Lecture 10.

Generative Agent-Based Models

CS 222: AI Agents and Simulations
Stanford University

Joon Sung Park

Announcements

AgentBank-CS222

- We will release to the class this early next week.

- If you want to [redact], please let us know.

- Please come to the office hour to go over your ideas with the teaching staff!

Announcements

We have *very* exciting guest lecturers!!

Meredith Ringel Morris

**Director for Human-AI Interaction Research
Google DeepMind**

Serina Chang

**Assistant Professor
EECS, UC Berkeley**

Today

Pt. 1. Generative Agent-Based Models (GABM)

Pt. 2. Ethics and considerations for *agent banks*

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Pt. 1. Generative Agent-Based Models (GABM)

Pt. 2. Ethics and considerations for *agent banks*

Last time, we talked about models of individuals

- **Models of individuals predict the behavior of a particular person.**

- **This opens up genuinely new opportunities.**

T. C. Schelling, Dynamic models of segregation. J. Math. Sociol. 1, 143–186 (1971).
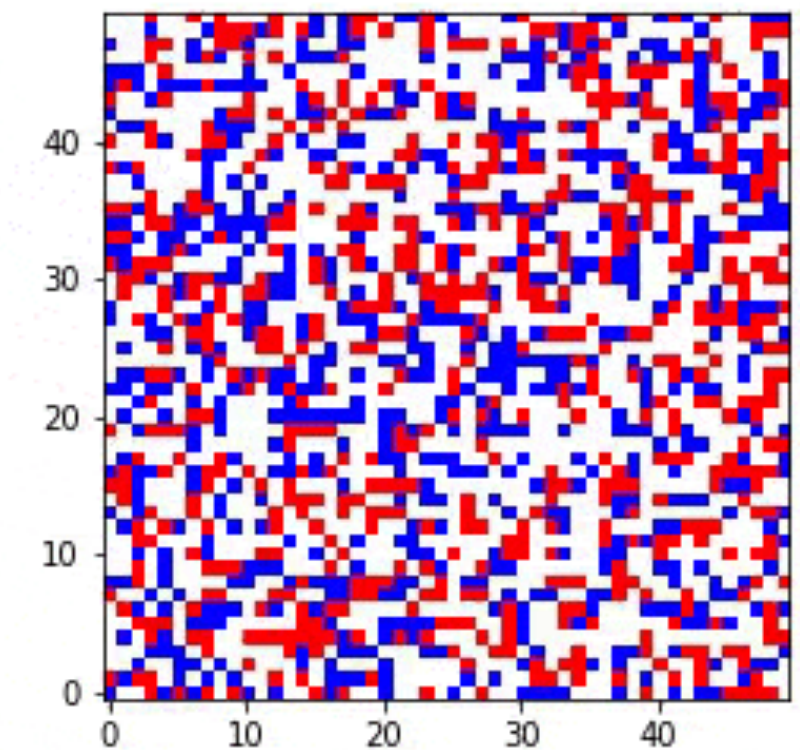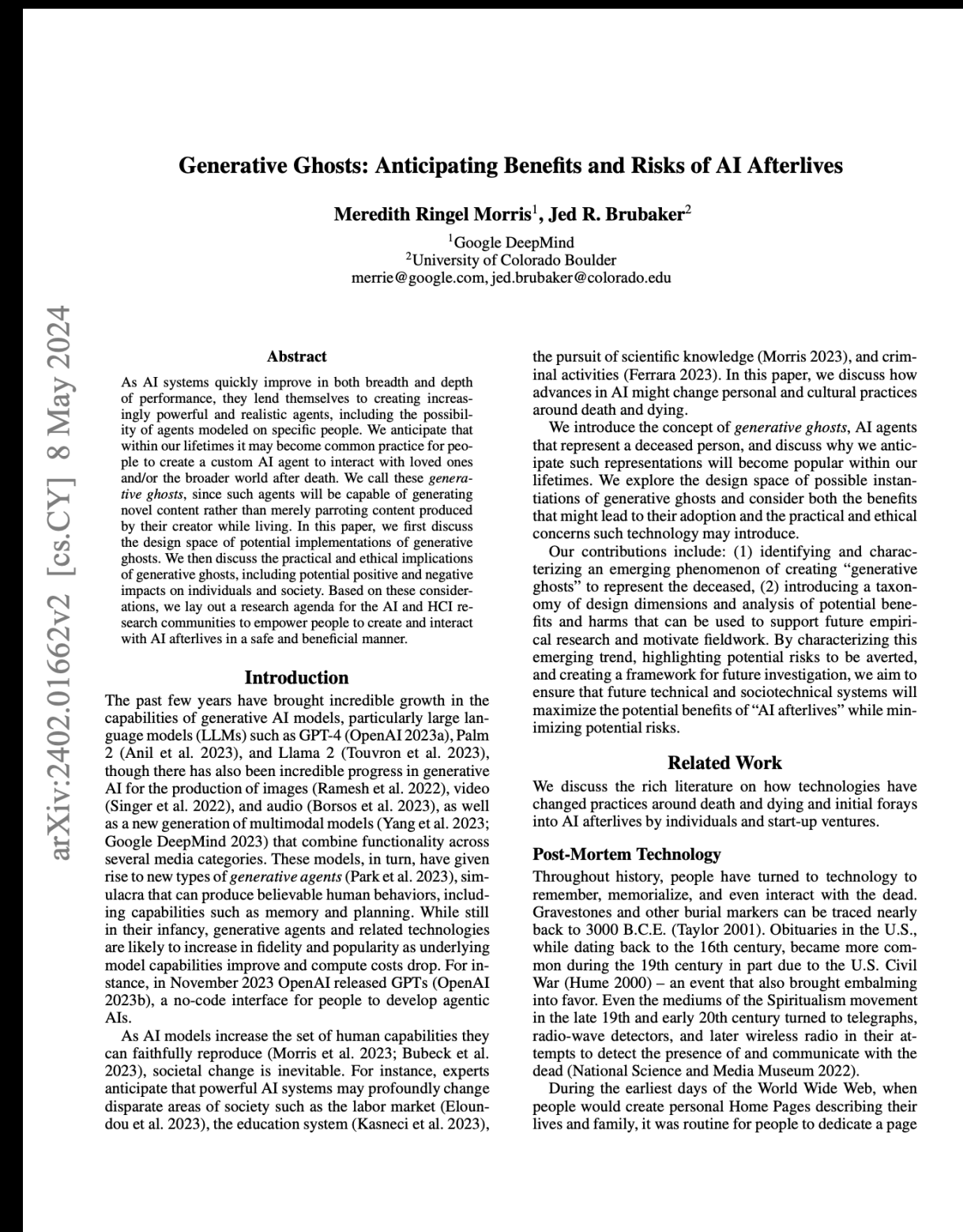
Agent-based models (ABM) studies the interaction between individual agents
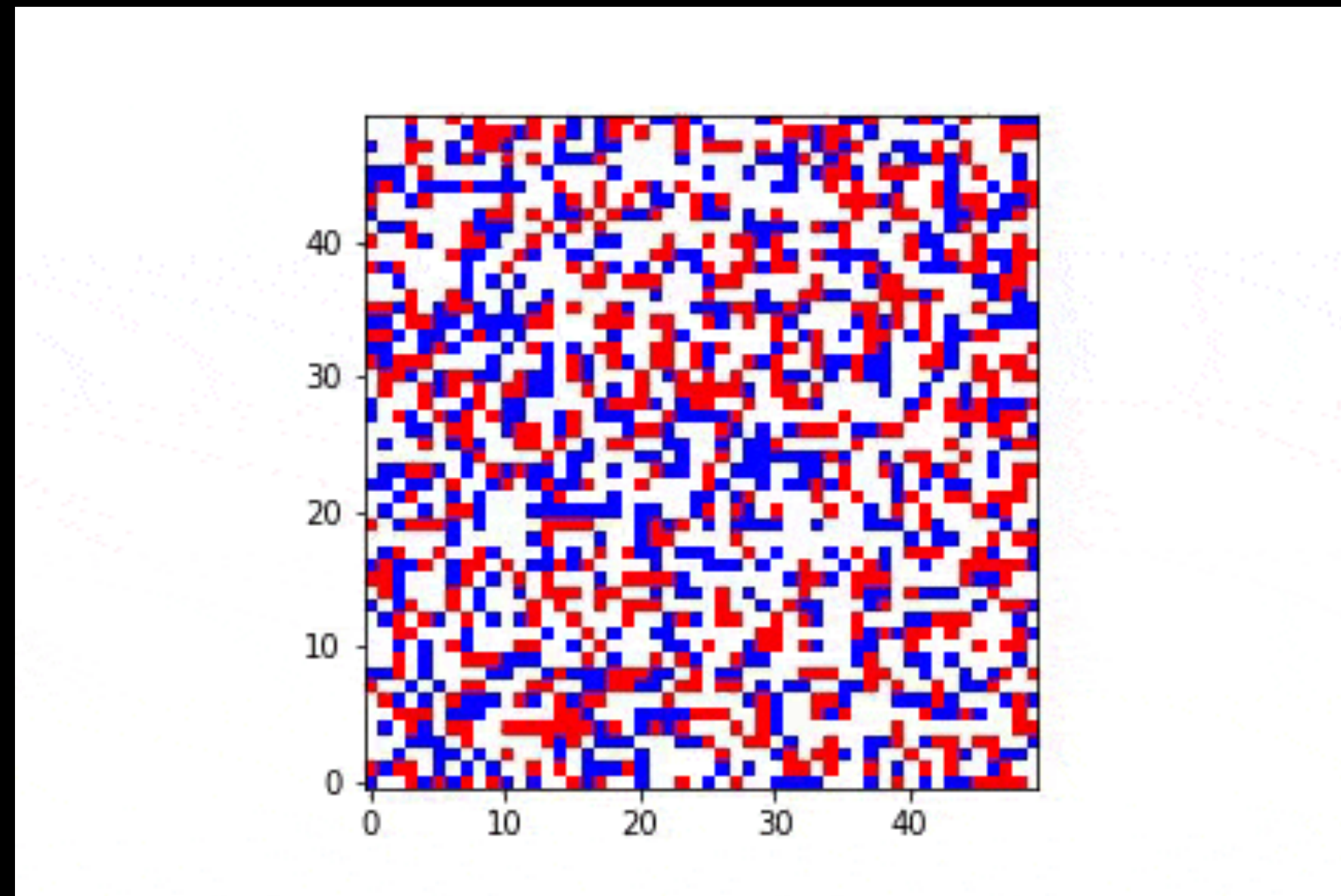
T. C. Schelling, Micromotives and Macrobehavior (W.W. Norton & Company, 1978).
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J. S. Park, J. C. O'Brien, C. J. Cai, M. R. Morris, P. Liang, M. S. Bernstein, Generative agents: Interactive simulacra of human behavior, in Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology (ACM, 2023).

