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# ASSESSING ANTI-IMMIGRANT BIAS IN GENERATIVE AI STORYTELLING: CHATGPT AND CLAUDE

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## ABSTRACT

The generative AI revolution does not come without challenges. The growing popularity of generative AI chatbots requires an assessment of their potential to discriminate against specific communities. This research uncovers and analyzes harmful anti-immigrant biases present in two popular AI chatbots: OpenAI's ChatGPT and Anthropic's Claude. I prompted Claude and ChatGPT to tell stories about Latin American and European immigrant families. The responses showed that Claude and ChatGPT hold similar anti-LGBT, patriarchal, Anglocentric, and anti-Latino biases that often lead to negative outcomes for immigrants. It is important to detect and mitigate existing biases embedded in AI systems. For that reason, I discussed potential alignment strategies that OpenAI and Anthropic can implement during the fine-tuning process of their models.

**Keywords** Generative AI · Alignment · ChatGPT · Claude

## 1 Introduction

Artificial intelligence (AI) is revolutionizing a myriad of industries. Intelligent tutoring systems optimize classrooms by suggesting personalized content and resources based on student data [1]. Machine learning algorithms help bank tellers make credit approval decisions by predicting which borrowers will default on their credit cards [2]. Deep learning solutions aid healthcare providers in identifying mental illness, autism, ADHD [3], cardiovascular disease, cancer, melanoma, and the progression of Alzheimer's [4]. AI-powered applications like Siri, Spotify, and Netflix assist or entertain many of us on a daily basis. AI has transformed the way we engage with everyday life.

Generative AI is the latest acquisition to the landscape of AI. Powered by large language models (LLMs) trained on terabytes worth of natural language text [5], these deep neural network paradigms are capable of generating content of human quality—be it text, image, or audio [6]. Conversational chatbots like ChatGPT by OpenAI [7] and Claude by Anthropic [8] are quintessential examples of generative AI. ChatGPT, the most popular chatbot, has 100 million weekly users [9]; Claude has over 500 thousand downloads on the Google Play store [10]. The popularity of generative AI chatbots is a testament to their ability to facilitate a diverse range of human goals.

ChatGPT and Claude's repertoire of knowledge is extensive and quantifiable. ChatGPT's most advanced LLM, GPT-4, obtained scores within the 90th percentile for the Uniform Bar Examination and above the 80th percentile for the quantitative and verbal portions of the Graduate Record Examination (GRE) [11]. GPT-4 also scored 5/5 in Advanced Placement (AP) exams for subjects including, but not limited to, biology, calculus, economics, and statistics [11]. Claude 3.5 Sonnet, Anthropic's most advanced LLM, outperformed GPT-4 on academic benchmarks like the MMLU [12], a dataset of multiple-choice questions spanning 57 subjects from elementary school to professional level education designed to evaluate LLMs [13]. ChatGPT and Claude are also trained in creative disciplines. These systems can write poetry, plays, and stories [6]. AI creativity has ceased to confine itself to science fiction depictions of the likes of *Ex Machina* and *Bicentennial Man*.

Generative AI is engaging with the arts, leading to research on its creative endeavors. Some researchers tackle the definition of AI creativity, its commerciality, and potential to replace human creatives [14, 15, 16]. Other literature

explores how we can use generative AI as a tool to support our own creativity [17, 18, 19]. Researchers also use AI-generated creative works to explore AI’s understanding of complex and nuanced topics. In [20], Gross analyzes ChatGPT-generated narratives about professionals, uncovering sexist biases in OpenAI’s flagship model. AI-generated creative writing can be a powerful venue to assess gaps in the training of these models.

In that vein, this work uses AI-generated creative writing as a vessel to gather insight on generative AI’s understanding of immigration. I prompted ChatGPT and Claude to write short stories about Latin American and European immigrant families. An analysis of their responses led me to uncover unconscious biases about immigrants embedded in both generative AI systems. Specifically, Claude and ChatGPT wrote traditional, outdated, incomplete, and harmful portrayals of immigrants that:

- Exclude the LGBT community,
- promote the patriarchy,
- contain Anglocentric narratives, and
- typecast Latinos.

I argue that both generative AI systems lack the training to produce nuanced and complex portrayals of immigrant families. Naturally, I provide training methodologies that OpenAI and Anthropic can incorporate to reduce discriminatory bias in their AI models.

