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MDRAI

# Your Data, *Please*

HOW MODEL POSITIONALITY IN ARTIFICIAL INTELLIGENCE SYSTEMS  
IMPACT CROSS-BORDER MIGRATION

# NOMAD

a member of a people having no permanent abode, and who travel from place to place to find fresh pasture for their livestock

# TRAVELER

a member of a community traditionally having an itinerant way of life

# EXPAT

a person who lives outside their native country

# MIGRANT

a person who moves from one place to another, especially in order to find work or better living conditions

# CITIZEN

a legally recognized subject or national of a state or commonwealth, either native or naturalized

# REFUGEE

a person who has been forced to leave their country in order to escape war, persecution, or natural disaster

*What's in a Word?*



(David Underland)

# *Abstract*

This work is an examination on the positionality embedded into machine learning models used to surveil and classify people in cross-border migration. It asks what if we took back control of these systems, and instead determined which of them are allowed or denied entry into our society. What would we deem as safe or harmful to our communities? And how would we examine the system's view on our world? What if we subjected them to their own tools of control and shifted the power dynamic back into the hands of the community.

\*We = the authors



# Preface

The integration of artificial intelligence and facial recognition technologies into migration and border control strategies introduces a complex layer fraught with ethical, racial, and discriminatory challenges. While touted as tools for enhancing security, these technologies carry inherent biases that disproportionately impact marginalized communities.

As temperatures soar and the world becomes hotter and less liveable than ever, there will be a planetary migration like we've never seen before. Over the past decade, the number of migrants has doubled, signaling a paradigm shift in human movement. This doubling is not merely a statistical anomaly but also a tangible manifestation of the urgency and scale of climate-induced displacement. Projections for the remainder of the century are staggering. Higher sea levels alone will be the

cause of an estimated 2 billion refugees by 2100, forced to navigate a world reshaped by climate-induced challenges.

The illusion of AI as a universal, impartial tool crumbles under the weight of the inherent biases embedded in its systems. As AI becomes more entangled in migration, it becomes imperative to dissect the myth of neutrality surrounding these technologies by exploring the positionality of these systems and the forces behind their development and implementation.

# 01

## Climate Change and The Ecological Impact on Migration

The unfolding climate crisis, propelled by rising temperatures and intensified humidity, has thrust the world into a precarious era. There is evidence that a 4-degree Celsius rise in Earth's temperature is a plausible scenario by the end of the century. Other projections suggest that within the next 50 years, the world may become lethal to nearly 3.5 billion people.

Regions facing uninhabitable conditions due to heat and loss of agricultural viability are already witnessing a surge in migration. In Uttarakhand, India, for instance, rising temperatures and drought have already prompted the migration of 4 million people, constituting 40 percent of the population. Coastal regions, home to nearly half of the global population, face an existential threat due to rising sea levels. Projections suggest that by 2050, all of Southern Vietnam will be below sea level. By 2100,

an estimated 3.6 million people per year could be affected by floods in Europe. As the climate crisis intensifies, socioeconomic disparities play a pivotal role in shaping migration patterns. Vulnerable communities, often lacking resources, bear the brunt of climate change. Studies have shown it is the world's poorest who are most affected by climate change, despite contributing the least to global emissions.

In *Nomad Century: How Climate Migration Will Reshape Our World*, science journalist and author Gaia Vince writes that "Migration is not the problem; it is the solution. How we manage this global crisis, and how humanely we treat each other as we migrate, will be key to whether this century of upheaval proceeds smoothly or with violent conflict and unnecessary deaths. Managed right, this upheaval could lead to a new global common-