Q. What types of interactions do you see here?

Class activity

Simulated voting (<u>demo</u>)

- You describe your "persona" that will be used to build your agent.
- We place your agent a room with other agents.
- The agents will decide who will be their leader.

Q. What kinds of findings might you see in GABM?

ABM often resulted in stable equilibria. What about GABM?
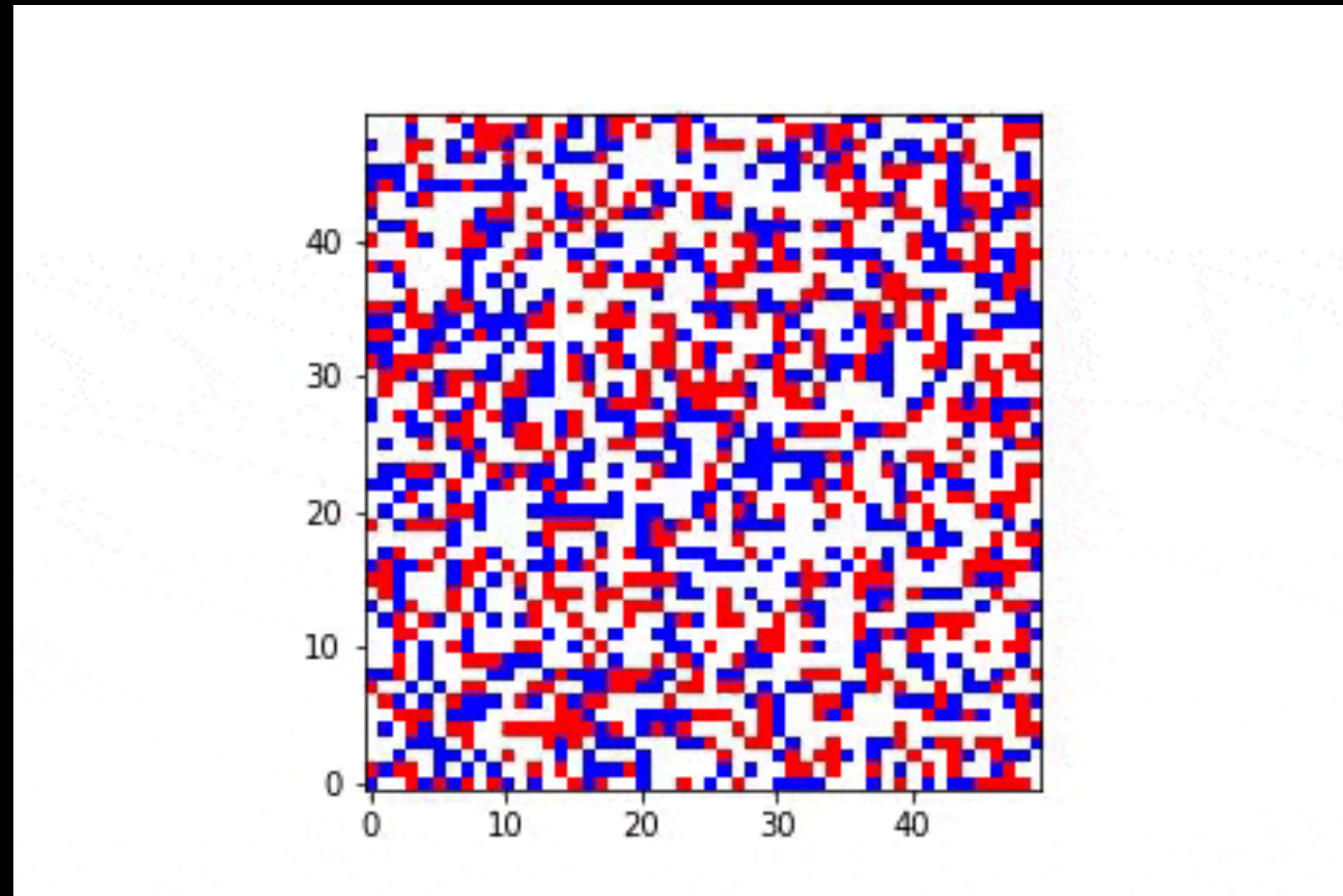
Model of segregation

Today

Pt. 1. Generative Agent-Based Models (GABM)

Pt. 2. Ethical considerations for *agent banks*

Genome sequencing: what was their contribution?

What are the parallels you see between the genome bank and the agent bank?

Who owns your agents?

Kinder, M. (2024). Hollywood writers went on strike to protect their livelihoods from generative AI. Their remarkable victory matters for all workers. Brookings. April 12.

M. R. Morris, J. R. Brubaker, Generative Ghosts: Anticipating Benefits and Risks of AI Aerlives. Preprint (2024).

References

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- International Human Genome Sequencing Consortium. (2001). Initial sequencing and analysis of the human genome. Nature, 409(6822), 860-921. https://doi.org/10.1038/35057062

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