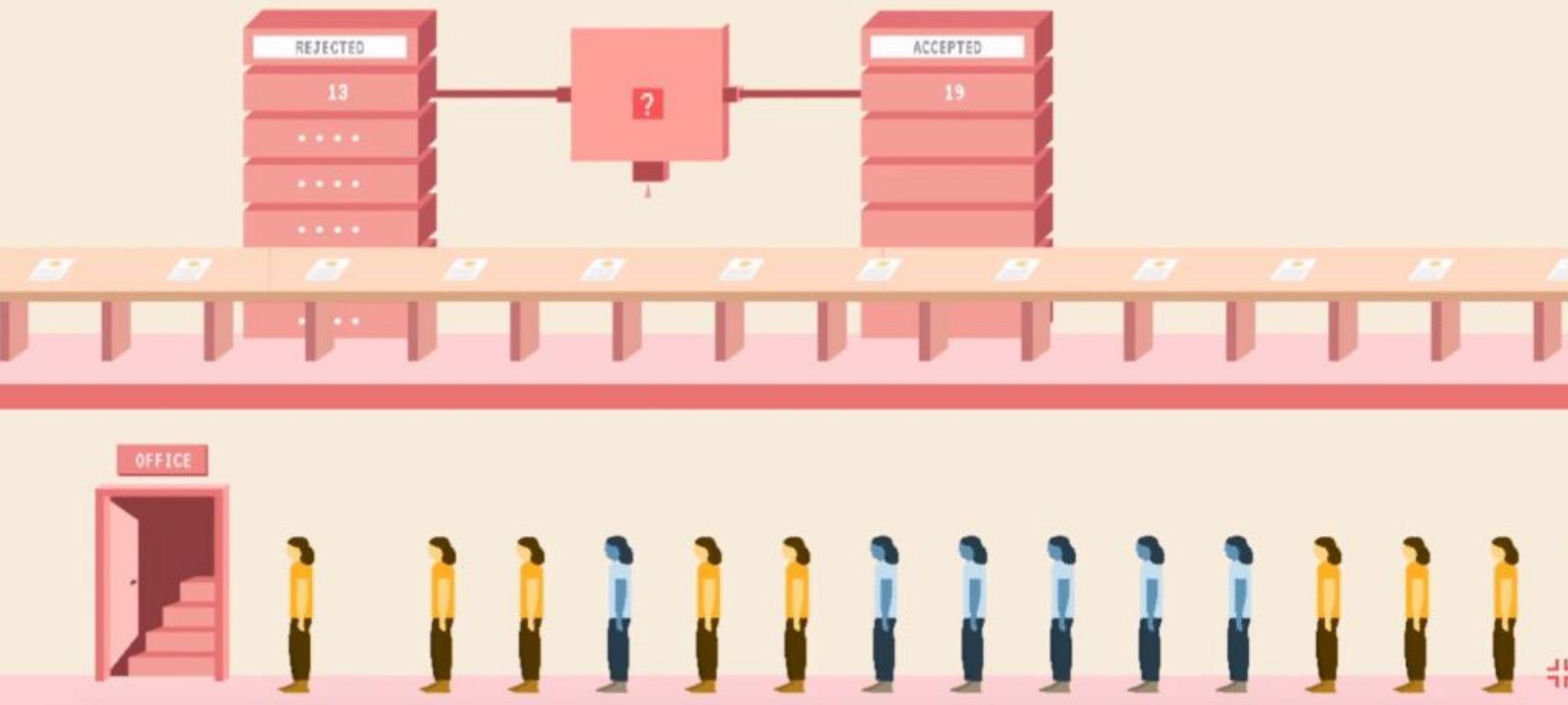


# Survival of the Best Fit

Retrospective

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# Introduction

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In 2018, our team—consisting of Alia ElKattan, Gabor Csapo, Jihyun Kim, and Miha Klasinc, then students and recent alumni of NYU Abu Dhabi who met in a Politics of Code class—formed to apply for the Mozilla Creative Media Award. Inspired by both the CMA Call for Proposals and our class examining the sociopolitical implications of technology and the need to bridge the gap between the sophistication of technology and the engagement of its communities of users, we teamed up to work on a collective project for the first time.

