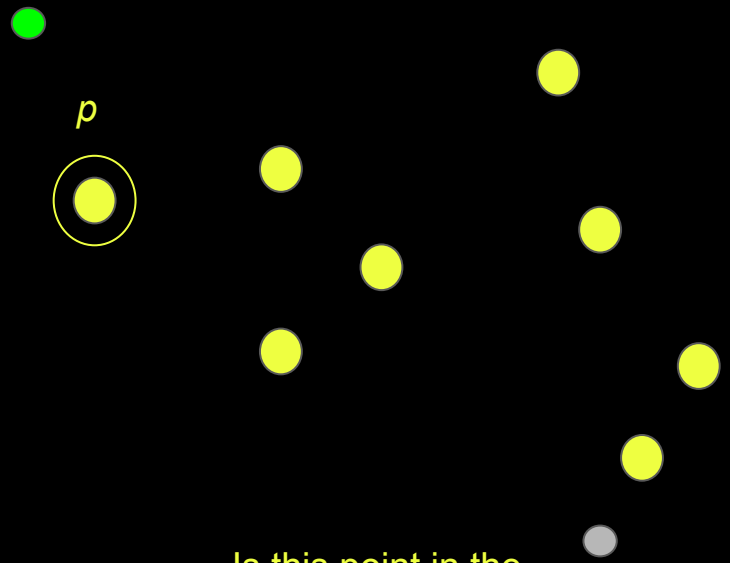

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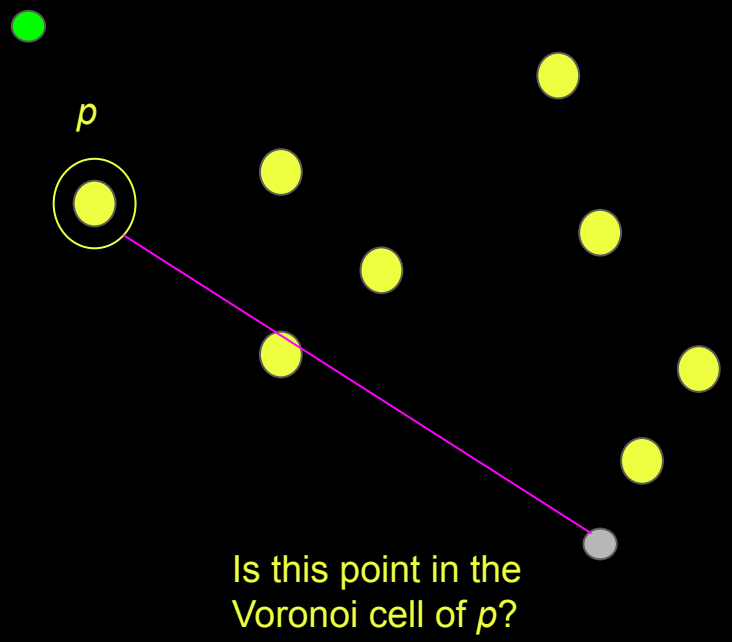

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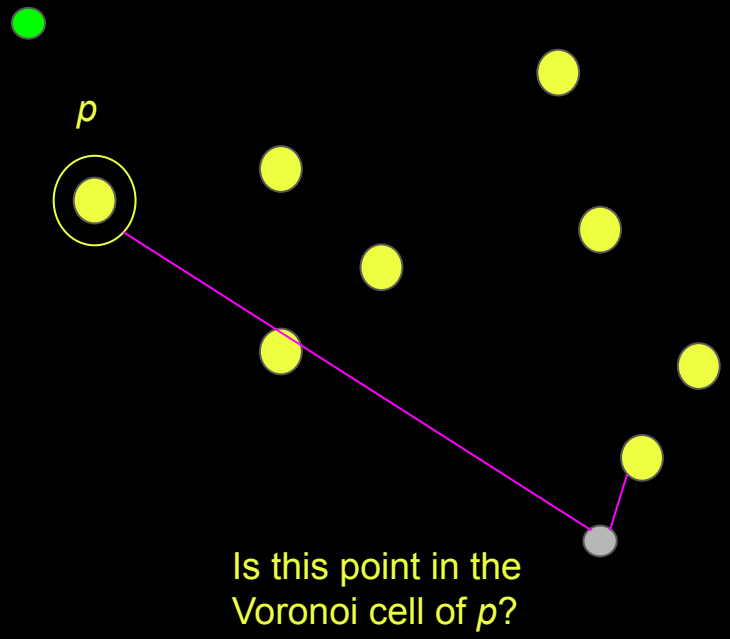

