"Game of Life"

Andrew & Grehg

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Grehg Hilston

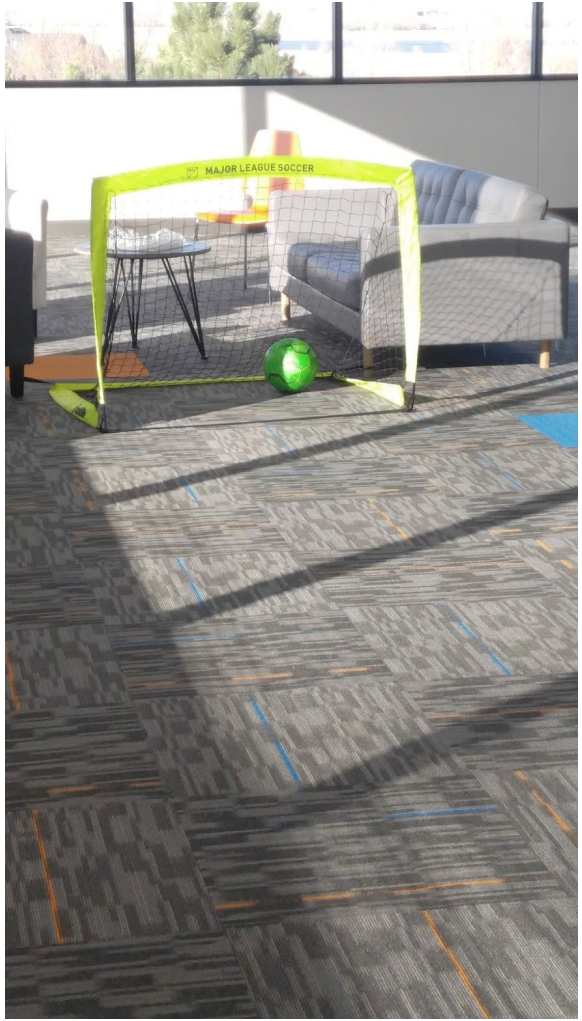
nrdwire®

SWAT

EXIT

the AMAZING
SPIDER-MAN
14600
SPIDER-MAN
STAR SERIES
80
D. Gottlieb & Co.

midwire


MAJOR LEAGUE SOCCER

SWAT

JOOLA

madwire

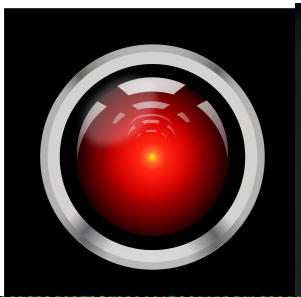
Mobile Team

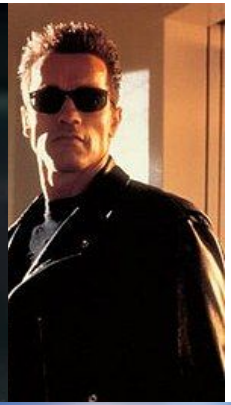
What People think I do

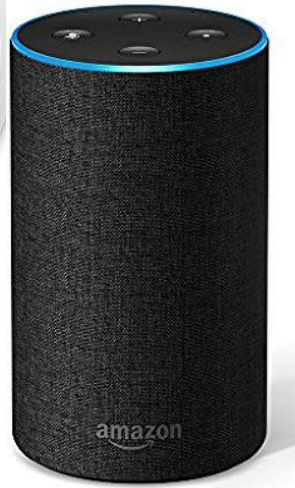
What I actually do

```
    // Set the view's delegate
    sceneView.delegate = self

    // Show statistics such as fps and timing information
    sceneView.showsStatistics = true

    getLocation()

    _ = Timer.scheduledTimer(timeInterval: 15.0, target: self, selector: #selector(checkForAirplar
}
private func getLocation() {
    locationManger.requestWhenInUseAuthorization()
    if CLLocationManager.locationServicesEnabled() {
        locationManger.delegate = self
        locationManger.desiredAccuracy = kCLLocationAccuracyNearestTenMeters
        locationManger.startUpdatingLocation()
        locationManger.startUpdatingHeading()
    }
}
@objc func checkForAirplanes() {
    if let location = location {
        if let url = URL(string: "https://adsbexchange-com1.p.rapidapi.com/json/lat/\(location.coo
            var request = URLRequest(url: url)
            request.addValue("adsbexchange-com1.p.rapidapi.com", forHTTPHeaderField: "x-rapidapi-h
            request.addValue("35e6282521msha158509af7fae8bp12c67ajsn5377551c1673", forHTTPHeaderFi
            let airplaneInfo = URLSession.shared.dataTask(with: request) { (data, response, error)
                if let data = data { print( String(data: data, encoding: .utf8)! ) }
```

