




Research Focus: Computational Rhetoric & Digital Identity

The case of equity & AI outcomes



Situating AI equity & by their associated outcomes

- **Healthcare Allocation:** Research revealed that AI used in allocating healthcare funds discriminated against Black patients by considering previous healthcare expenditures instead of actual needs. This approach ignored systemic barriers preventing these communities from accessing early medical care, thereby exacerbating health inequities. Such algorithms, without proper calibration, can worsen disparities by allocating fewer resources to those historically underserved.
- **Creditworthiness Assessment:** In the credit sector, AI-driven assessments have reinforced gender biases, with women frequently receiving lower credit limits. This discrepancy arises from AI systems trained on data reflecting longstanding societal inequalities, such as wage gaps and traditional roles impacting credit history. Earlier systems compounded the issue by incorporating gender and marital status, directly disadvantaging women and overlooking their financial independence and capabilities.
- **Job Advertisement and Hiring:** Gender bias in AI-driven recruitment processes has led to skewed job ad distribution, favoring male candidates in male-dominated fields due to past hiring data. Furthermore, AI hiring tools, learning from male-biased resume databases, have perpetuated this cycle by ranking female candidates lower, ignoring the diverse skill sets and perspectives they bring to the workplace. This not only limits women's job opportunities but also hinders diversity and innovation within industries.



AI aided characterization for equity

Healthcare Equity

Addressing racial bias in Healthcare through AI

Concerns:

- AI highlighted racial bias in healthcare, worsening disparities, especially in Black communities.

2022 Initiatives:

- Actions to reduce medical AI biases, improving data diversity.
- Focus on algorithms in maternal healthcare for Black women.
- Vice President Kamala Harris launched Maternal Health Day of Action to combat healthcare disparities, surfaced by technology .

Educational Reforms:

- Medical institutions like Florida Atlantic University started integrating anti-racial bias training in their curricula.

Policy Changes:

- Michigan and California implemented mandatory implicit bias training for healthcare professionals to better serve Black women and marginalized communities.



Credit-worthiness equity practices

AI's Impact on Credit Accessibility

Credit Invisibility

- 26 million Americans were credit invisible.
 - AI utilizing alternative data (education, job history) to assess creditworthiness.
 - Companies like ZestFinance offering solutions for those with scant credit history.
- **Credit Industry Shifts:**
 - Inclusion of "Buy Now, Pay Later." (BNPL) payment records and removal of medical debts from credit reports.
 - Recording on-time rent payments aiding those with sparse credit files.
- **Research Findings by LSU and Harvard (as of Sept 2022)**
 - AI and alternative data can greatly enhance credit access.
 - Significant aid for individuals with low or no credit scores, including recent graduates and underserved communities.
 - Potential reduction in credit defaults, leading to broader qualification for credit.
- **General Developments:**
 - Integration of AI in financial services boosting fairness and access in credit evaluation.



Job market equity

Transforming Job Search with AI

- **Changes in job hiring practices**
 - Traditional hiring challenges due to outdated methods.
 - AI adoption using online activity and work samples to uncover hidden talent.
- **Recruitment Evolution**
 - Significant industry changes enhancing job fit and satisfaction.
 - AI-driven platforms improve matching by aligning jobs with candidates' skills and desires.
 - Reduction of biases, supporting individuals with diverse backgrounds or employment gaps.
 - Platforms like LinkedIn and HireVue assist individuals with unconventional career trajectories.
- **Recent Academic Insights**
 - Studies highlight AI's potential in transforming job search and placement.
 - Especially advantageous for career changers, workforce returnees, and underrepresented groups.
 - Broader evaluation of qualifications through AI could decrease unemployment and underemployment rates.



Why this matters, rhetorically speaking

1. **Embedded Bias Propagation:** AI can unconsciously embed and perpetuate societal biases, especially gender biases, reinforcing existing inequalities rather than challenging them.
2. **Digital Profiling Risks:** AI enables the creation of digital profiles, which can lead to targeted discrimination, especially against women and marginalized groups.
3. **Power Dynamics Preservation:** AI systems can unintentionally maintain entrenched power structures, favoring the status quo over equitable change.
4. **Legal and Ethical Implications:** AI's role in legal proceedings, such as evidence collection, demands rigorous oversight to prevent misuse and ensure fairness.
5. **Transparency and Accountability:** Without oversight, AI operations remain opaque, leaving users without recourse or understanding of decisions affecting them.
6. **Social Impact and Responsibility:** AI has the potential to significantly impact societal norms and human interactions, necessitating a responsible approach to its development and deployment.
7. **Inclusive Design and Development:** Oversight encourages the design of AI systems that consider a wide range of human experiences and perspectives, promoting fairness and inclusivity.