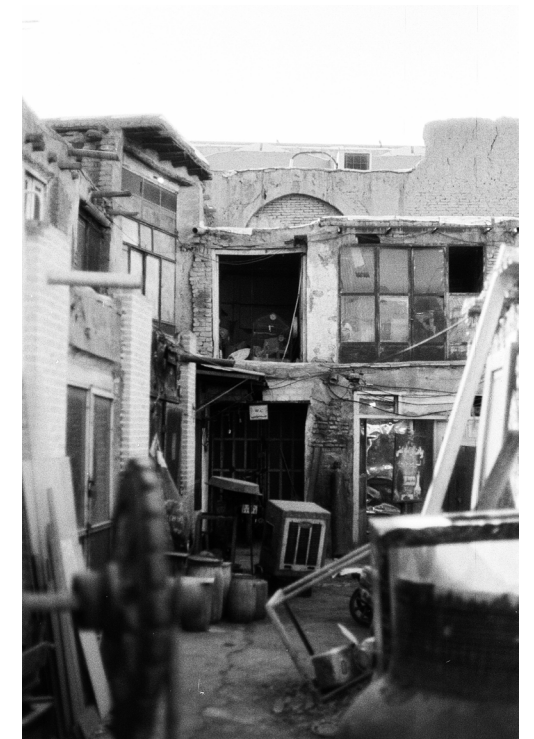
wealth of humanity. Migration is our way out of this crisis.”

Climate change is, and will continue, to have profound implications on global demographics. Its escalating impact will drive migration, forcing millions to flee their homes due to rising temperatures, extreme weather events, agricultural decline, damaged infrastructure, and dwindling resources. This shift in migration dynamics marks a pivotal moment in human history, where the very fabric of societies and geopolitical landscapes will be redefined by the relentless forces of climate change. Millions of displaced people will be forced to navigate international borders and immigration processes and will be segmented and classified by AI tools in ways they have no control over and no insight into.

“Climate change is in most cases survivable; it is our border policies that will kill people.”  
Gaia Vince



(Sujeeth Potla)



(Mehdi Najjar)

# 02

## AI Applications in Cross Border Migration

The integration of AI into migration and mobility was a logical response to the surge of international travel. The early 1990s saw the introduction of online visa application systems and the increasing need for advanced border processing and identity management. However, this wave of technological advancement was not rolled out uniformly. The unequal distribution of resources and capabilities among nations has created a stark digital divide, where certain countries reap the benefits of AI-enabled migration management, while others lag behind. This shift raises critical concerns about equality and human rights.

The use of AI and biometric technologies in border surveillance and migration has been marked by documented biases, amplifying existing inequities. Facial recognition systems, fingerprints, iris scans, and voice recognition, though often touted as tools

for enhanced security and efficiency, not only compromise the individual's rights but also perpetuate systemic injustices, particularly impacting communities of color and vulnerable populations seeking refuge.

Migration control can involve a variety of required travel documents including passports, ID documents, visa, and itineraries. Common questions range from basic details like name and age to more invasive inquiries about personal relationships and economic means, subjective assessments of an individual's characteristics, and more irrelevant factors like whether someone plays sports. The unchecked use of facial recognition and biometrics in migration processes adds another layer of injustice, disproportionately affecting marginalized communities.

Governments and organizations may deploy AI with the genuine goal of improving efficiency and supporting policy implementation. The deployment of AI tools, such as biometric matching engines, by entities like the United Nations High Commissioner for Refugees (UNHCR) aims to facilitate identification and documentation. The UNHCR purports that its use of AI helps refugees who would otherwise be unidentifiable. And yet, even when tools are deployed with a pro-immigration intention, these technologies can cause harm. As Lucia Nalbandia highlights in *An eye for an 'I': a critical assessment of artificial intelligence tools in migration and asylum management*, this can lead to a trade-off between efficiency and human rights protection. Becoming identifiable through this system also strips them of their privacy. Nalbandia writes, “The use of these technologies raises a plethora of human rights questions. Immigrants and asylum seekers are a particularly vulnerable group with few easily accessible avenues to contest unfair practices. Immigrants often run into issues understanding the language and navigating the legal system of foreign countries. Additionally, in the case of refugees who are fleeing their home country to find refuge in another, there are often more pressing issues than data protection.”