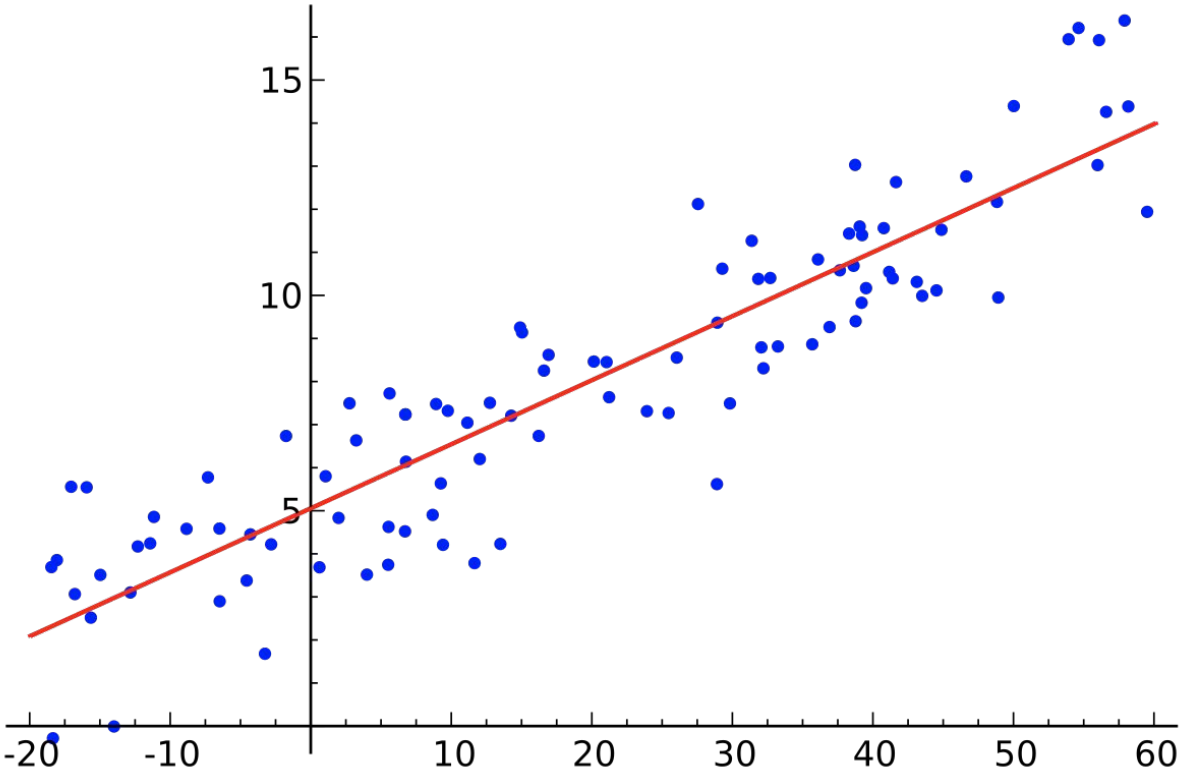
Data Science - What Everyone Thinks I do







Data Science - What I really Do



Game of Life

goo.gl/eZhkwp

Break off into groups, spend ten minutes playing with the games and try to answer the following questions:

1. What does this represent?
2. How does it work?
3. What patterns did you notice?

If you find something cool, click “Export” and “Link” and

Game of Life

- a cellular automata
- Created by John Conway in 1970, a British mathematician
- Turing complete