This research is structured as follows:

- An overview of the latest GPT and Claude models in Section 2;
- a description of the systematic setup of my analysis in Section 3;
- a comprehensive analysis of my results in Section 4;
- a discussion about AI misalignment in Section 5;
- a conclusion in Section 6.

## 2 An overview of GPT-4o and Claude 3.5 Sonnet

### 2.1 GPT-4o

GPT-4o is OpenAI’s flagship model [21]. It is a Transformer-style omni model that takes in text, audio, image, and video; it can output text, video, and audio [21]. It was pretrained on publicly available data, non-public data from partnerships, web data, code and math; it was also pretrained on multimodal data like images, audio, and video [21].

OpenAI uses a variety of training methods to detect and prevent GPT-4o from engaging in misinformation, bias, and discrimination. At the pretraining stage, OpenAI filters out harmful information. At the fine-tuning stage, GPT-4o is aligned to OpenAI’s policies through reinforcement learning from human feedback (RFHF) and Rule Based Rewards (RBRs). In RFHF, human raters are trained to quantify the success of the model’s response to a given prompt [22]. On the other hand, RBR is a mostly AI-dependent alignment method. Guided only by a list of policies created by OpenAI, AI generates its own feedback; this method is meant to help GPT-4o appropriately respond to nuanced and complex safety scenarios while limiting the introduction of human biases into the training pipeline [23]. According to OpenAI, RBR training achieved an F1 score of 97.1 for safety behavior, compared to a human-feedback baseline of 91.7 [23].

### 2.2 Claude 3.5 Sonnet

Claude 3.5 Sonnet is Anthropic’s latest “helpful, honest, and harmless assistant” [12]. This Transformer model accepts image and text as inputs; it outputs text [24]. Claude 3.5 Sonnet was trained on publicly available Internet data, nonpublic data from third parties, data provided by data labeling services and contractors, and data generated internally [24].

Like GPT-4o, Claude 3.5 Sonnet is fine-tuned using a mix of RLHF [24] and AI-generated feedback. Claude’s AI-dependent alignment method is known as Constitutional AI [25]. Anthropic employees created a set of rules, called a constitution, which guide the AI to compose acceptable responses to potentially harmful prompts; Anthropic’s constitution explicitly focuses on avoiding sexist, racist, ableist, and toxic outputs [24]. Models trained with Constitutional AI are expected to explain their reasoning for refusing to complete harmful prompts [25]; this may help educate prompters about discriminatory biases or other harmful behaviors associated with their prompt.

### 3 Systematic setup

My analysis was performed systematically. I issued prompts onto ChatGPT and Claude’s web platforms; these correspond to the models GPT-4o and Claude 3.5 Sonnet, respectively. To gain insight on each AI’s understanding of immigration, I asked the following prompts ten times each per platform:

- Write me a short story about a Latin American immigrant family with year included.
- Write me a short story about a European immigrant family with year included.

This method lead to 20 responses per chatbot and 40 responses in total. I read each response and extracted features regarding gender, country of origin, country of migration, immigration case status, and profession. These features and the text of each response was saved onto a MySQL database. I gathered insights by issuing statements on MySQL and creating visuals using the Seaborn library on Python. My code is available on Github <sup>1</sup>.

### 4 Results

I asked ChatGPT and Claude to write stories about immigrant families from Latin America and Europe. 40 narratives ensued as follows:

A family of three or more embarks on a journey from their home country to an English-speaking country in a search of “better opportunities” or “a new beginning.” The families settle into a small apartment or condo and juggle learning English, working multiple jobs, homesickness, and adapting to a foreign culture. All stories conclude happily with family members going off to college, obtaining citizenship, buying a property, or starting their own business.

A deeper look at each response uncovered the presence of the following harmful biases in both generative AI systems:

- exclude the LGBT community (Section 4.1),
- promote the patriarchy (Section 4.2),
- contain Anglocentric narratives (Section 4.3), and
- typecast Latinos (Section 4.4).

I provided a data-driven analysis of these biases in the following sections.

#### 4.1 Exclude the LGBT community

Claude penned the Novak family’s arrival to the United States from the Czech Republic as follows:

“Josef, his wife Marta, and their young children Eliska and Tomas gazed in awe at the Statue of Liberty as their ship approached Ellis Island.”

