THE BIAS IN ARTIFICIAL INTELLIGENCE AND IT'S CONSEQUENCES

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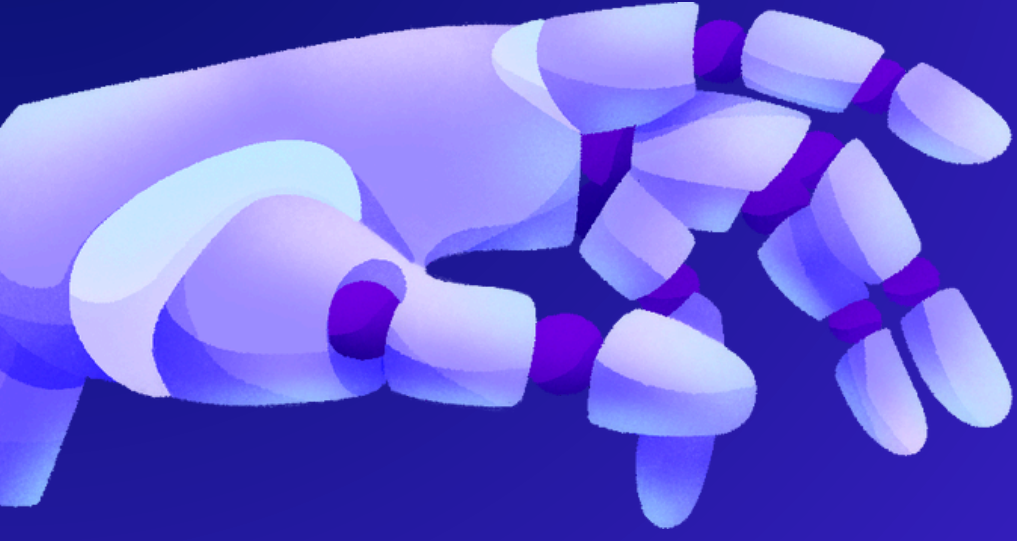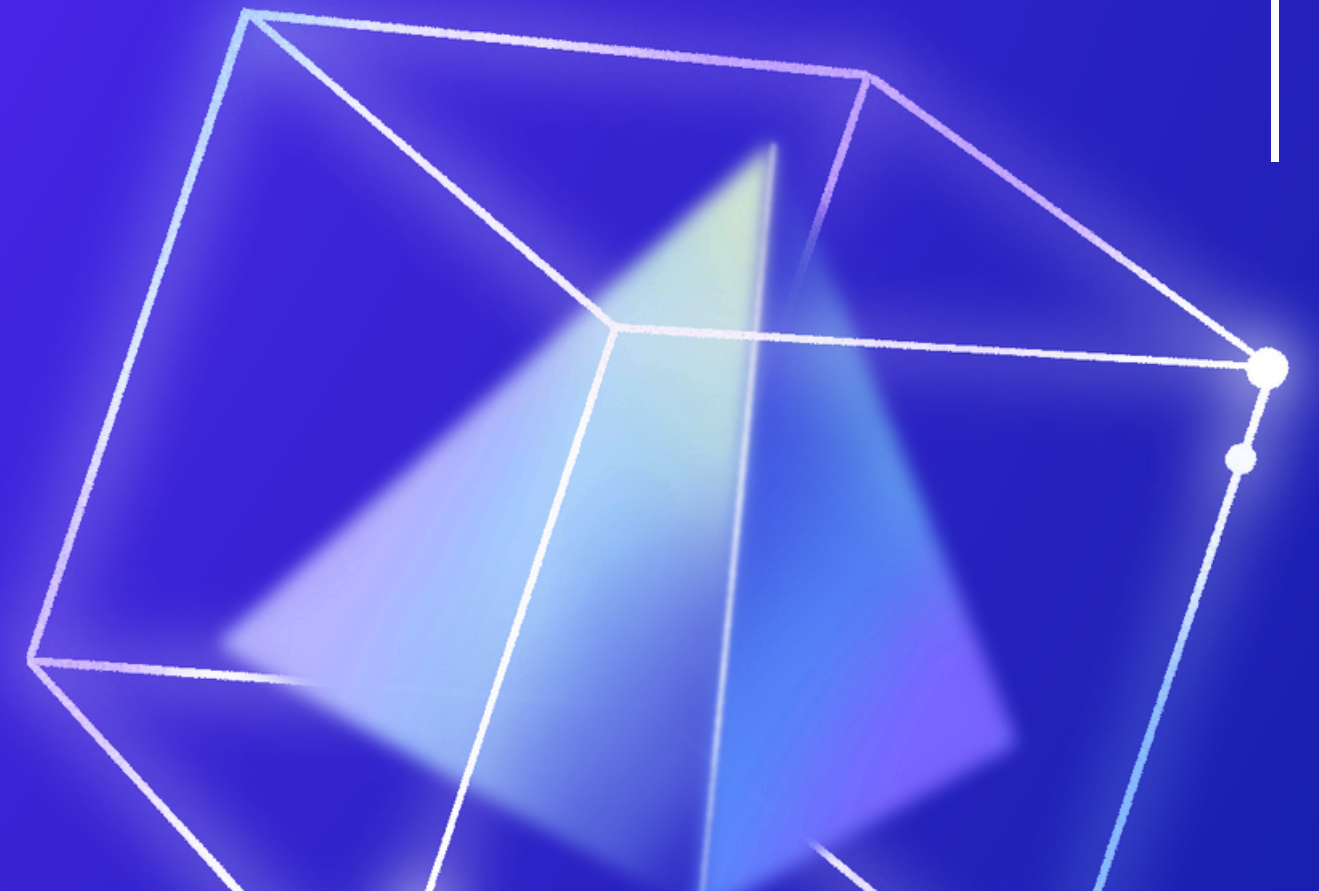
TABLE OF CONTENTS

MATERIALS AND METHODS

- The website Zippia was utilized for its extensive career demographic database.