Our grant was for Survival of the Best Fit (SOTBF), an online, web-based educational game about how AI could be biased, specifically using the use case of hiring as an illustrative example. At the time of winning the grant, three of our team members had graduated, and we were all living in different countries (UAE, UK, Singapore, Sweden) and employed in different full-time capacities. The Mozilla grant enabled us to form this collaboration that wouldn't have otherwise been possible, take time off work to build up what was then a side project, and meet in person for a week to accelerate the development process.

With Survival of the Best Fit, we hoped to reach an audience that may not be the makers of the very technology that impacts them every day, and help them better understand how AI works and how it may affect them. In the five years since, however, our CMA project has taken on a life of its own, reaching broader audiences than we could have anticipated and having a greater impact than we thought possible as then-relative outsiders to this space.

In this report, we conduct a retrospective on our work on the project, the impact it has had, and what best practices we learned through both the development and subsequent outreach efforts.

# Building Process & Best Practices

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By retrospectively evaluating the building process of Survival of the Best Fit and the lessons learned throughout—something we never had the chance to do as we quickly returned to our full-time jobs at the end of the grant period—we hope to provide insights for the further development of creative AI literacy projects, both for our team members and the broader responsible AI and digital literacy communities. In this section, we outline considerations and trade-offs we experienced in the design of SOTBF, and their broader implications for building similar work.

A critical component of building public-facing critical AI literacy projects like our game is the interdisciplinary engagement required to merge insights from academic research and policy with a creative and artistic medium that allows the content to be more fun and engaging to interact with. This interdisciplinarity comes with several trade-offs, however, that are important to acknowledge at the outset of a project like this.

## RESEARCH-DRIVEN CREATIVE WORK

First, an extensive research period is required to ensure the work—which is meant to be literacy and awareness-building—is informed by the cutting edge of research in the field and does not inadvertently misrepresent how the technology works or what its associated harms can be. As such, we started with a literature review of the most recent AI bias research and tech policy recommendations by academics, policymakers, and advocates in the responsible technology and internet health spaces.

To distill this research for a public audience, however, it is important to a) recognize which parts of it are most relevant and useful to a broad set of users, and b) translate findings into accessible language and storytelling.

To achieve (a), it is imperative to clearly identify the target audience and the theory of change for how we hope their interaction with the game

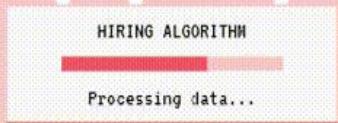
influences their sense of agency in interacting with AI systems. As such, technical literacy is important only insofar as it can demystify technological systems and make them more approachable. However, details about how the systems are built that do not change how we interact with them can alienate audiences who are uninterested in engineering or development. This is also an iterative process, requiring communication with other practitioners in the field who have experience in conveying these technical concepts and understand which parts of the story are most important to conversations about the sociotechnical and political impacts of the technology.



**Technical literacy is important only insofar as it can demystify technological systems and make them more approachable**

This separates this type of work from digital literacy or technology education that aims for technical understanding as the end goal. Instead, we use technical understanding—as needed—as a means to build interdisciplinary bridges and user agency.

Achieving (b) cannot be accomplished as a one-directional communication effort but must require the active participation of and engagement with the target audience. In this project, this meant user testing with our target audience and subsequently iterating on how we describe AI bias and structure the storytelling after learning which parts of our in-progress game resonated or were more confusing or opaque.



## DESIGN DECISIONS AND CREATIVE APPROACHES

Games, interactive explainers, and other artworks differ from text explainers since they require the balancing of translational work and science communication with the overarching storytelling project.

The choice of design style or aesthetic, medium, and device compatibility must align with the target audience and educational goals from the outset. Since one of our primary target audiences was college-age students, we opted for a playful, gamified aesthetic and ensured both desktop and mobile compatibility.

While building game-adjacent projects, we learned the importance of mitigating the ‘gamification’ aspect to avoid misleading users into thinking they can ‘game’ the system and ‘fix’ the problem, which does not reflect the complexities and nuances of the real world. For example, users of SOTBF, a game about hiring bias, might try to hire in a way that is completely ‘unbiased’ or build the perfect algorithm, which is counterproductive from an educational standpoint.