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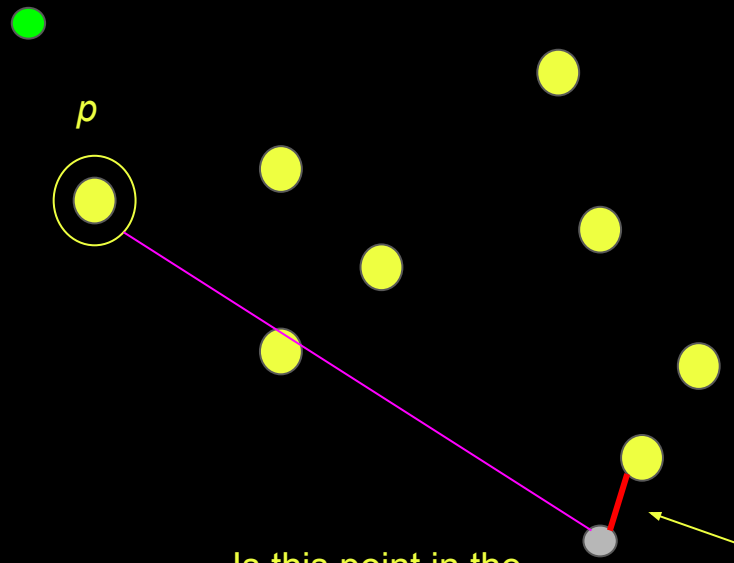

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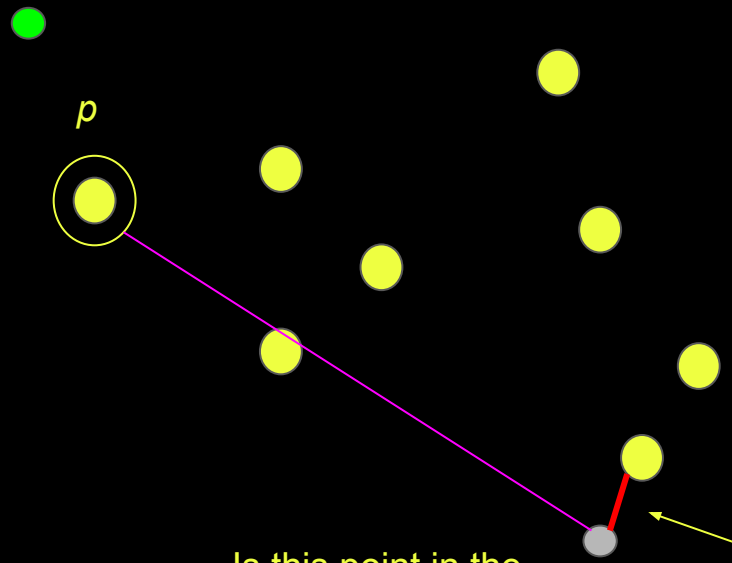

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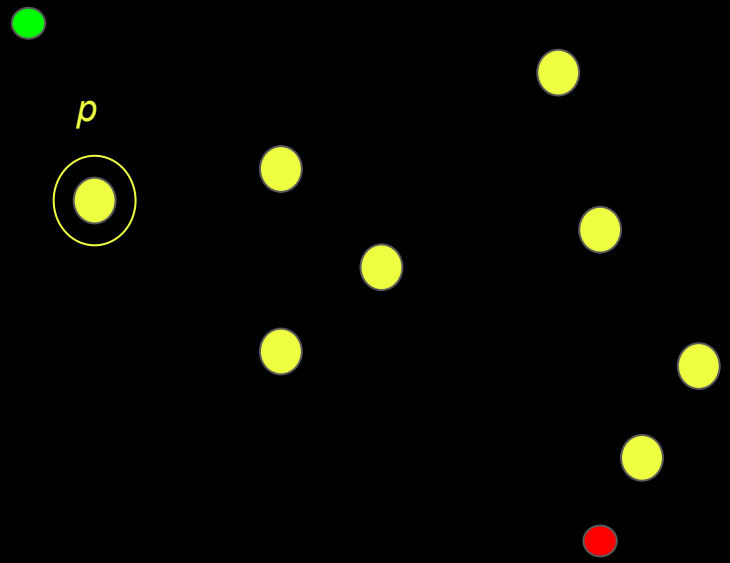

