# Gamifying Agent-Based Models in Cormas: Towards the Playable Architecture for Serious Games in Pharo

**Jovan Kupusović**, O. Zaitsev, C. Le Page, and P. Bommel






Google
Summer of Code

# Main Message

Serious games can be seen as agent-based models, and agent-based models can be turned into games

=>

Cormas can be adapted to support serious game design.

# Companion Modeling Community

Participatory Modeling

Modelers work with stakeholders

Co-construct models in local contexts (e.g., Africa, South America)

Goal: **DIALOGUE**

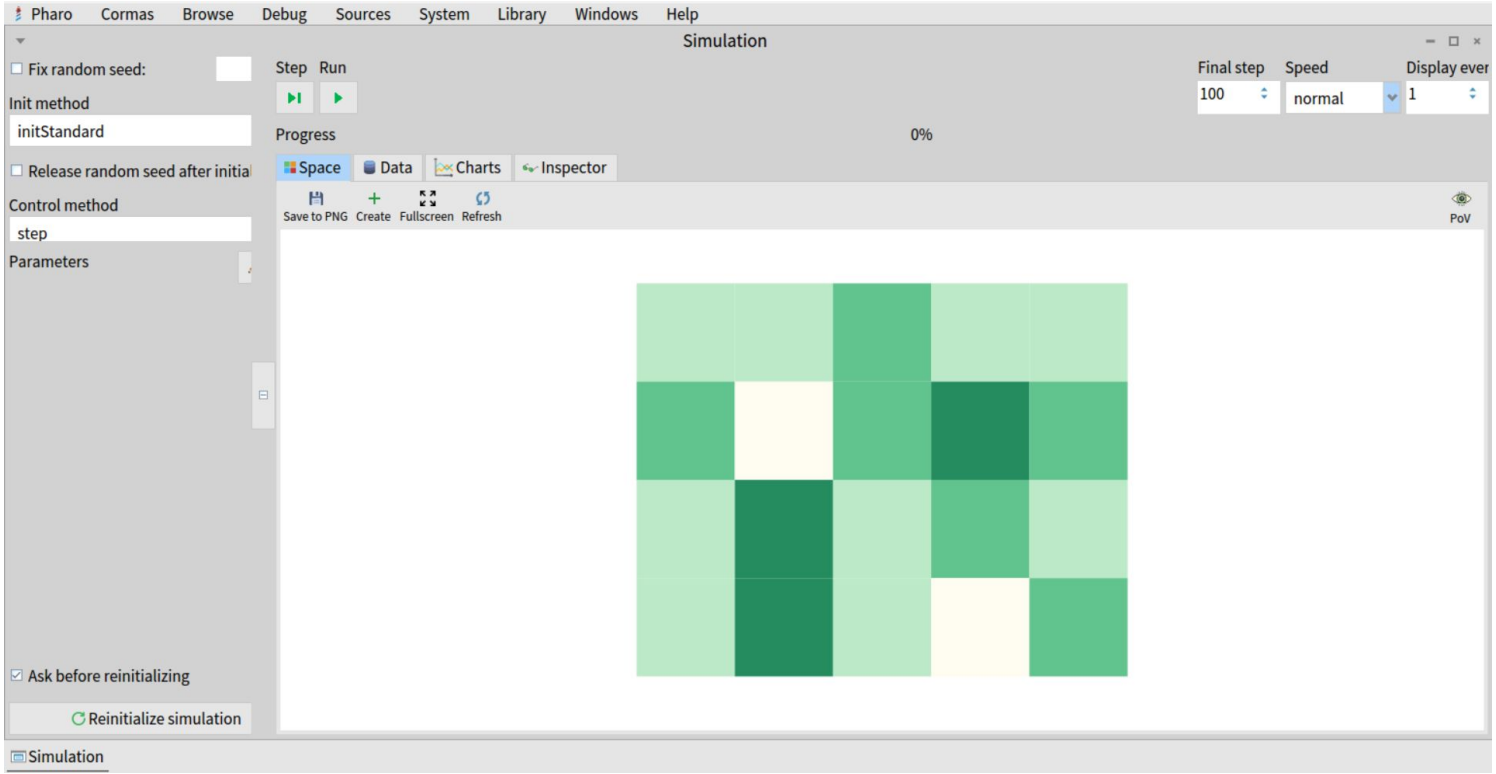
# What is Cormas?

