Computational People Science

-Non-intrusive use cases of AI in HR

- Aswini Thota

Agenda

- Current state of AI in enterprise
- People Analytics vs. Computational People Science
- 2 use cases of AI in HR
- Ethical consideration of using AI in HR
- Q&A

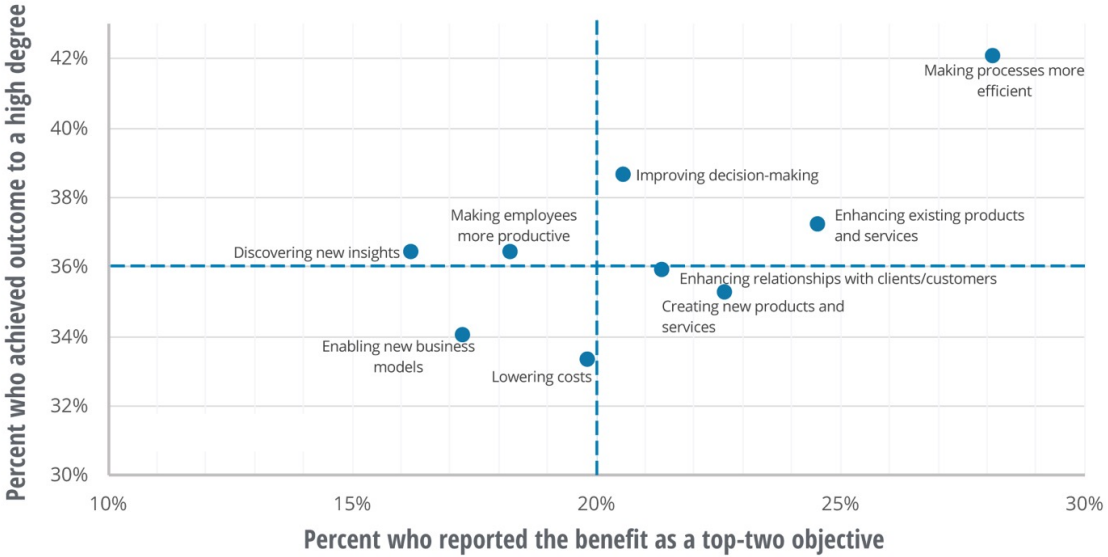
Hello!

I am Aswini Thota

– Data Scientist with a passion to solve business problems using analytics and machine learning

- 12 years of experience in Data Engineering and Data Science
- Created AI solutions to help HR, Sales, Marketing, CX, and Supply chain functions
- When I get break from feeding kids and changing diapers – I like to work out, bike ,and taste new food
- My articles were published on several outs– RedGate, SMU, Thrive Global, People Matters, Economic Times, Dzone etc.