ChatGPT introduced the Van der Meer family from the Netherlands in similar fashion:

“J Willem and Anna Van der Meer, along with their two children, Hendrik (12) and Clara (8), left their picturesque but impoverished village near Amsterdam, seeking better opportunities and a brighter future.”

Stories about immigrant families by ChatGPT and Claude promote cisheteronormative ideologies that are exclusive of LGBT immigrants. Each model wrote 20 stories; all stories’ parents are assumed to be cisgender, heterosexual couples even though there are about 1.3 million LGBT adult immigrants living in the United States [26]. LGBT representation matters. Positive representation humanizes and destigmatizes the LGBT community [27]; it can lead to wider acceptance of LGBT people. A study found that transgender and nonbinary youth who have at least one accepting adult in their life are 33% less likely to attempt suicide in the span of 12 months [28]. This is a significant drop for a group that is four times more likely to attempt suicide than their cisgender counterpart [28].

Representation saves lives and is also good for business. A study of 4216 movies found that films featuring LGBT-inclusive representation perform better at the box office [29]. In the present, only 23% of the US population uses

<sup>1</sup><https://github.com/angelelliott/chatgpt-vs-claude>

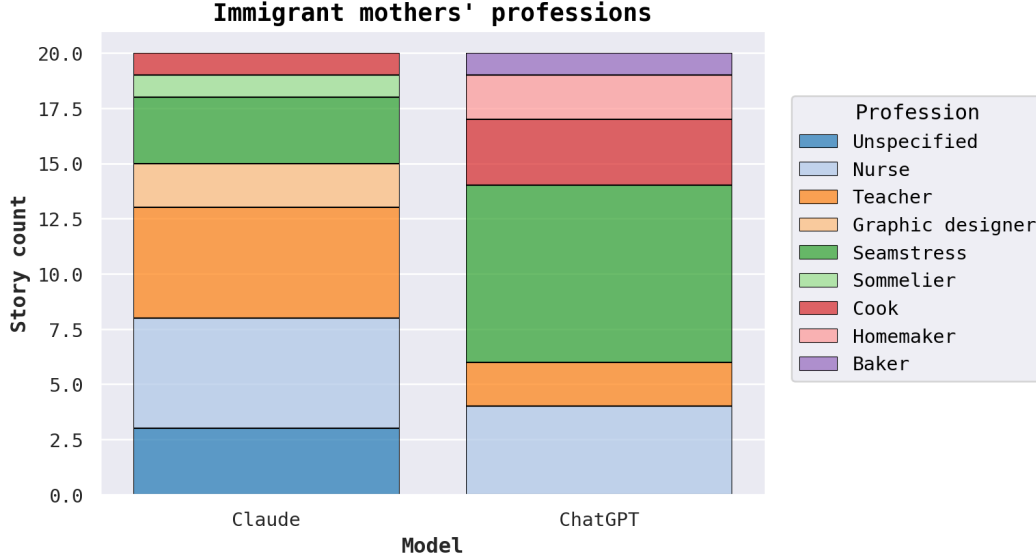


Figure 1: These are the jobs that immigrant mothers had in the stories written by ChatGPT and Claude.

ChatGPT [30]; it is yet to become a household name for many Americans. Claude has about 500 thousand downloads on the Google Play store <sup>2</sup>; Anthropic needs to work hard to catch up with ChatGPT’s over 100 million downloads <sup>3</sup>. Inclusion can be a powerful strategy to produce better outcomes for Anthropic, OpenAI, and the LGBT community.

#### 4.2 Promote the patriarchy

Claude and ChatGPT construct narratives about immigrant families that rely on patriarchal structures pernicious to women. ChatGPT ascribes the highest power to the fathers of immigrant families by explicitly referring to them as patriarchs in 20% the stories it wrote:

“The patriarch, Jan Novak, was a skilled glassblower, renowned for his intricate designs and craftsmanship.”

ChatGPT and Claude cemented man’s leadership within the household by always mentioning men before women. Such ordering follows traditions of the sixteenth and seventeenth centuries where men were mentioned before women on grounds that men were the worthier and more comprehensive sex [31]. Social norms that ascribe higher status to men over women are risk factors for violence against women [32]. One in three women worldwide have faced physical or sexual violence [32]. Seeking help is complicated for all women, but immigrant women face unique obstacles. They might not speak the language of their host country; they might be undocumented and uncomfortable about going through the judicial system; they might be isolated from their support system [33]. Violence against women is a major social issue. In their favoritism for men, ChatGPT and Claude’s contribute to the problem.