Cormas = ABM Platform

Built in Pharo

Designed for ecological/social simulations

Used in companion modeling since 1990s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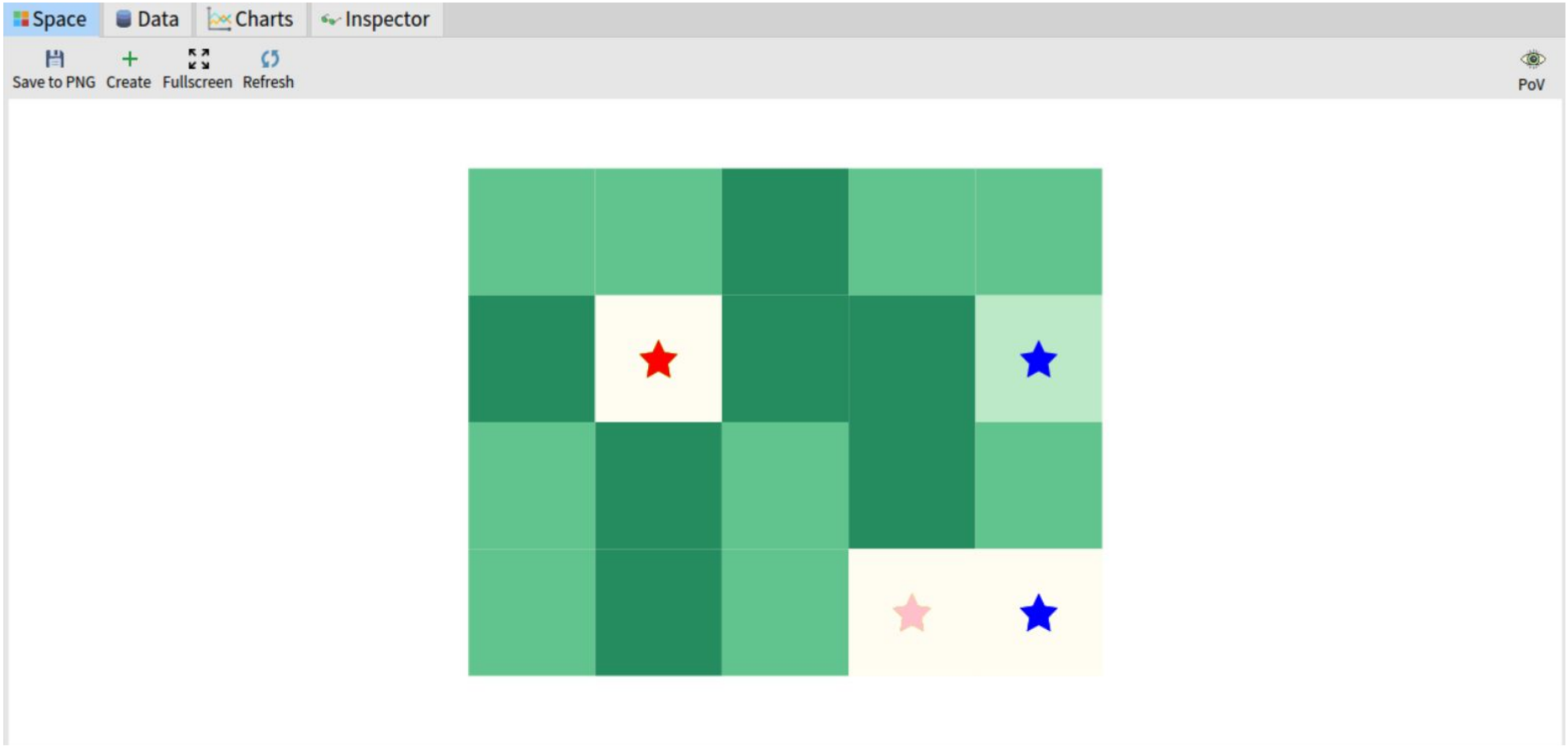
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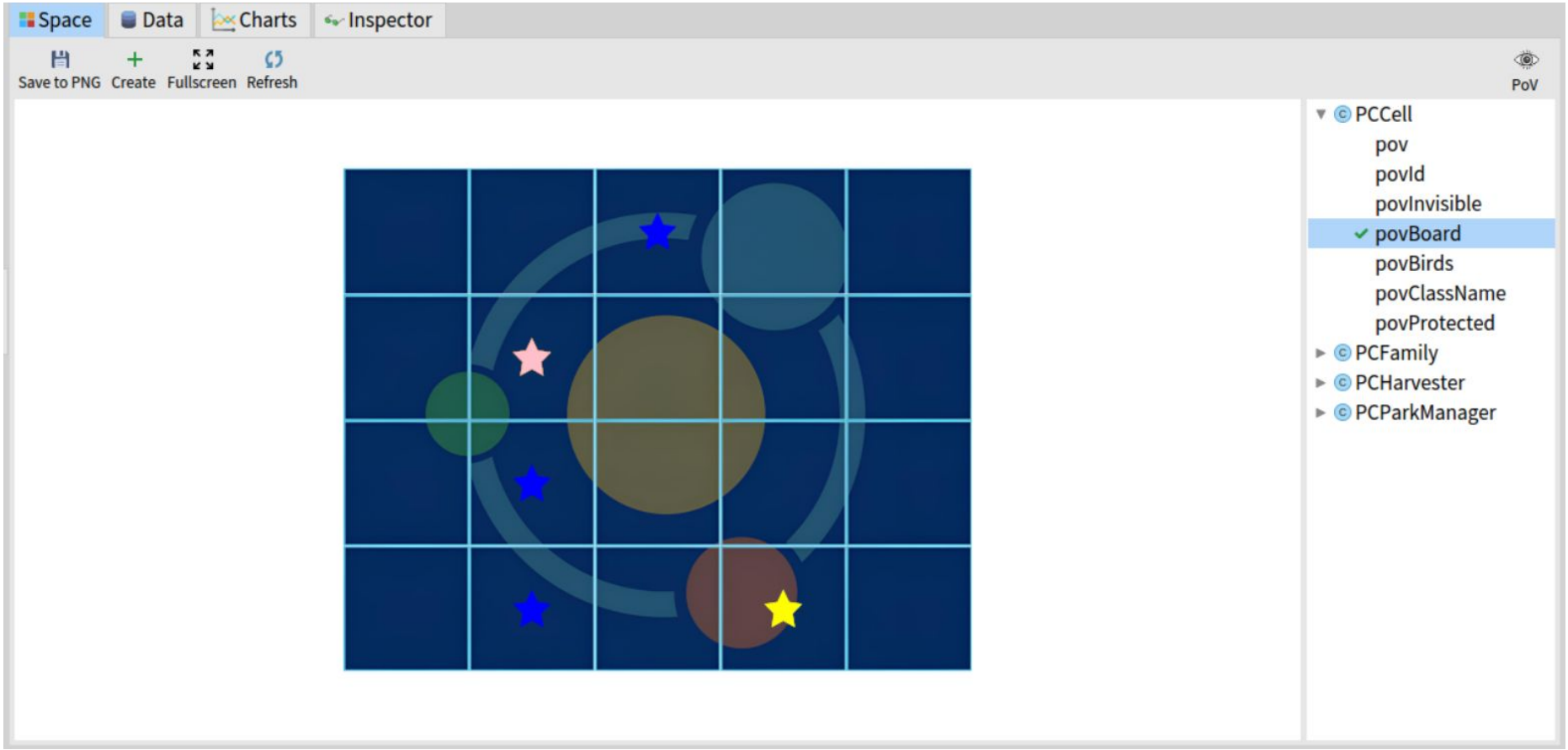
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povProtected
PCFamily
PCHarvester
PCParkManager