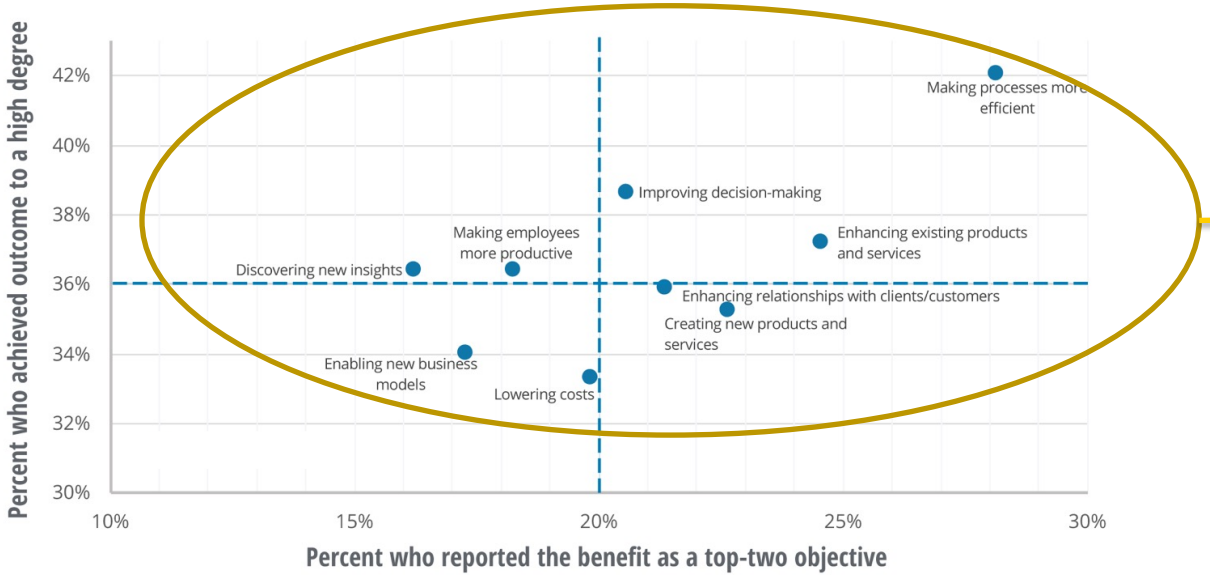
Sate of AI in the Enterprise



Note: Blue dotted lines represent the average of each dimension.

Source: Deloitte, *State of AI in the Enterprise, 3rd Edition*, 2020.

Sate of AI in the Enterprise



What is THE thing we need to implement any of these?

Note: Blue dotted lines represent the average of each dimension.

Source: Deloitte, *State of AI in the Enterprise, 3rd Edition*, 2020.

What is People Analytics?

"People analytics[1] is the collection and application of talent data to improve critical talent and business outcomes."

[1]https://www.gartner.com/en/human-resources/glossary/people-analytics

Different Domains in People Analytics?

Insights are typically provided by building dashboards, or by conducting data analysis

Workforce planning

- *Helps leaders understand: How many to hire, what roles, which skills etc.*

Talent Analytics

- *Provides insights into the pre-hire process.*

HR Analytics

- *Provides insights into the current employee base.*

Labor Market Analytics

- *Focuses on external talent market. City/ MSA level insights on roles, salary levels, competitors etc.*

Compensation Analytics

- *Pays close attention to compensation trends. Gather intelligence by comparing internal and external comp. data*

[1]https://www.gartner.com/en/human-resources/glossary/people-analytics

Computational People Science

What is Computational People Science?

“Leverages AI/ ML-based computational methods to draws insights and build scalable solutions to improve people experience and to drive business efficiencies.”

Some use cases

Quality of Hire Prediction

ML to understand the traits of successful associates

ML driven job recommendation

Email matching jobs to internal associates to promote mobility

Rediscover candidates by recommending matching jobs

Gender Bias

ML and NLP to understand the ingrained gender bias language

Attrition

Understand the factors that lead to associates leaving the company.

Sentiment Analysis

Summarize the sentiment of associates from various surveys using NLP

Topic modeling to understand various topics of discussion

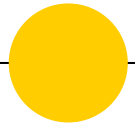
Organizational Network Analysis

Network analysis to visualize how communications, information, and decisions flow through an organization.

Deep Dive – Focus of Today's session

- AI to improve internal mobility and talent rediscovery
- AI to reduce gender bias in job descriptions

AI to improve internal mobility and talent rediscovery



Mobility & Talent Rediscovery

Internal Mobility helps with:

- Retention
- Leadership development
- Cost and time to hire
- Cross company collaboration

Why Talent Rediscovery?

- Save time spent in sourcing
- Tap into engaged candidate pool
- Your then “Silver Medalist” can now be a “Gold Medalist” for other roles

Key Design Principles

- Increase awareness among associates about the internal opportunities available
- Cast a wider net: It’s okay to recommend a job that not 100% fit to the candidate.