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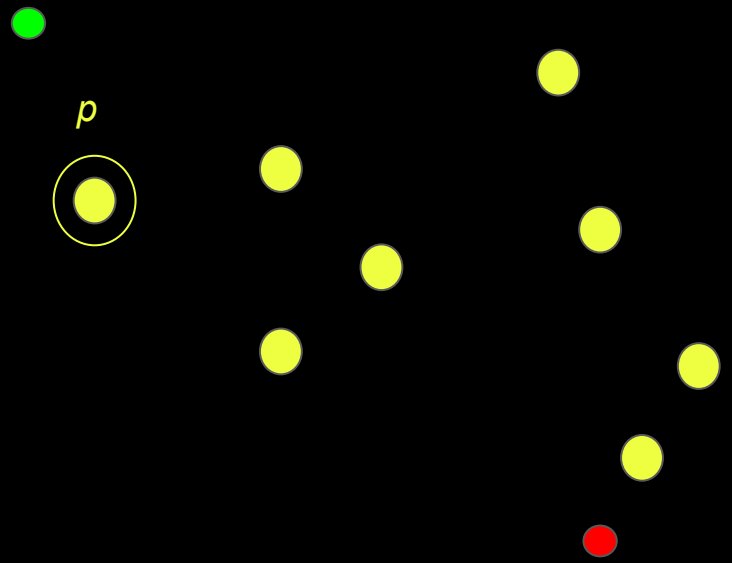

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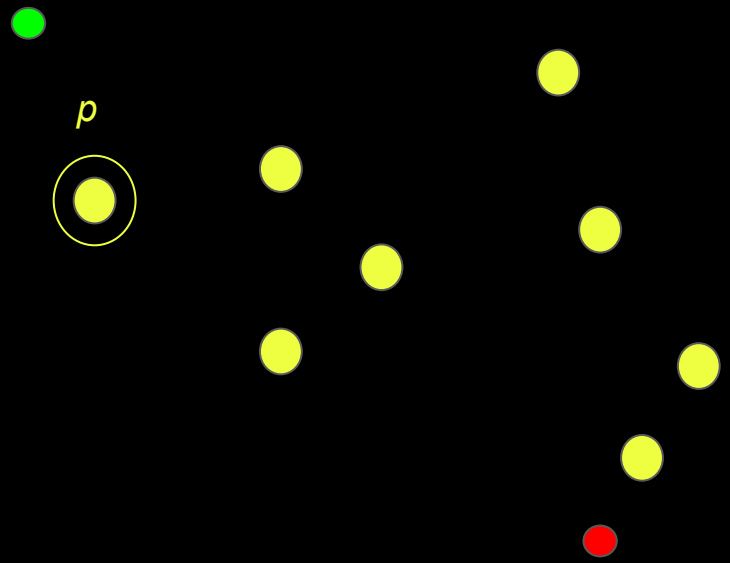

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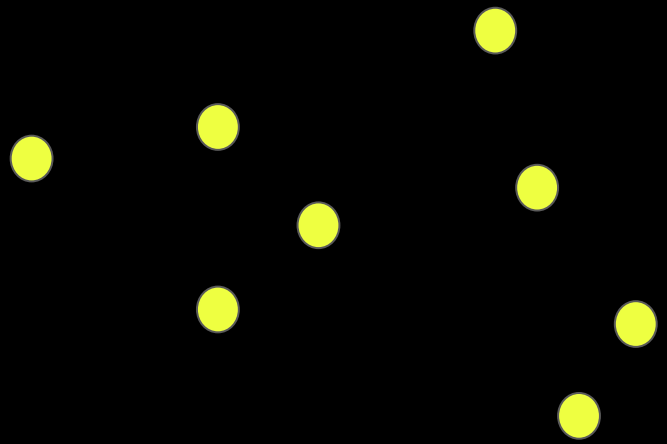
- It is the set of points where you cross over from one Voronoi cell to another

What do Voronoi diagrams of point sets look like??