# Who Uses Cormas?

Non-programmer modelers

Researchers using simulation for real-world participatory work

Need accessible tools

# Modeling Tools in Companion Modeling

1. Agent-Based Modeling (Cormas)
2. Serious Games
3. Forum Theater
4. Interactive Maps

# Real Serious Game

Two words: Resource management.
One to survive (plants, biomass, etc.)
One which they dont need, but are encouraged to protect (species of birds)

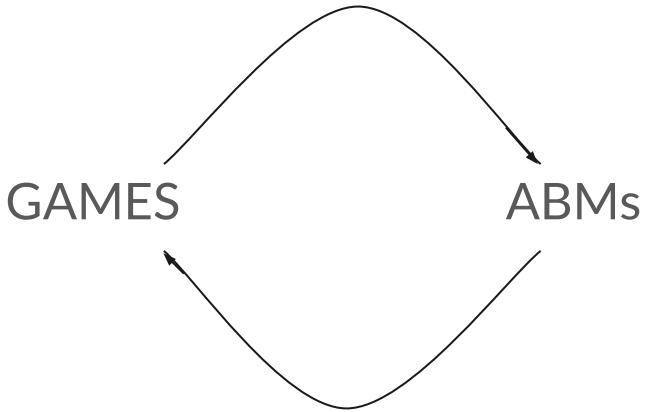
PLANET C
PLAY AGAIN?