Rules

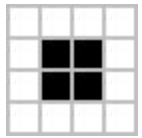
- Rules:
  - Underpopulation:
    - Any live cell with fewer than two live neighbours dies
  - Survival:
    - Any live cell with two or three live neighbours lives
  - Overpopulation:
    - Any live cell with more than three live neighbours dies
  - Reproduction:
    - Any dead cell with exactly three live neighbours becomes a live cell

Live Demo

Lets implement:

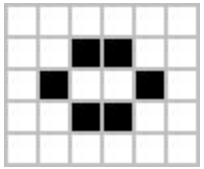
1. Number of live neighbors
2. Underpopulation rule
3. Survival rule
4. Reproduction rule
5. Overpopulation rule

Still Life - Block



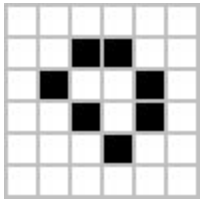
Example

Still Life - Beehive



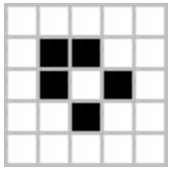
Example

Still Life - Loaf



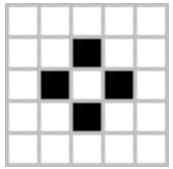
Example

Still Life - Boat



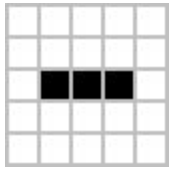
Example

Still Life - Tub



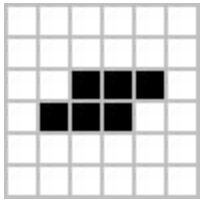
Example

Oscillators - Blinker (period 2)



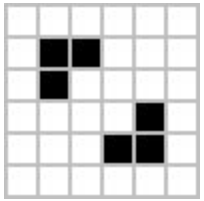
Example

Oscillators - Toad (period 2)



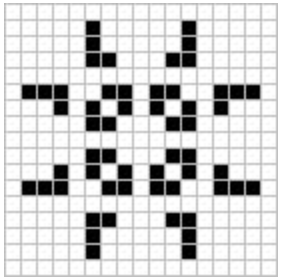
Example

Oscillators - Beacon (period 2)



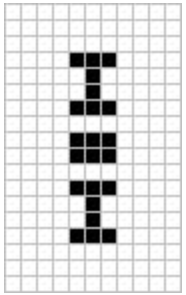
Example

Oscillators - Pulsar (period 3)



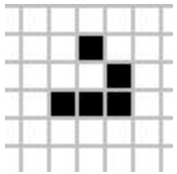
Example

Oscillators - Pentadecathlon (period 15)