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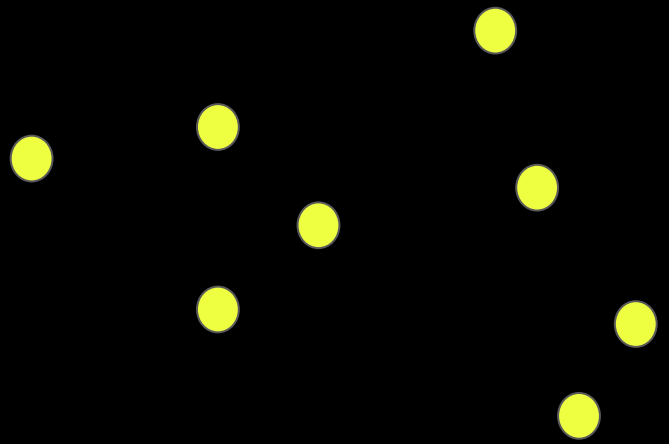


What do yall think?

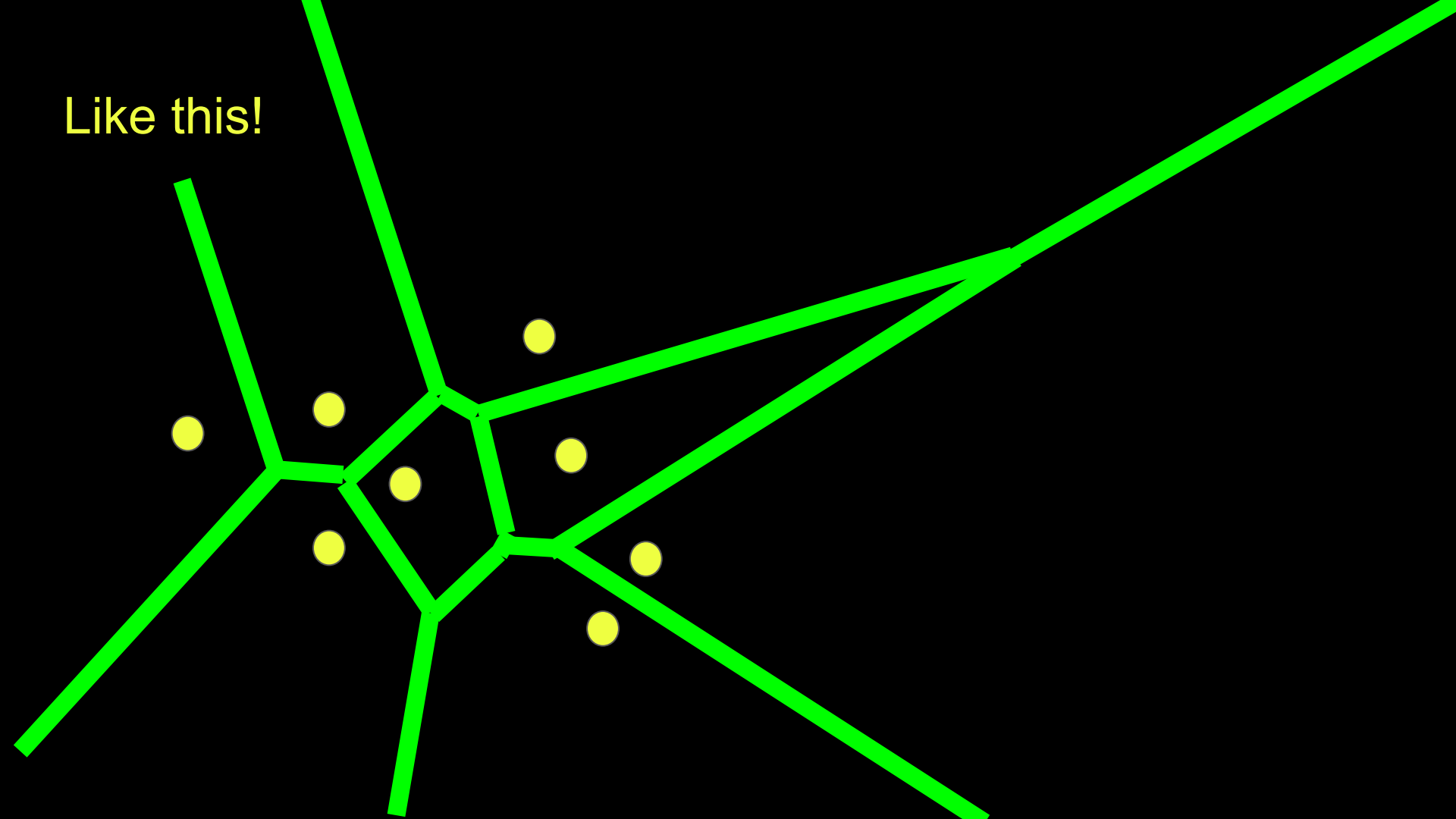
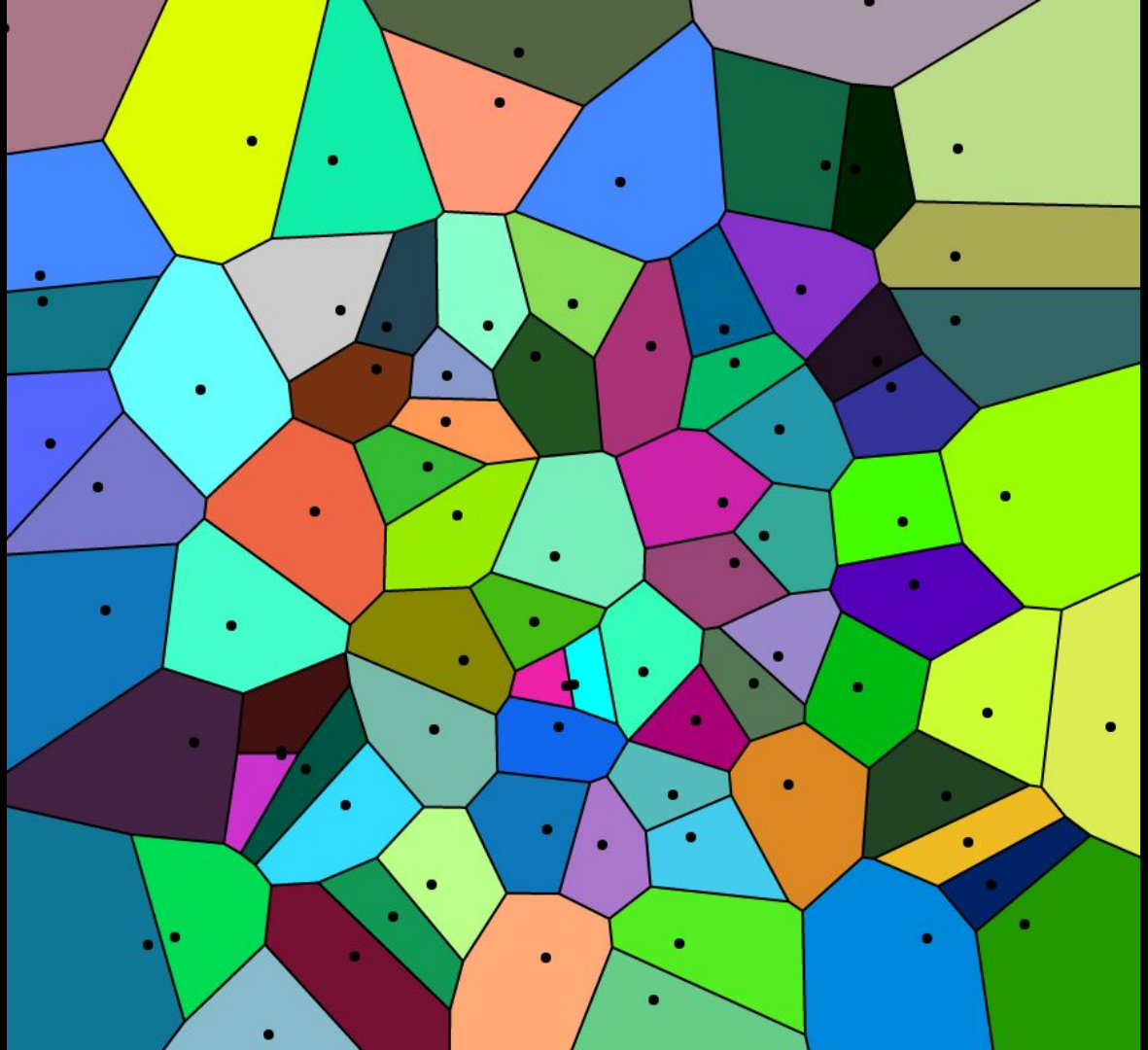

Like this!

Image thanks to:

https://cfbrasz.github.io/Voronoi.html



Voronoi Diagrams in Nature

- Not only do mathematicians like Voronoi diagrams, so does Mother Nature
- Voronoi diagrams show up everywhere in nature!

