Space Bubbles 9000

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- **Rules**
  - +100 points for shooting and popping a bubble.
  - +500 points for shooting and killing another ship.
  - Score set to -500 if killed.
  - All ships start with +100 health. Ship is considered killed if health is 0.

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- **Controls**
  - Steer left
  - Steer right
  - Thrust forward
  - Shoot

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- **Autonomous Ship Inputs**

  - Distance to the nearest ship.

  - Angle to the nearest ship.

  - Distance to the nearest bubble.

  - Angle to nearest bubble.

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- **Training Method(s)**
  - I tried two
    - Evolutionary
    - Online supervised learning

Evolutionary Training

Orange = Evolutionary Training
Green = Just Random

Gen 1

Gen 2

Gen 5

Gen 20

Gen 100

Online Supervised Training

Blue = Human
Yellow = Being Trained By Human

All In Competition

Spin & Spray Already Dominant

Still Spin & Spray ...

...

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- **Summary**
  - Training method produced competitive bot.
  - Not trained against human attacker, so not so competitive against human attacker.
  - Improvements that could be made:
    - An "I'm being shot" input
    - Increase score for killing a ship.
    - Neural learning weights may be too large.
    - More evolution runs.

The End

Music By *H3CTic*

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