# Research Questions?

Can we adapt Cormas to support **serious game execution**?

Can players interact directly with the model as part of a game?

# Games = ABMs




Games = Players (Agents) + Environment+rules
ABMs = Agents + Environment + Rules

# Why Use Cormas for Games?

Complex systems

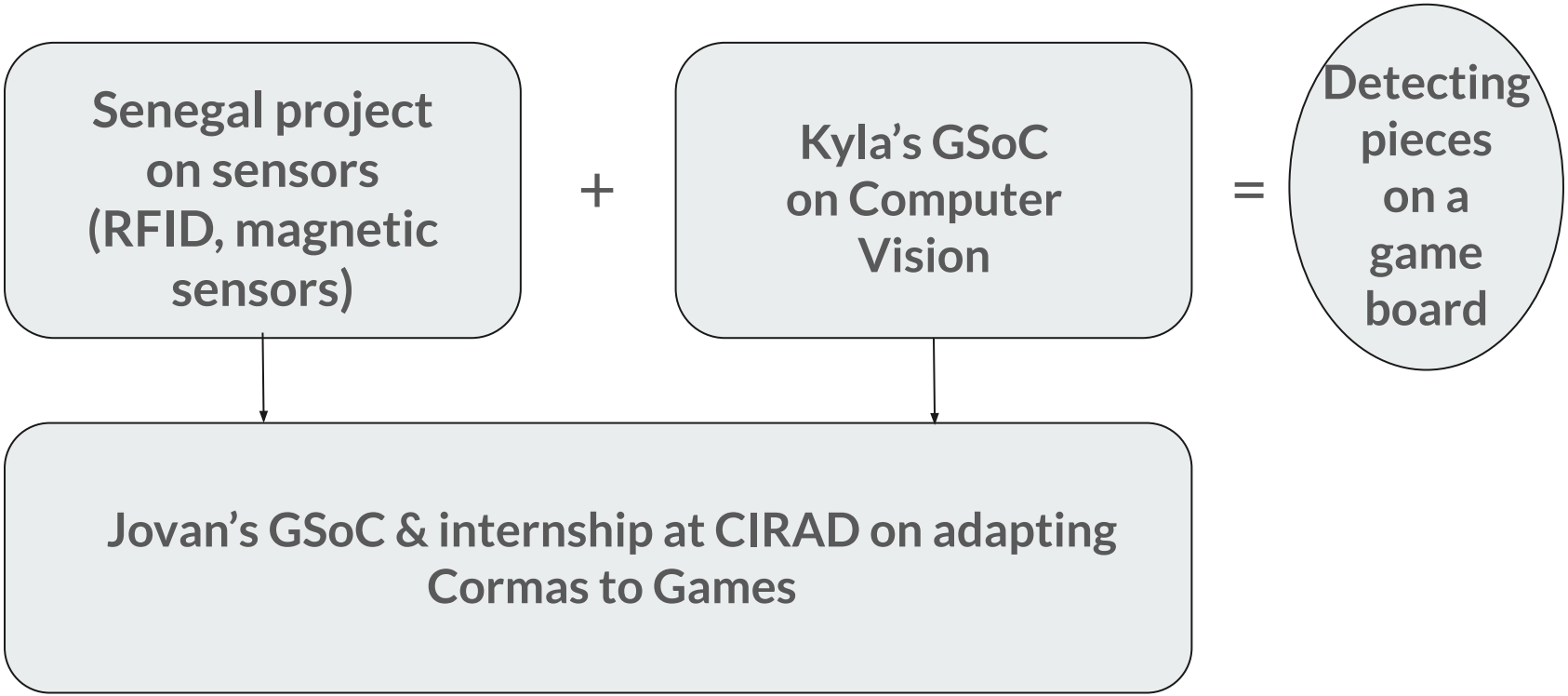
Random programmers

Unified ecosystem (model + game in same tool)

Maintained by modeling community

Easy to reuse, modify, and extend

# Three Current Projects



# What I've Done So Far?

Planet C implemented in Cormas

HTTP server → Phone interaction

Started adding:

- Player actions
- Turns
- Game loop structure

# Next Steps (GSoC Project)

Finalize player-action architecture

Enable interaction via phone/browser

Build example game scenarios

Document and publish tools

Community-friendly tools for non-programmers

# Conclusion

Every game can be seen as an ABM where players a re agents

Most ABMs can be played as games

Games and ABMs are deeply linked

Cormas can bridge simulation and play

My project is a first step toward a unified modeling + gaming tool