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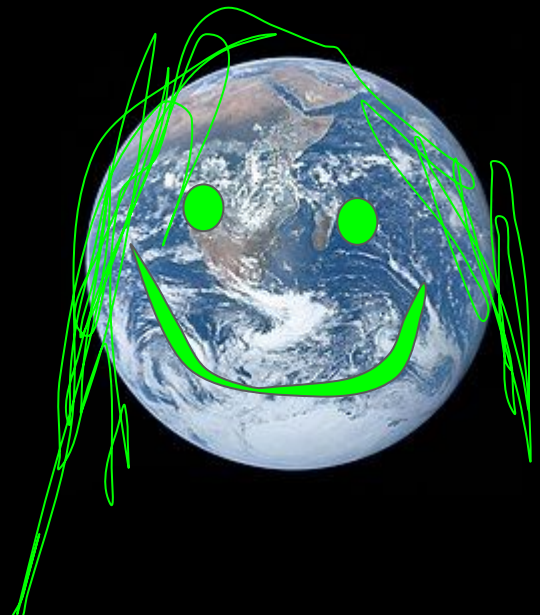

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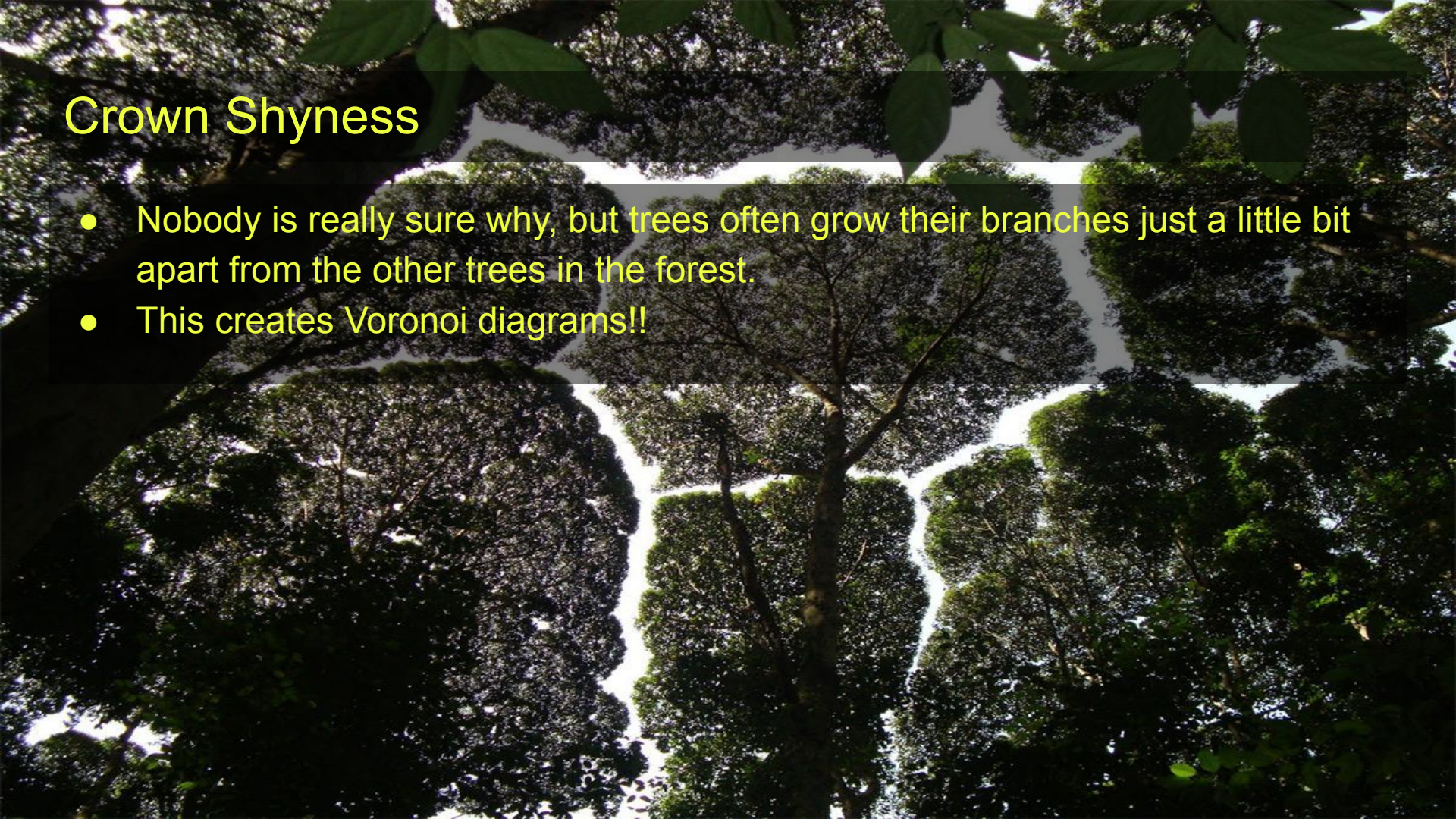