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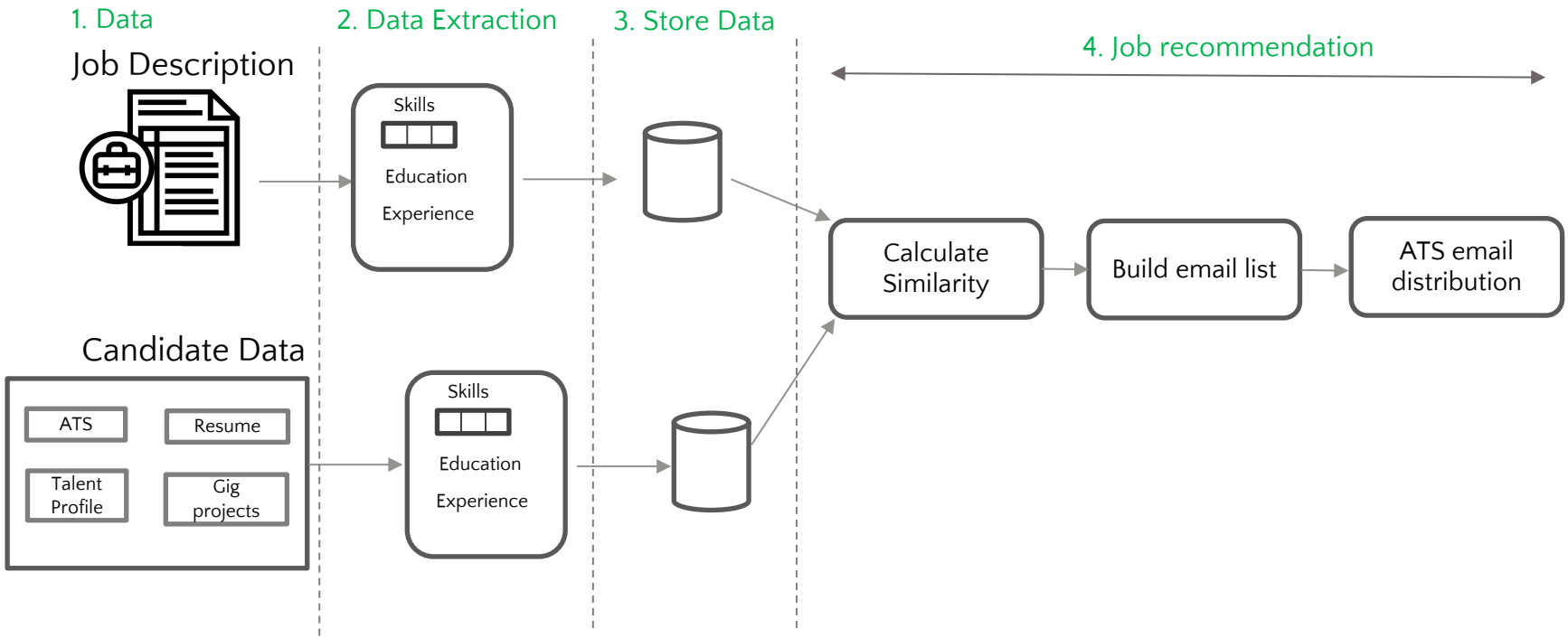
Process overview



Skills Extraction - Resumes

Seed skills list

- List of Hard and Soft skills were collected
- Proportionately distributed across different roles

Custom Named Entity Recognition Tags

- Built a custom NER model
- The NER outputs two custom tags (Hard Skill, Soft Skill)

Skills2Vec (Word2vec on skills)