- Hostos Library Academic Search Complete as a search engine in search of credible articles.

- Tools like Google Docs, Word and Excel were utilized to create our Lab Report.

- Craiyon was the image generating Artificial Intelligence software we used to gather images using gender neutral job titles.

INTRODUCTION

- INSTANCES OF BIASED DECISION-MAKING BY AI SYSTEMS HAVE RAISED CONCERNS ABOUT FAIRNESS, TRANSPARENCY, AND ETHICAL CONSIDERATIONS.

- THIS LAB REPORT SERVES AS A COMPREHENSIVE SURVEY OF RECENT ADVANCEMENTS IN ADDRESSING BIAS AND FAIRNESS IN AI-BASED DECISION-MAKING SYSTEMS.

- THE PERVASIVE NATURE OF AI-BASED DECISION-MAKING HAS HIGHLIGHTED THE NEED TO MOVE BEYOND TRADITIONAL ALGORITHMS OPTIMIZED SOLELY FOR PREDICTIVE PERFORMANCE.

We hypothesize that Artificial Intelligence systems will show signs of bias. AI is relatively new and often times with new technologies there is a great possibility that there will be inconsistencies with its programming.

RESULTS

01

Biases encoded in the training datasets were often perpetuated by the AI algorithms, resulting in discriminatory outcomes. Studies emphasized the need for transparency, accountability, and ongoing evaluation in AI development.

AI is BIAS!

When compared to the demographics of the career, AI has shown bias when generating images of Teachers. he AI produced photos mainly of younger women and children, however most of the ethnicity of the people in the images were not too obvious. With AI's growing popularity there is a high risk of its poor programming having a negative impact on society due to its stereotyping.

02

03

Companies are hiring their employees with a system that incorporates bias. I say this because these companies are high-tech which means they all have developed new advanced machines and equipment in their electronics and computers.

RESULTS

01

According to Zippia, here is some information about the demographic data of Civil engineering:

- 25% of all civil engineers are women, while 75% are men.
- The average civil engineer age is between 27- 40 years old.
- The most common ethnicity of civil engineers is White (55%), followed by Black or African American, 30%, and Hispanic or Latino (15%)

AI is BIAS!

According to Zippia, here is some information about the demographic data for Teacher:

There are over 3,842,796 teachers currently employed in the United States.

74.3% of all teachers are women, while 25.7% are men.

The average teacher's age is 42 years old.

The most common ethnicity of teachers is White (68.8%), followed by Hispanic or Latino (12.9%), Black or African American (10.1%) and Unknown (3.9%).

In 2022, women earned 94% of what men earned.

02

03

According to Zippia, here is some information about the demographic data of Technology:

- 26.7% of tech jobs are held by women, and men hold 73.3% of tech jobs
- In the US tech sector, 62% of jobs are held by white Americans. Black Americans hold 7% of jobs, Latinx Americans hold 8% of jobs, and Asian Americans hold 20% of jobs
- In the United States, 83.3% of tech executives are white
- On average, women in tech are offered a salary of 3% less than men for the same job, at the same company, with the same experience

CONCLUSION

As a conclusion, overcoming bias in artificial intelligence systems calls for a method that incorporates a variety of different aspects, including ethical considerations, legal frameworks, and technological breakthroughs. It is absolutely necessary for academics, developers, politicians, and other stakeholders to work together to promote openness, accountability, and fairness in decision-making that is based on artificial intelligence. By making diversity, inclusivity, and rigorous evaluation our top priorities, we can work toward accomplishing our goal of harnessing the enormous potential of artificial intelligence technology while also ensuring that it is deployed in a responsible and equitable manner for the benefit of society.

THANK YOU!

RESOURCE PAGE

1. Vicente, L., Matute, H. Humans inherit artificial intelligence biases. Sci Rep 13, 15737 (2023). https://doi.org/10.1038/s41598-023-42384-8

2. Ntoutsi E, Fafalios P, Gadiraju U, et al. Bias in data-driven artificial intelligence systems—An introductory survey. WIREs Data Mining Knowl Discov. 2020; 10:e1356. https://doi.org/10.1002/widm.1356

3. García-Ull, Francisco-José; Melero-Lázaro, Mónica (2023). "Gender stereotypes in AI-generated images". Profesional de la información, v. 32, n. 5, e320505. https://doi.org/10.3145/epi.2023.sep.05

4. https://www.zippia.com/civil-engineer-jobs/demographics/

5. https://www.zippia.com/teacher-jobs/demographics/

6. https://www.zippia.com/advice/diversity-in-high-tech-statistics/