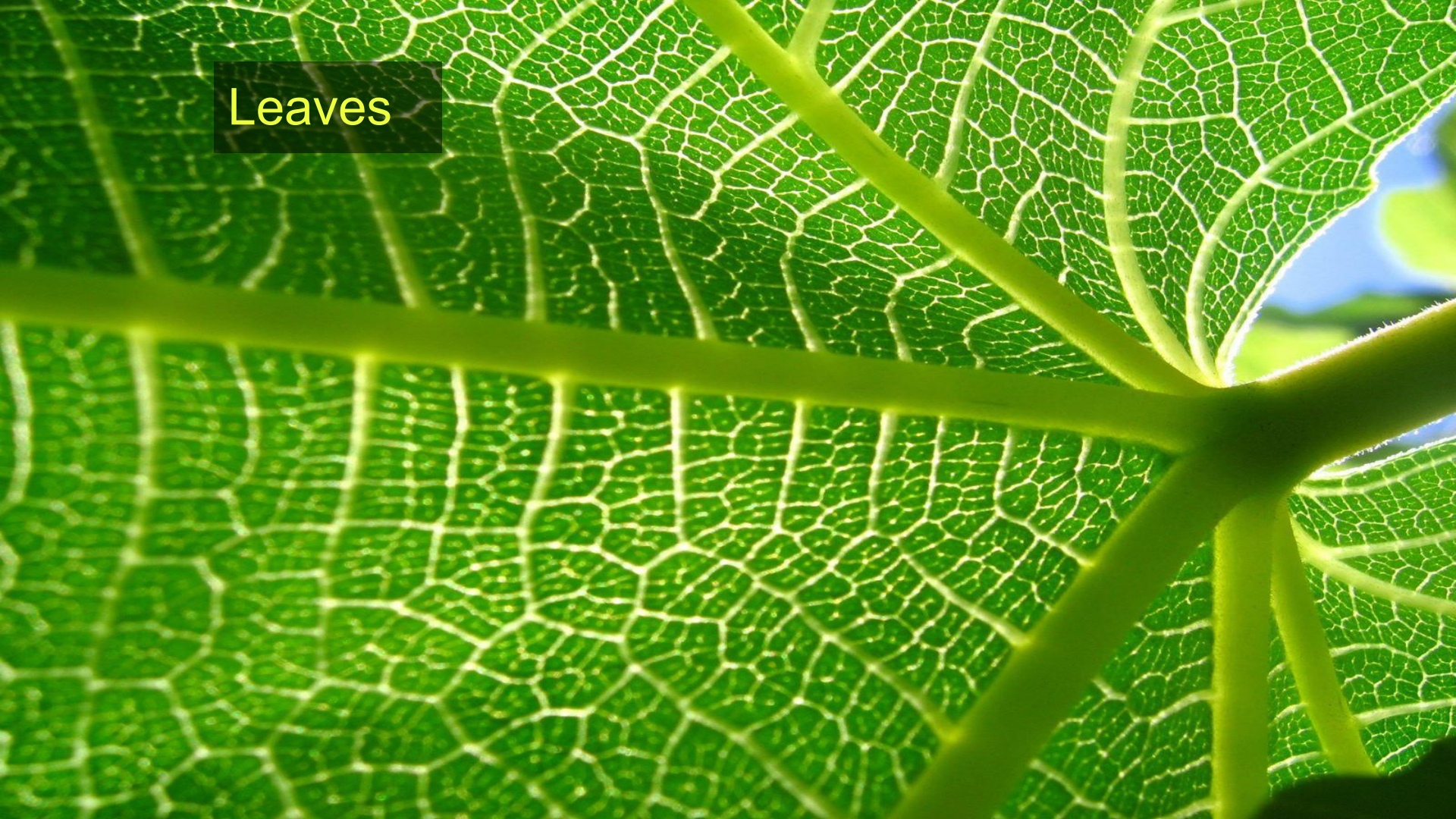


Crown Shyness

- Nobody is really sure why, but trees often grow their branches just a little bit apart from the other trees in the forest.
- This creates Voronoi diagrams!!