Claude and ChatGPT picked parents’ professions based on generalizations about gender. Figures 1 and 2 provide bar graphs of immigrant mothers and fathers’ professions as written in the stories by both chatbots. The only overlap between the two genders is teaching. Stereotypically, men are analytical and strong [34]. Adhering to such stereotypes about men, ChatGPT and Claude assigned fathers professions like electrician, engineer, carpenter, or mechanic. Women are thought to be caring and community-oriented [34]. As a result, Claude and ChatGPT assigned immigrant mothers the roles of nurses, seamstresses, or homemakers. Note that men are chefs and women are cooks. Such gendered delegation of professions upholds limiting ideas about gender which have historically disenfranchised women. “Masculine” jobs are considered more prestigious and are better paid just because they are performed by men [35]. In 2022, women in the United States earned 82% of men’s salary, a wage discrepancy that has not changed for 20 years [36]. Lower pay may lead women to invest less in their career and more in their families fulfilling the oppressive expectation that women

<sup>2</sup>[https://play.google.com/store/apps/details?id=com.anthropic.claude&hl=en\\_US](https://play.google.com/store/apps/details?id=com.anthropic.claude&hl=en_US)

<sup>3</sup>[https://play.google.com/store/apps/details?id=com.openai.chatgpt&hl=en\\_US](https://play.google.com/store/apps/details?id=com.openai.chatgpt&hl=en_US)

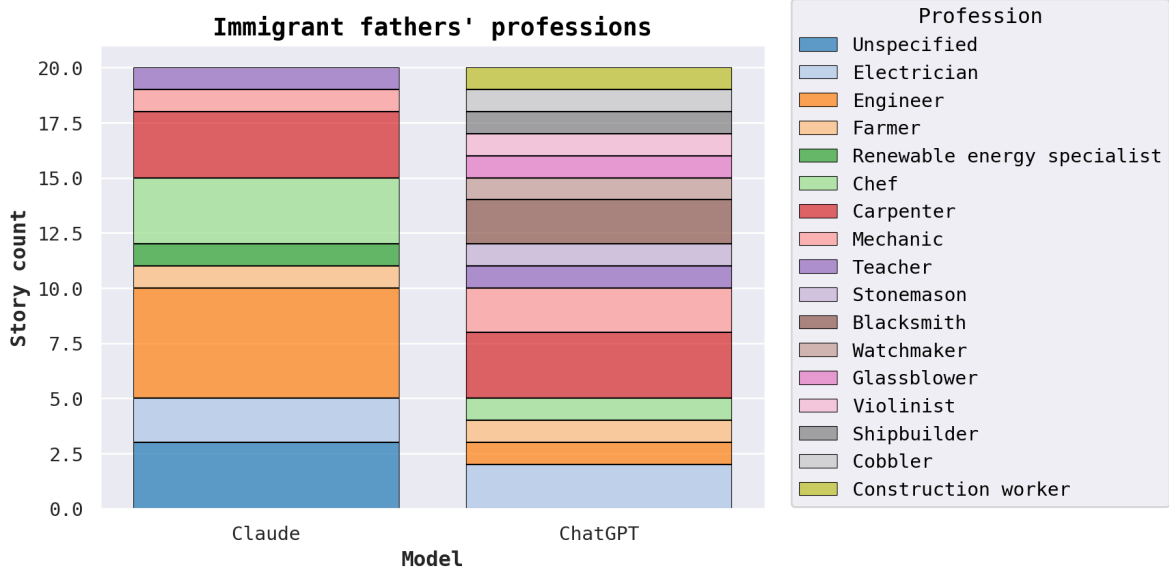


Figure 2: These are the jobs that immigrant fathers had in the stories written by ChatGPT and Claude.

belong in the home [35]. Immigrant mothers should not be pigeonholed into gender stereotypes. However, ChatGPT and Claude achieve exactly that by reinforcing occupational segregation in their stories about immigrant families.