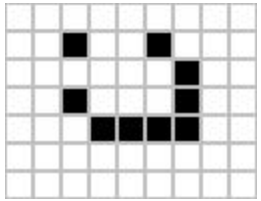
Example

Spaceships - Glider



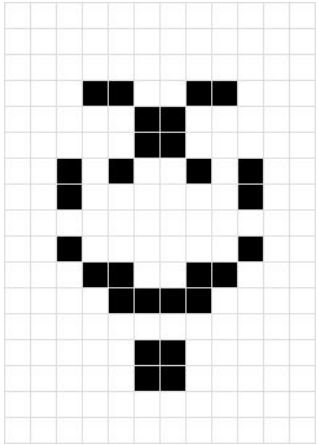
Example

Spaceships - Lightweight Spaceship



Example

Spaceships - New Spaceship

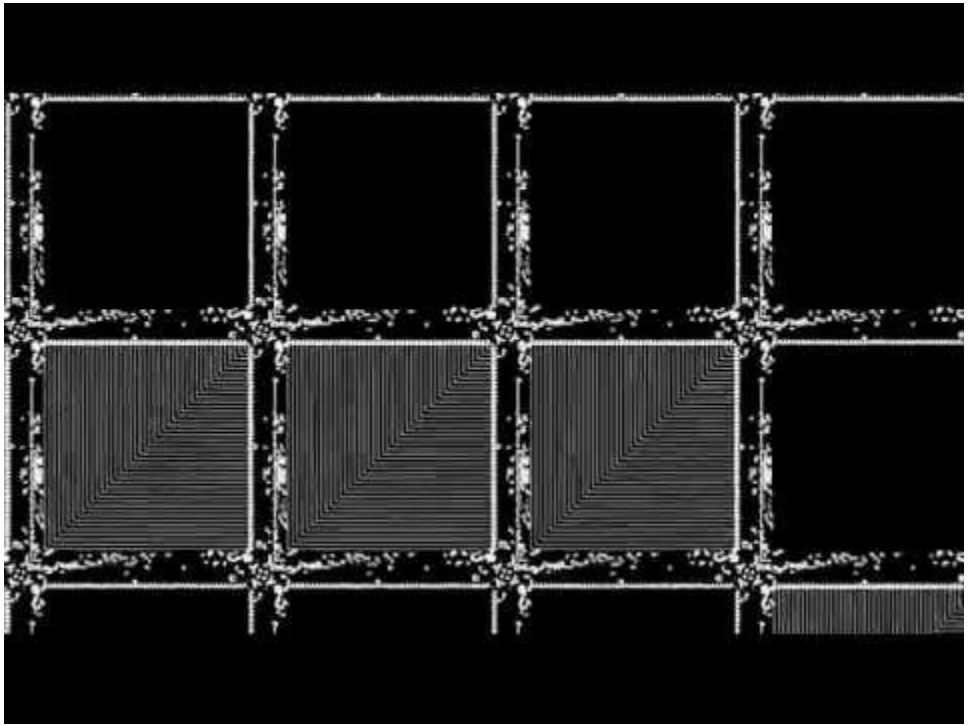


[Example]