Leaves

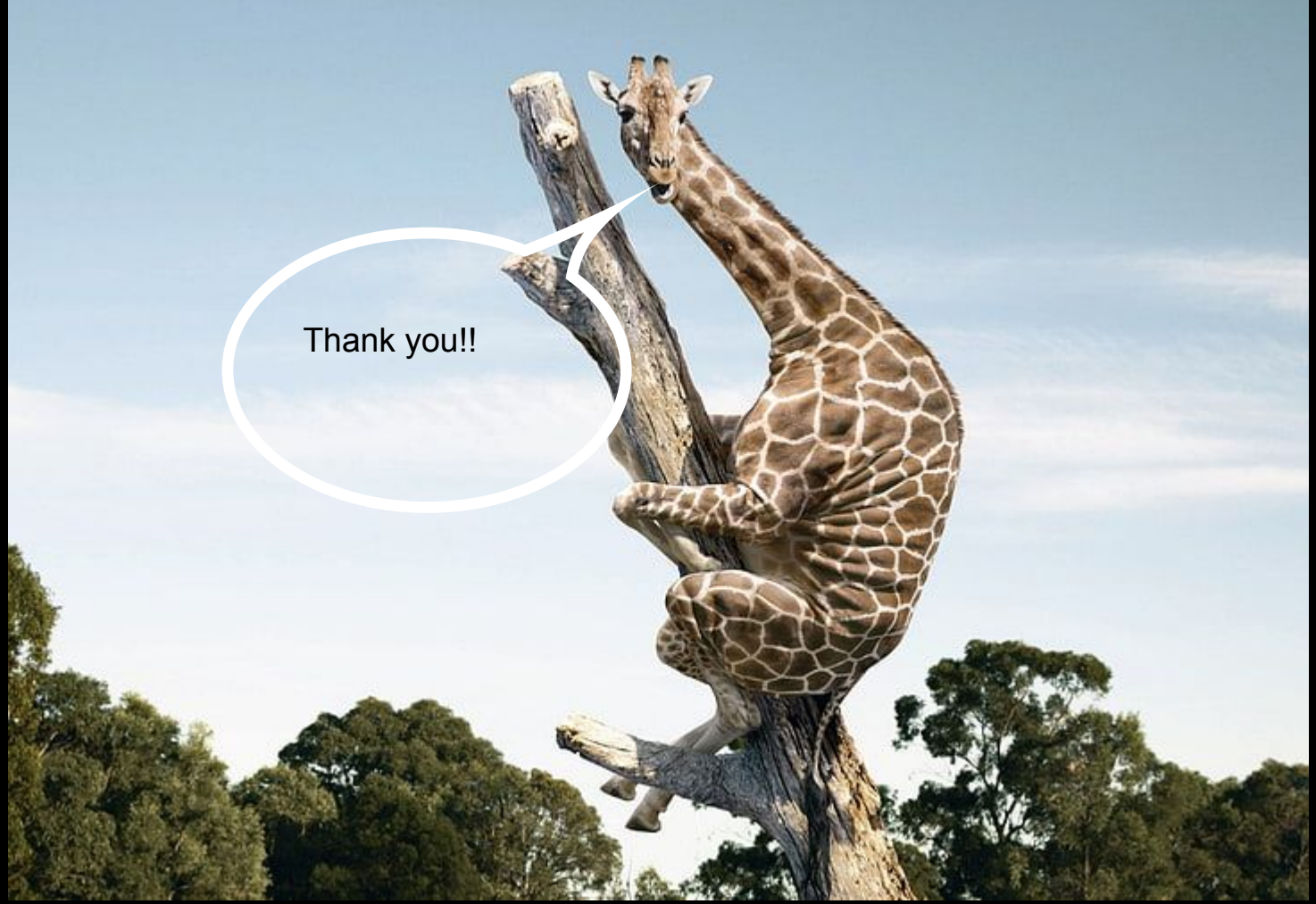
Giraffes and patterns on animal fur

Insect Wings


Most importantly, turtle shells!

Now you'll make your own Voronoi diagrams!!

- For the last ten or so minutes, have fun with a relaxing art project on Voronoi diagrams.
- Hopefully, this will help you get a sense of why Voronoi diagrams appear in nature as well!


Thank you!!