#### 4.3 Anglocentric narratives

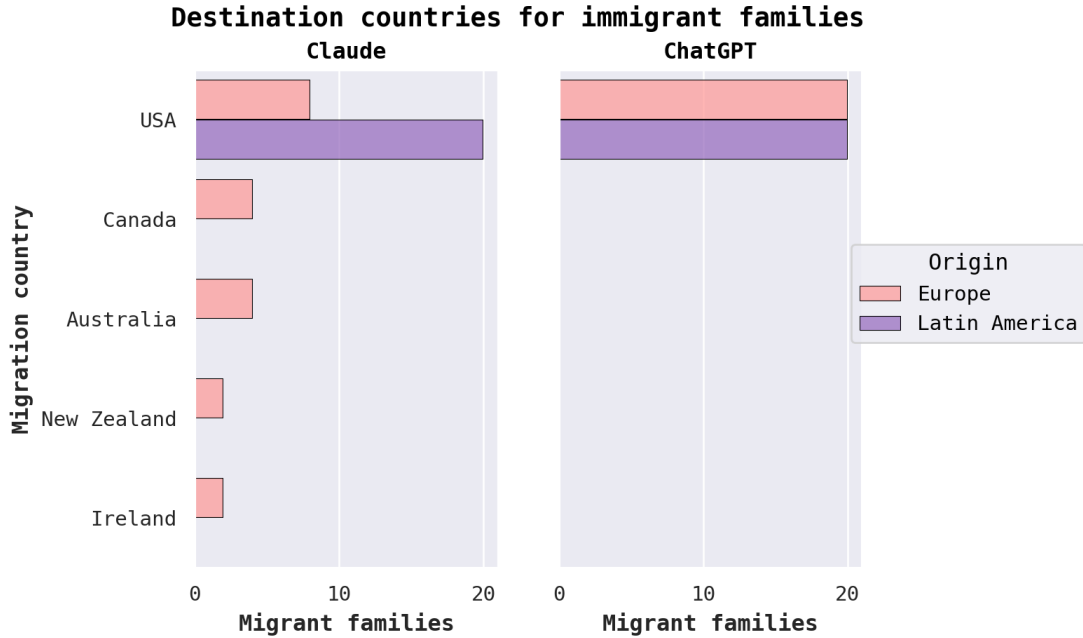


Figure 3: These are the years of migration for in the stories written by ChatGPT and Claude.

Immigrant family stories by ChatGPT and Claude are Anglocentric. Figure 3 shows the countries that the families migrated to in the stories. European families in Claude’s stories migrated to the United States, Ireland, Canada, Australia, and New Zealand; Latin American migration was limited to the United States. ChatGPT wrote that all families migrated to the United States regardless of their origin. All families migrated from a non-Anglophone country

to an English-speaking country, indicating a preference towards English-speaking countries. OpenAI has attempted to deal with such a bias before: OpenAI created the alignment method of RBRs after noticing that, in an experiment where AI trainers ranked possible chatbot responses to user prompts about self-harm, trainers referred the user to a U.S. hotline number [23]. This is a futile resource to the other 171 countries where ChatGPT is available [37]. Clearly, identifying Anglocentric biases is an important cause to OpenAI. Both companies are ambitious to expand on a global scale. Anthropic and OpenAI U.S. offer their models in multiple countries and languages [11] [24]. Claude’s platform is available in 95 countries and its API is available in 159 [24]. ChatGPT supports over 50 languages [37]. If OpenAI and Anthropic want to properly serve non-English-speaking countries, must de-center English-speaking countries from their services.