The intentions behind using AI tools in migration play a crucial role. Yet in either pro or anti-immigrant deployments, the collection of biometric data can be used to further classify and marginalize groups. In *An eye for an 'I': a critical assessment of artificial intelligence tools in migration and asylum management*, Nalbandia discusses the use of data and AI tools used by the U.S. Immigration and Customs Enforcement (ICE). ICE has implemented data scraping and biometric recognition tools to collect and analyze data on individuals, including their biographic and geographic location information, online activity, and criminal history. This data is used to build profiles on people with the ultimate goal of tracking and deporting undocumented migrants.



The effectiveness of AI models hinges on the quality of the data they are trained on. However, this data is not immune to biases and distortions. The variety of sources used for training can result in a narrow, skewed perspective. Flawed data sampling, coupled with subjective classifications, introduces a layer of subjectivity that may differ across individuals or cultures. Once data is extracted and ordered into training sets, it becomes an “epistemic foundation” according to Kate Crawford. As she writes in *The Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence*, “Artificial intelligence is not an objective, universal, or neutral computational technique that makes determinations without human direction. Its systems are embedded in social, political, cultural, and economic worlds, shaped by humans, institutions, and imperatives that determine what they do and how they do it.”



Above: a man presents documentation at a checkpoint (Moayad Zaghdani)  
Right: birds fly freely overhead (Allec Gomes)

# 03

## Neutrality in Artificial Intelligence

While AI technologies and platforms are often looked at as universal tools deemed fit for a globalized world and to be applied in a variety of circumstances, they are not a one size fits all solution. In her paper *Algorithms are not neutral: Bias in collaborative filtering*, Catherine Stinson illustrates that while algorithms are typically described as statistical biases rather than moral ones, that these statistical biases lead to discriminatory outcomes nonetheless. “Biased data sets can also be the downstream result of a different kind of systemic discrimination. That facial recognition algorithms are an order of magnitude less accurate for Black female faces than for white male faces has been attributed to the lack of Black and female faces among the training examples used to build facial recognition systems.” In this example, statistical and moral biases are interdependent.

These findings have been replicated in a number of studies including Joy Buolamwini and Timnit Gebru’s *Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification*. They found the poorest accuracy rates among Black females. Darker-skinned females experienced error rates up to 34 percent higher than their lighter-skinned male counterparts. Discriminatory law enforcement practices, exemplified by the overrepresentation of Black Americans in mugshot data for example, create a vicious time loop of deeply ingrained racism within these technologies.

As AI and machine learning researcher, Pratyusha Ria Kalluri writes, “Arrangements of power produce technologies. Technologies produce arrangements of power.”

# 04

## Model Positionality in Artificial Intelligence Systems

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Drawing from Patricia Hill Collins’ Matrix of Domination, AI systems reflect the intersectionality of structural, disciplinary, hegemonic, and interpersonal domains, contributing to the reinforcement of existing power structures and biases. These classifications operate under the guise of scientific neutrality.

The subsequent classification of this data becomes a critical juncture, as it frames how AI systems perceive and categorize the world. These classifications, however, operate under the guise of scientific neutrality.

Matrix of Domination, Patricia Hill Collins, Black Feminist Thought (1990)

<b>Structural Domain</b> Laws and policies	<b>Disciplinary Domain</b> How laws and policies are enforced
<b>Hegemonic Domain</b> Culture and media circulation	<b>Interpersonal Domain</b> Individual experiences of oppression

# 05

## Ideological Influences

Examining the ideological influences that shape the creators of these AI systems is also important when trying to understand a model's positionality. Who are the founders and key contributors of the technology and what ideologies have influenced them? These ideologies, often entrenched in the beliefs of the system's creators, both explicitly and inadvertently shape the algorithms. They mold the way the creators envision and design these systems, imparting a distinct worldview that permeates the very code they write and influences who is deemed admissible and who is excluded.

The source of funding, the academic and professional background of the creators, the languages they speak, religious and political affiliations – all of these factors contribute to and influence the final product.

# 06

## Model Cards and AI Audits

How is positionality intricately woven into the machine learning models governing migration control? These models become gatekeepers, deciding who is granted entry and who is denied. The classifications underpinning these decisions are not objective; rather, they mirror the biases inherent in the data.