Why this matters, technically speaking

1. **Bias Amplification:** Algorithmic characterization can amplify existing societal biases, particularly gender biases. If algorithms are trained on historical data that contains biases, they can perpetuate or even exacerbate these biases. For example, if a hiring algorithm is trained on data from a company where men have traditionally been preferred for certain roles, it might undervalue applications from women, thus perpetuating gender inequity in employment opportunities.
2. **Access to Opportunities:** Algorithms increasingly determine access to opportunities such as jobs, loans, and education. If these algorithms are not designed with gender equity in mind, they could systematically disadvantage women and other marginalized genders by making biased decisions, such as favoring male candidates in job selections or offering higher credit rates to women without objective justification.
3. **Transparency and Accountability:** There is often a lack of transparency in how algorithmic decisions are made, making it difficult to identify and correct gender biases. Without transparency, women and marginalized genders may not be able to challenge unfair decisions or even understand why they have been disadvantaged, thereby obstructing efforts towards achieving gender equity.
4. **Representation and Participation:** The development of algorithms often lacks gender diversity, leading to a lack of representation of women's needs and perspectives in algorithmic characterization and decision-making processes. This can result in digital products and services that do not adequately consider or meet the needs of women, thereby widening the gender digital divide.
5. **Legal and Ethical Implications:** Algorithmic characterization without consideration of gender equity raises significant legal and ethical concerns. It can lead to discrimination and violation of rights, which are protected under various national and international laws. Ensuring that algorithms adhere to principles of gender equity is essential to uphold the legal and ethical standards concerning equality and non-discrimination.





So what?

Research Position

The connection between equality with economic empowerment has long been recognised as a key gauge of societal progress.

Today, as technology permeates all aspects of our lives, AI – powered tech design emerges as a vital tool in bridging the gender divide.


My research explores the multifaceted relationship between accelerating gender equality through economic empowerment via oversight in system design - one that aspires for equity, particularly for women and other marginalized groups

Focus: how inclusive technology and product and systems design can serve both as a platform for innovation, as well as a catalyst for equity & inclusivity.

Method: By examining the intersectionality of these fields, my research sheds light on effective strategies, policies, and tech solutions that prioritize equity for all.

Action: A necessity of a collaborative approach involving policymakers, technologists, and communities to create a tech-enabled, equitable future that empower everyone both economically and socially.





Research: Computational Rhetoric & Algorithmic Characterization
Algorithmic Ethopoeia – from ancient figure to modern method

Algorithmic characterization: the **mathematizing** of human data for the purpose of **digital representation** and human characterization, through the processes of **sorting and targeting**, with subsequent **subjugation to algorithmic procedures** and **decision-making protocols**.

Research Mobilization

Addressing material outcomes

- *HCI International 2022 – Late Breaking Papers: Interacting with eXtended Reality and Artificial Intelligence Series* : Chapter 27: **“Conversations Towards Practiced AI – HCI Heuristics”**
- Rhetoric Society Quarterly curated article: **“Sex after Technology Sex After Technology: The Rhetoric of Health Monitoring Apps and the Reversal of Roe vs. Wade”**
- Beyond Security: **“The Problem with Surveillance Tech Rhetoric”**
- Report: AI-HCD System (Dissertation/Defense): **“Design Heuristics framework for the protection of Women.”**

Heuristic category	Description
Human Factors and Ergonomics	Focuses on creating user-friendly and comfortable technology, physically and cognitively, for female users, ensuring privacy and safety. It requires an understanding of women’s bodies and minds.
Accessibility	Incorporates assistive technology to accommodate physiological or cognitive atypicalities, particularly those associated with reproductive health, and other disparities like mobility, vision, and hearing. This includes a focus on reproductive health.
User Consent	Emphasizes the necessity for truly informed consent from women for their health data, making sure they are fully aware of data usage, access, and protection, especially important post Roe v. Wade.
Privacy by Design	Proactive integration of privacy considerations into application design to protect users’ data, making applications resistant to unauthorized access and ensuring data security, especially after legal changes like the reversal of Roe v. Wade.
User Controls & Affordances	Allows users a high degree of agency and control over their data sharing and privacy settings. This includes granular control over data, adaptable to user preferences.
Transparency	Ensures design clarity, with no hidden functions, and promotes deep levels of explainability using plain language for better user understanding. Focuses on clear user interface and policies.

Thank you!

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