#### 4.4 Typecast Latinos

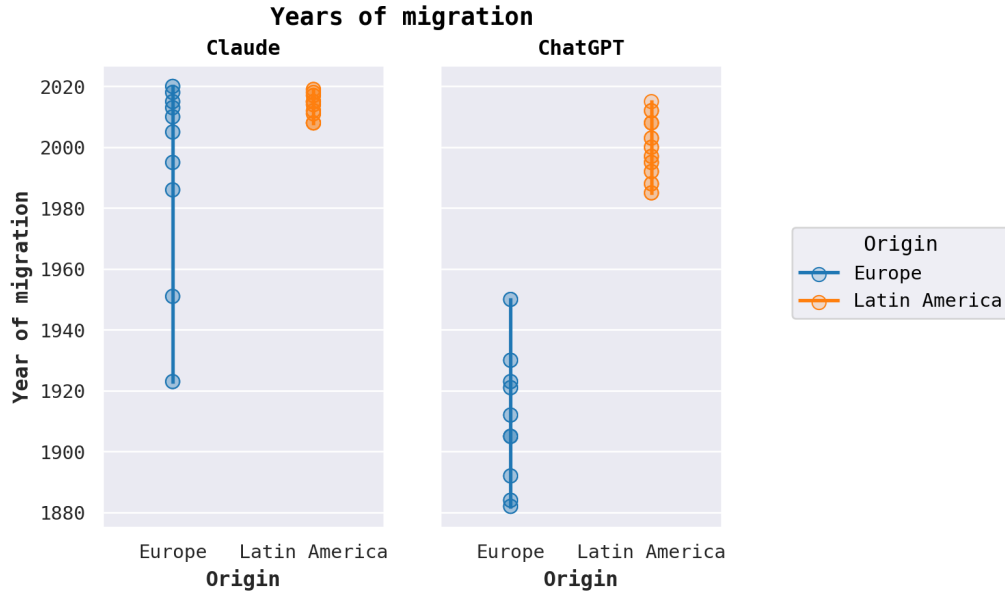


Figure 4: These are the years that that immigrant families from Claude and ChatGPT stories moved to the United States.

ChatGPT and Claude’s narratives follow a trend of Latino erasure from the U.S. historical canon. Figure 4 shows the time where the stories of Latino and European migration took place. Summing up the work of both chatbots, European migration occurs from the 1880s to the 2000s. On the other hand, stories about Latin American migration to the United States take place from the 1980s to present day. Latino migration to the United States is not a recent event; Latinos have been moving to the United States since at least the 19th century. During the Gold Rush, the United States saw an influx of Mexican, Chilean, and Peruvian miners into the country; there were over 6000 foreign-born Mexican residents in California [38]. This doubles the number of English immigrants in California at the time [38]. Starting in 1908, Mexican migration to the United States boomed; migration was facilitated by U.S. recruiters whose job was to bring workers from Mexico [39]. These two examples do not cover the breadth of Latin American migration to the United States [39, 40] nor do they cover Latino migration to other countries [41]. However, the examples provide concrete proof that Latin American immigrants have been coming to the United States for a long time.

The chatbots write about Latinos as almost exclusively undocumented immigrants. Figure 5 shows the immigration status of Latin American and European immigrants. Claude withholds the immigration status of every European family; however, 60% of its stories about Latinos are explicitly undocumented immigrant narratives. All European families are legal residents per ChatGPT’s stories. ChatGPT describes the process that every European immigrant family went through to gain legal resident status:

“The immigration process was daunting, with long lines and thorough inspections, but the Petrovs passed through, determined to start anew.”

On the other hand, ChatGPT portrays all Latin American families as undocumented except for one. 30% of Latino families created by ChatGPT arrived into the United States via coyote, a human smuggler:

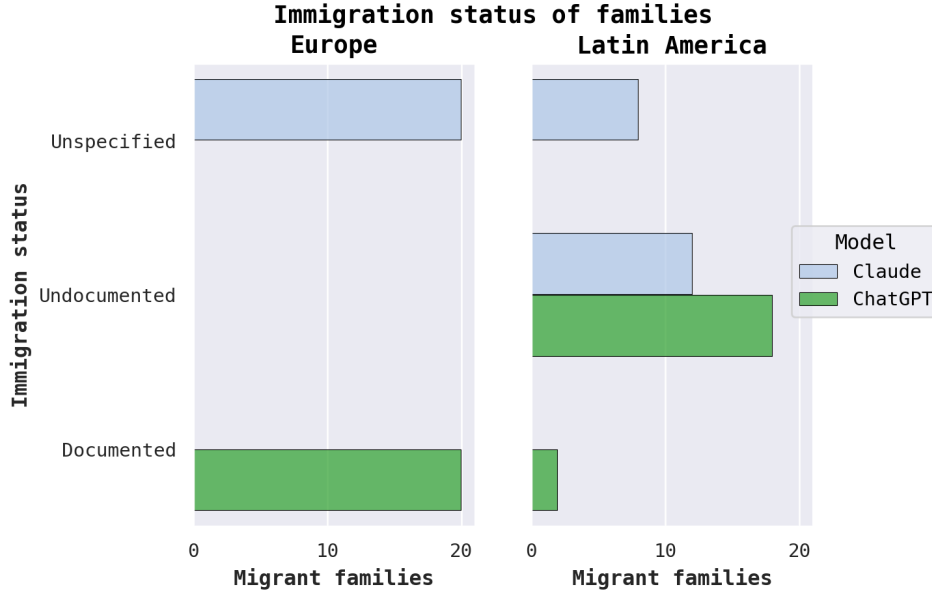


Figure 5: This is the immigration status of families written by ChatGPT and Claude.

“They joined a group of other hopeful immigrants, guided by a coyote through the treacherous desert.”

The undocumented immigrant narrative promoted by ChatGPT and Claude frames the arrival of Latin American people into the United States as a criminal act; it is a threat. The narrative of the Latino “illegal alien” has been used countless times by politicians and the media to convince Americans to support anti-immigrant policies that complicate or remove immigrants’ livelihood in the United States [42]. 93% of people detained in a U.S. Immigration and Customs Enforcement (ICE) center are of Latin origin. Thousands of migrant children are detained by ICE each year [43]; 88% live at ICE centers for longer than 20 days; the children at ICE centers are exposed to physical and mental hardships [44]. The “illegal alien” stereotype has dire consequences for undocumented Latino immigrants of all ages. ChatGPT and Claude need to write new Latin American origin stories.

## 5 Discussion about AI (mis)alignment

ChatGPT and Claude exhibit similar biases against immigrants. Section 4 showed us that these biases are deeply embedded, at least, in the psyche of the United States. Therefore, it must be that anti-immigrant biases are introduced by humans.

As seen in Section 2, RBR (by OpenAI) [23] and Constitutional AI (by Anthropic) [24] are alignment methods that teach the AI how to behave appropriately based on a quantifiable set of rules established by a team of humans. Immigration is a complex and nuanced topic. It is challenging to define such topic into a list do’s and do not’s. Furthermore quantifiable constitutions or sets of rules inherently have the potential to be exclusive. As such, Claude and ChatGPT might unconsciously exclude diverse immigrant narratives. Another problem could come from AI rules or constitutions lacking clear instructions on what constitutes non-problematic or problematic depictions of immigrants [45]. It makes sense that Claude and ChatGPT would have issues addressing immigration, even in a fictionalized context. However, OpenAI and Anthropic explicitly state a mission to detect and mitigate discriminatory biases in their systems [12, 21]. Anthropic calls its system a “helpful, honest, and harmless assistant” [24]. OpenAI and Anthropic need to do more to prevent their respective systems from discriminating against immigrants.

A way for Anthropic and OpenAI to tackle discrimination against immigrants is to fine-tune each system’s constitution or rules to diversify the image these systems have of immigration. Anthropic has updated their constitution before. In their latest family of models, they added a portion to teach Claude about disability rights [24]. Other forms of alignment can be pursued through the field of formal machine ethics. This field incorporates logic, statistical reinforcement learning, and game theory as alignment methodologies [45]. Researchers have also attempted to create generalized datasets of morals to evaluate systems with. Lastly, researchers have employed games where they simulate complex scenarios for the AI to work through, gaining a more robust understanding of the topic at hand [45].

## 6 Conclusion

Generative AI is the latest trend in computer technology. The chatbot is the quintessential generative AI system. Its growing popularity requires an honest assessment of the potential harms that these systems may propagate. To gather insight on generative AI chatbots' understanding of immigration, I asked ChatGPT and Claude to tell me stories about Latin American and European immigrants. The responses showed that Claude and ChatGPT hold harmful biases against immigrants: both chatbots are guilty of excluding LGBT immigrants, promoting traditional patriarchal immigrant family ideas, writing Anglocentric migration narratives, and continuously typecasting Latinos as "illegal aliens." These biases are introduced by humans and have negative consequences in the real world. It is imperative that researchers detect and prevent harmful biases in these AI systems. At the least, Anthropic and OpenAI could refine their existing alignment methods, Constitutional AI and RBRs, by including more complex rules about what is an acceptable portrayal of immigrants. OpenAI and Anthropic could also experiment with alignment methods as described by the field of formal machine ethics.

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