We mitigated that by explaining that the resulting hiring algorithm is not

only based on the user’s actions within the game but also on larger historical datasets that inevitably encompass human biases and patterns of discrimination.

We thus found a trade-off between personalized, interactive experiences and the need to have a baseline of educational content that would come across regardless of user choices in a first-person experience. If we built a game where users had complete control over how the ‘automated hiring’ stage would work, we wouldn’t have the space to explain how it often doesn’t.

Similarly, it was important for every step of the design process to refer back to the foundational research and pedagogical strategy, including assets and illustrations. For example, while aiming for a playful, fun setting, it was crucial for the automated hiring portion of the game not to represent algorithmic decision-making through anthropomorphic illustrations or characters, so as not to play into mythical AI hype. Conversely, while breaking down machine decisions, the designs needed to maintain a level of opaqueness that paralleled the opacity of our interactions with black-box AI systems.

# Outreach & Impact

## Usage & Statistics

96412

players started the game

41591

players reached the very end of the game

65743

sessions were longer than 1 minute

1M

accepted candidates during the game

300k

candidates rejected during the game

35607

people started reading our resources page

8704

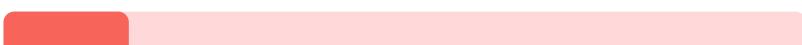
people read until the last section on the resources page

# Outreach & Impact

## Usage & Statistics

Traffic sources and their average session duration

### ACQUISITION

Origin	Users	
Referral	18,392	
Direct	40,912	
Email	1,002	
Organic Search	15,840	
Social	10,248	

### BEHAVIOR

Origin	Avg. Session Duration	
Referral	00:06:04	
Direct	00:05:50	
Email	00:05:43	
Organic Search	00:05:29	
Social	00:04:32	

### LANGUAGE

Vast majority of our audience has English as their default language

### DESKTOP/MOBILE

- Desktop 73%
- Mobile 26%
- Tablet 1%

### SHARE OF PLAYERS BY LOCATION

- |              |                  |
|--------------|------------------|
| • US 35%     | • Singapore 2%   |
| • UK 10%     | • Netherlands 2% |
| • Canada 6%  | • Spain 2%       |
| • India 5%   | • France 2%      |
| • Germany 3% | • Indonesia 2%   |

# Coverage & reach

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## GOVERNMENT & POLICY

- [UNESCO](#)
- [Government of Canada - Advisory Council on AI](#)

## EDUCATIONAL RESOURCES:

- [Code.org](#)
- [DataCamp](#)
- [Machines Gone Wrong](#)
- [AI Myths](#)
- [Johns Hopkins](#)
- [Buffalo University](#)
- [Penn State University](#)
- [Computing Ethics Narratives](#)
- [Shiksha Online](#)
- [Loyola Marymount University / another one](#)
- [Florida State University](#)
- [Dreaming Beyond AI](#)

## BLOGS & JOURNALISTIC COVERAGE

- [TechTalks](#)
- [Wilson Center](#)
- [Quartz](#)
- [Fortune](#)
- [The Future World of Work](#)
- [DeepMind](#)
- [DataCamp](#)
- [People Matters](#)
- [Towards Data Science](#)
- [Arabian Business](#)
- [iProgrammer](#)
- [Medium - Understanding AI with Online Games](#)
- [Analytics Insight](#)

# Appendix

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## RESOURCES

- [Help Us Fight Injustice in Hiring](#), by Algorithm Watch
- [OpenAI's GPT is a Recruiter's Dream Tool. Tests Show There's Racial Bias](#) by Bloomberg
- [Want AI to Write Your Resume? Here's What You Should Keep in Mind](#) by Mozilla
- [Can You Break the Algorithm?](#) By AlgorithmWatch
- [AI Myths](#) by Daniel Leufer / Mozilla Fellow
- [The Algorithm](#)

## WORKSHOPS / TALKS THAT WE HELD DURING OUR ALUMNI GRANT PERIOD:

- Mozilla Festival (Netherlands)
- NYU Startup Week (USA)
- Digital Sovereignty Conference (Slovenia)
- Guest Lecture at Simon Fraser University (Canada)
- Design Justice AI Institute (South Africa)

## Upcoming

- New York Public Library (USA)