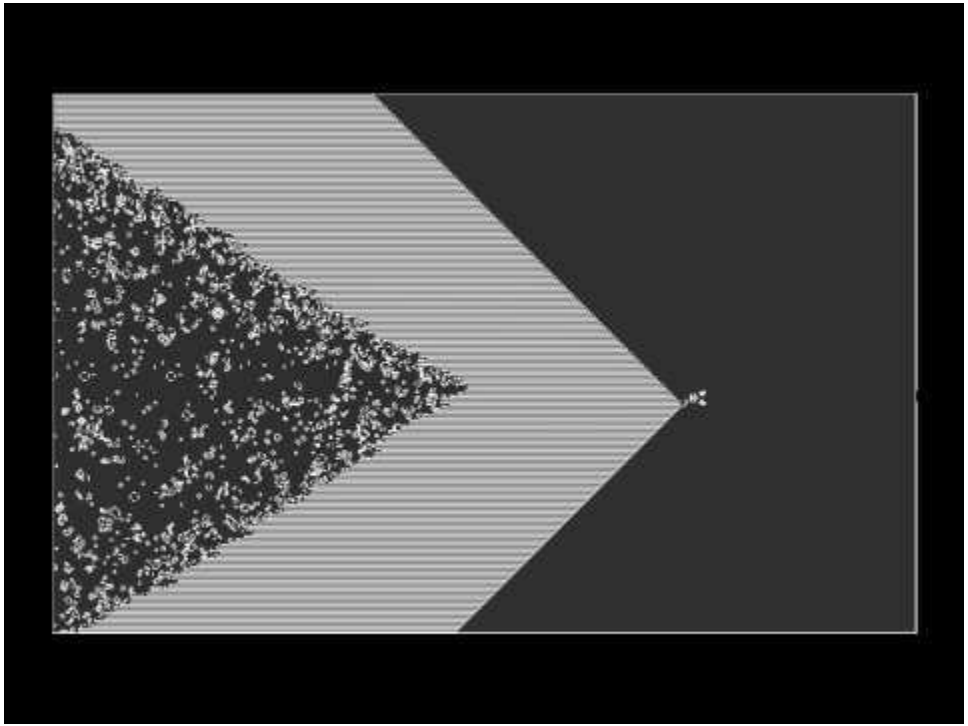
Cool Scene - Glider Gun

Example

Life in Life



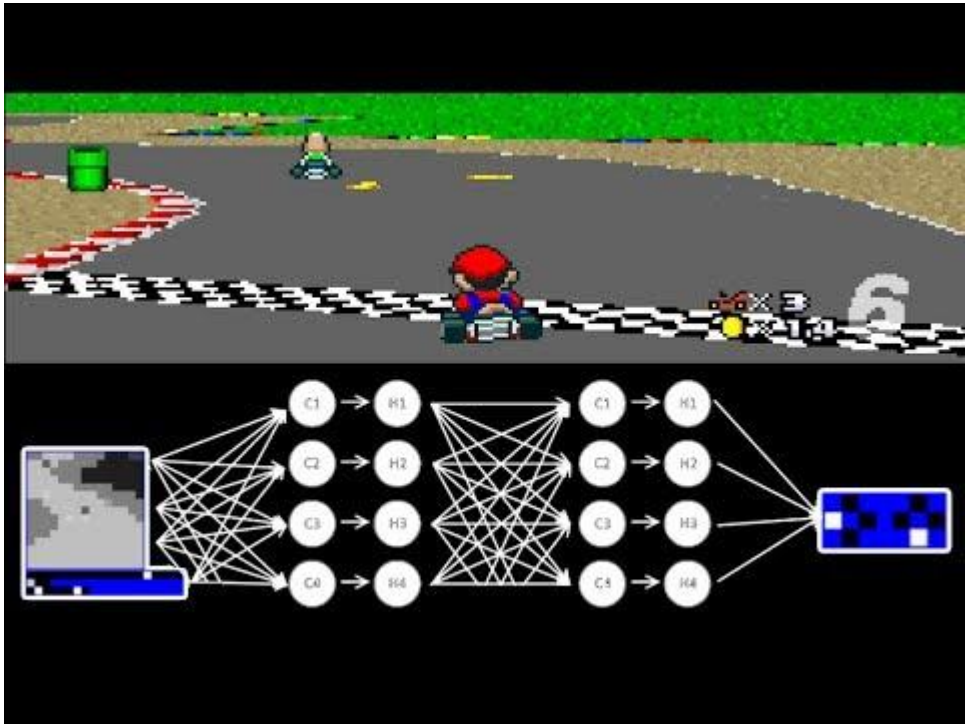
Epic Conway's Game of Life



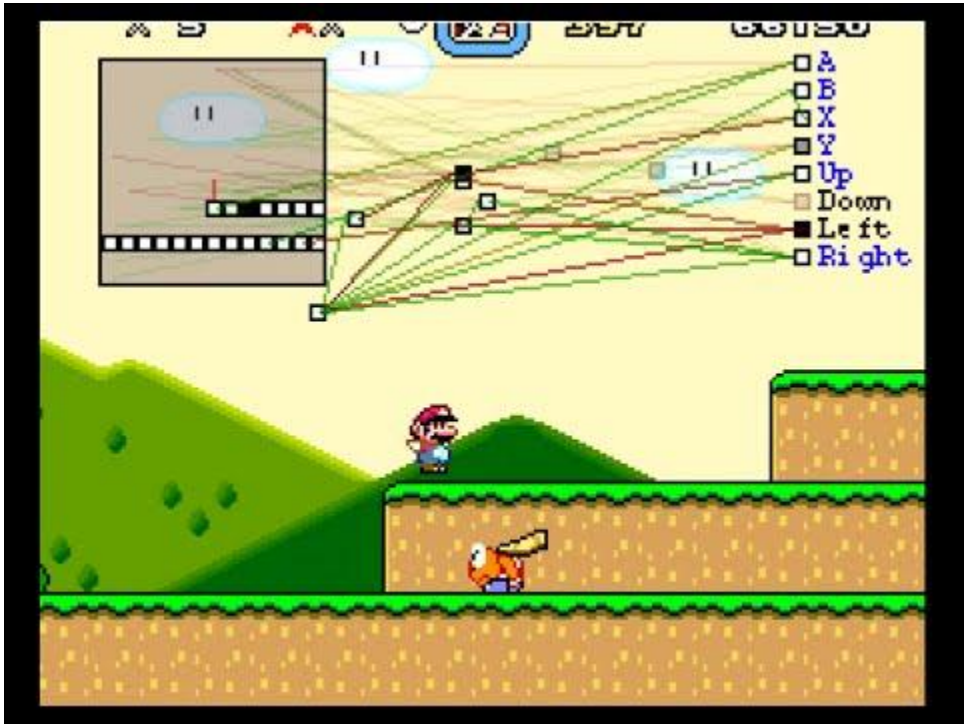
Game of Life In Minecraft

160 Beats Per Minecraft

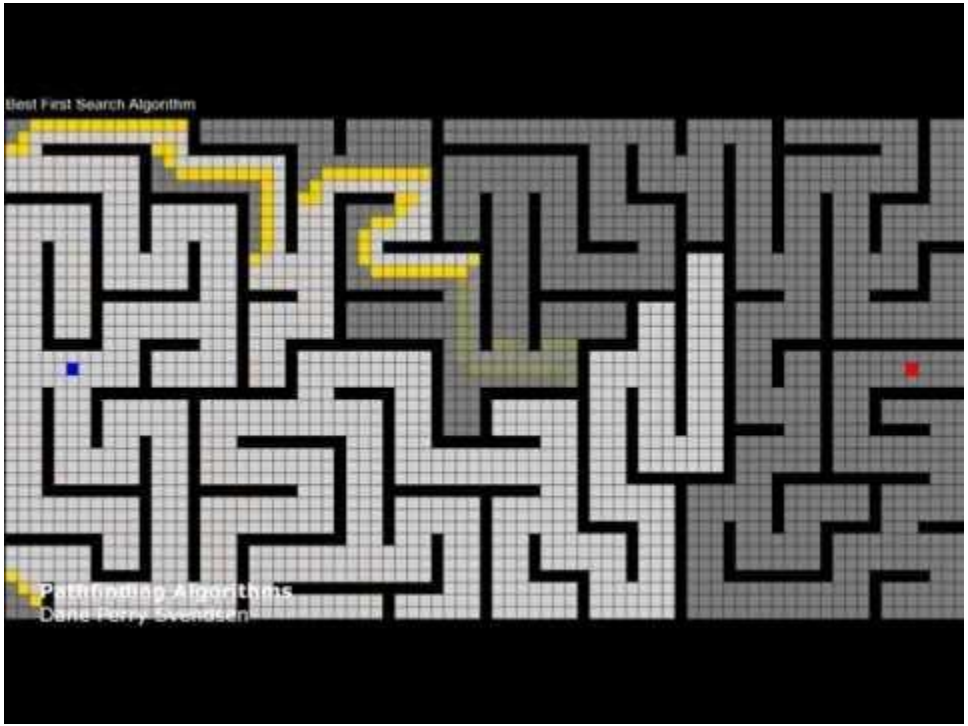
