Undergraduate Research Posters

Advancing Data Analytics for Decoding Gendered Language in Job Advertisements of STEM Fields

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## Abstract

The underrepresentation of women in STEM (Science, Technology, Engineering, Math) is a complex issue that is influenced by several factors. Evidence that gendered wording in job advertisements exists and sustains gender inequality (Gaucher et al., 2011) has shown that word choice in job advertisements affects not only one's perception of their fit for the position, but also how much they feel they belong to that field. Gaucher's study documents the effect of masculine and feminine wording in advertisements.



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## **Advancing Data Analytics for Decoding Gendered** Language in Job Advertisements of STEM Fields



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The underrepresentation of women in STEM (Science, Technology, Engineering, Math) is a complex issue that is influenced by several factors. The 2011 paper, Evidence that gendered wording in job advertisements exists and sustains gender inequality (Gaucher et al., 2011), has shown that word choice in job advertisements affects not only one's perception of their fit for the position, but also how much they feel they belong to that field. Gaucher's study documents the effect of masculine and feminine wording in advertisements.

- To analyze job advertisements from the fields of Computer Science, Engineering, and Healthcare using pre-existing gender decoders in order to reveal and compare patterns of language use in job advertisements \( \). Infer their effect on gender parity in STEM.

A word is considered gendered if it has an association with a certain gender, typically male or female.

L. Usually implicit bias; can contradict a conscious opinion

## What is a gender decoder?

- What is a gender decoder:

  A gender decoder is tool that counts and compares the number of feminine and masculine words that appear in the given text then returns a result |

  Lusully "Male", "Female", or "Neutral".

  Every decoder has a curated word list that it considers gendered; this list often differs between decoders.

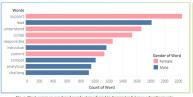
  Often, these word lists consist of word stems in order to detect a group of words

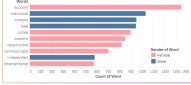
  eg. The word stem "collab", such as in "collaborate", "collaborative", "collaborating"

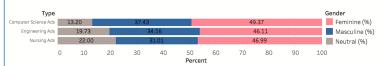
# Method

- Collection of Job Advertisements
   Python web-scanning program was developed to automate the collection of job advertisements from an online job board.
   This yielded -6000 Engineering (Mechanical, Electrical, Computer) and -3500 Computer Science advertisements.
   Additionally, -2800 Healtheare listings were collected to compare a traditionally female-dominated field to the STEM fields.

- ne gender decoders were selected from a web search Python program was created to simulate the decoders' algorithms and calculate the result of each decoder for each collected
- advertisement
  The program also recorded which gendered word stems appeared in the text, and how often.







- Overall, all three field samples contained more feminine-coded advertisements than masculine- or neutral-coded.
   The most common word stem in all fields was "support", a
- The most common word stem in all fields was "support", a feminine word (such as in "supportive", "supporter")
  Four of the five most commonly used gendered word stems in the Computer Science and Engineering samples are feminine words.

- More feminine-coded Computer Science and Engineering advertisements could mean that STEM companies are becoming aware of the effects of wording on potential applicants
   The high frequency of feminine words such as "support" and "collab-" suggest that despite being male-dominated fields, STEM jobs involve many traditionally feminine qualifications or duties.

## **Moving Forward**

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  Next steps include:

  Dividing each advertisement into components (Company Description, Job Responsibilities, Job Qualifications) and calculating the results of each section.

  I To obtain a deeper understanding of how gendered words are useful advertisements see if words are being used in a way that reinforces stereotypes of a gender's competencies

  Creating our own gender decoder using machine learning.

  Consider the context of words to determine if they are being used in a "gendered sense", prevent advertisements from adding gendered words that aren't used in a gendered sense eg. The word 'kind' as an adjective means 'considerate' (feminine), while as a noun it means "type" (neutral)



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