In Model Cards for Model Reporting, Margaret Mitchell et al break down “fairness” into false positives, i.e. how often does it say yes but is wrong versus false negatives, i.e. how often does it say no but is wrong? False positives are much worse if the software is falsing flagging you as a border risk. False negatives are preferable when letting someone pass rather than detaining someone under false pretenses. They also present questions to explore when contemplating ethical considerations.

Ethical Considerations (Mitchel et al):

- **Data:** Does the model use any sensitive data?
- **Human life:** Is the model intended to inform decisions about matters central to human life or flourishing? Or could it be used in such a way?
- **Mitigations:** What risk mitigation strategies were used during model development?
- **Risks and harms:** What risks may be present in model usage? Try to identify the potential recipients, likelihood, and magnitude of harms. If these cannot be determined, note that they were considered but remain unknown.
- **Use cases:** Are there any known model use cases that are especially fraught? This may connect directly to the intended use section of the model card.

If possible, this section should also include any additional ethical considerations that went into model development, for example, review by an external board, or testing with a specific community.

Model cards and AI audits are mechanisms that help offer a transparent view into the inner workings of AI systems, facilitating a more nuanced assessment of their positionality.

Factors in Cards, Mitchell et al (2018)

<p><b>Groups</b> Which groups to include requires examining the intended use and context</p>	<p><b>Instrumentation</b> What instruments were used to capture the input to the model</p>
<p><b>Environment</b> Where is it meant to be used?</p>	<p><b>Evaluation</b> What did you measure &amp; report and why?</p>

Model cards and AI audits are mechanisms that help offer a transparent view into the inner workings of AI systems, facilitating a more nuanced assessment of their positionality.

Humans, and the richness of individual lives, are too complex to be distilled to a handful of classifications. Hopes, dreams, achievements, and experiences are deemed irrelevant. What is their name? How old are they? These seemingly innocuous questions wield the power, categorizing who is seen as either a potential burden or an asset to the community. Origins matter, the weight of ancestral history matters. And yet, education becomes a determining factor, contingent on the opportunities afforded by family dynamics and socioeconomic conditions. Marital status and family makeup further shape the assessment – is an unwed person less safe?

These classifications, embodied in passports, travel visas, and other documents, accompany individuals through checks and controls, where they are ushered through the system, echoing the age-old refrain, “Your papers, please.” An expression intertwined with police-state imagery, the demand for identification at arbitrary checkpoints, where the presentation of these documents dictates one’s fate.

While traditionally these assessments have been done by border guards, agents, and other authorities, perhaps giving room to a slight layer of nuance, the decision making has increasingly become automated through the introduction of algorithmic tools. Evaluations are made based on biometric information, 3D body scans allow these systems to look through us, but not truly at us.

Much control over autonomy, movement, and integration into society is determined by these models, but how much of these models is known by the people it’s categorizing? How much do we know about their inner workings, who funds them, what data they were trained on, or how culturally adaptable are they? This research looks at the reclamation of these systems by turning it around. Instead of the algorithms deciding who can go where, what if the authors had their own necessary checkpoints to determine which of these algorithms could be used safely in public. What criteria could be established for their acceptance or denial? Which systems would be deemed a danger to the community, and why?

Factors in Cards, Mitchell et al (2018)

<p style="text-align: center;"><b>Groups</b> Which groups to include requires examining the intended use and context</p>	<p style="text-align: center;"><b>Instrumentation</b> What instruments were used to capture the input to the model</p>
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# 07

## Final Thoughts

The exploration of model positionality within AI and migration demands the recognition of the inherent biases, ideological imprints, and power dynamics that shape the technologies governing our societies. Recognizing the intersectionality of climate change, socioeconomic factors, technological biases, and legal shortcomings is the first step. Addressing systemic injustices requires a holistic approach that integrates environmental sustainability, socioeconomic equity, and ethical technological deployment.

# 08

## Your Papers, Please

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Much control over autonomy, movement, and integration into society is determined by these models, but how much of these models is known by the people it’s categorizing? How much do we know



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