MariFlow - Self-Driving Mario Kart



MarI/O - Machine Learning for Video Games



Pathfinding Algorithms

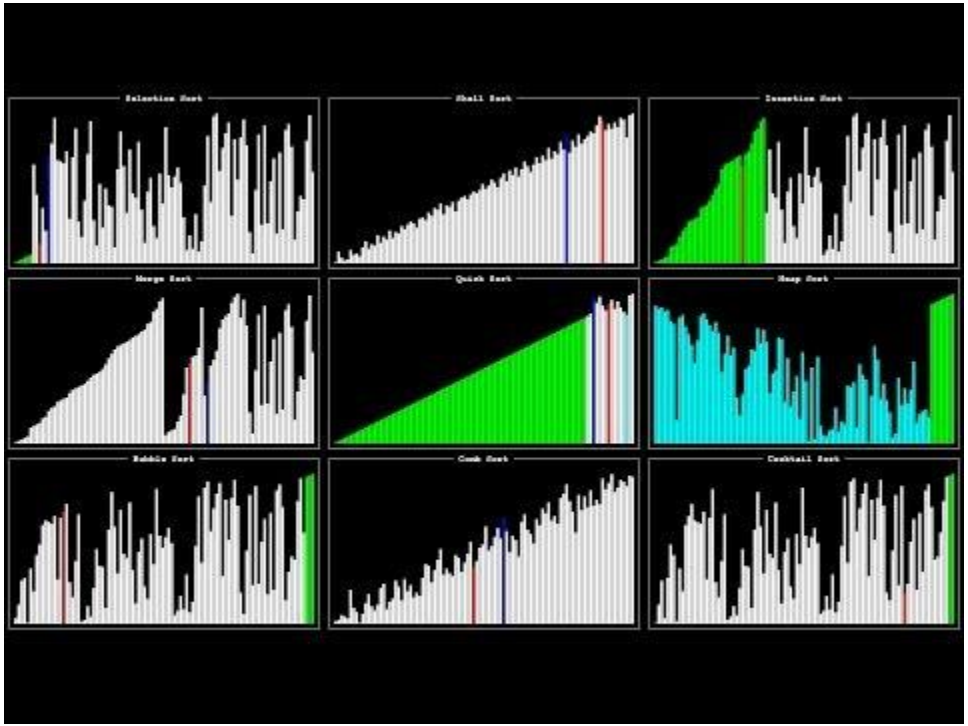


AI Plays Hide and Seek

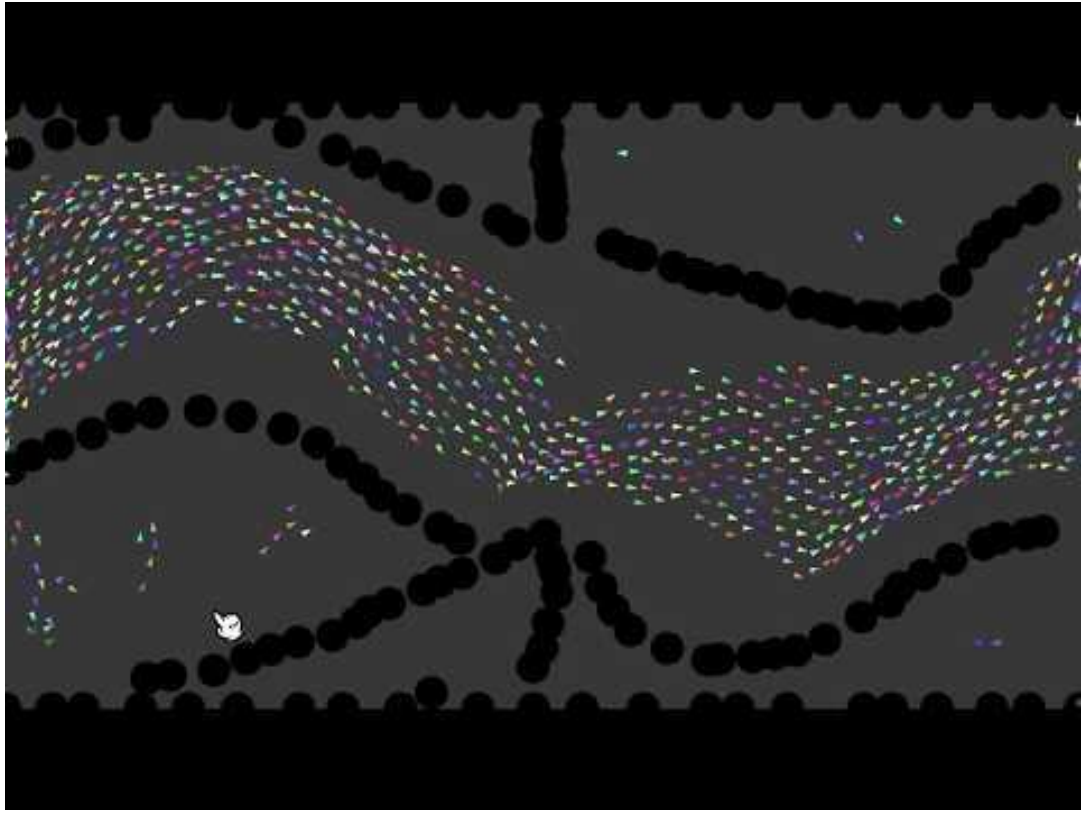
Simulating an Ecosystem

Slime Mold Pathfinding

Sorting Algorithms



Boids



Programming Usages

- Video game development
- Virtual reality
- Augmented reality
- Home automation
- Minecraft redstone
- Pretty much every industry uses software
  - Computer graphics and animation
  - Avionics
  - Internet connected devices (internet of things)