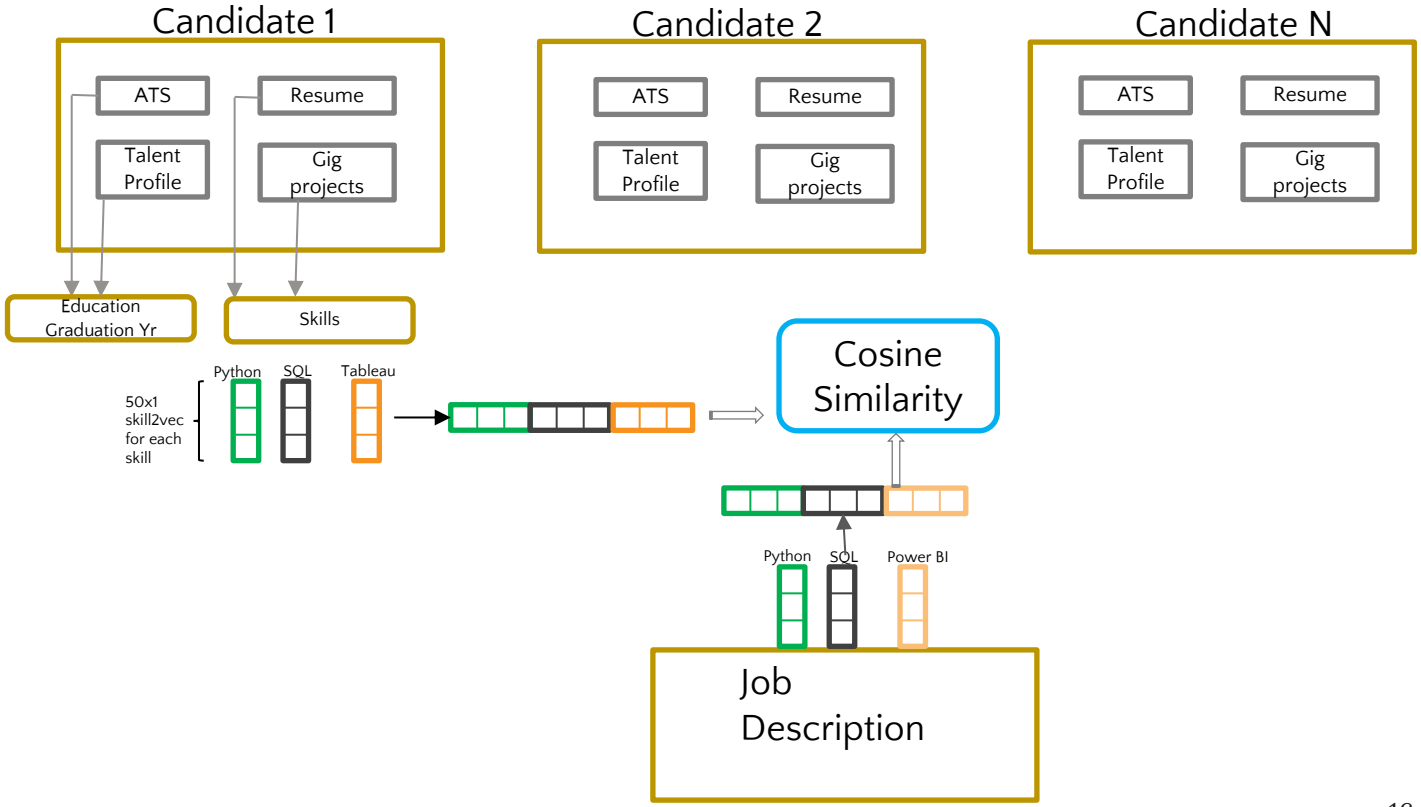
- Creates a custom word2vec model on skills

Scoring Process

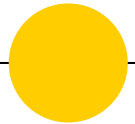
Each skill is represented by a **50x1** vector

Model identifies "**Transferable Skills**"

Eg: Models knows, based on skills2vec, that Tableau is very close to Power BI



AI to remove biased language from Job Descriptions



Reduce Gender Bias in Language

Gender bias is real. Studies show that:

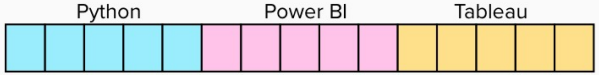
- 25% of senior managerial posts are held by women
- Men apply for a job when they meet only 60% of the qualifications, but women apply only if they meet 100% of them.
- Biased and masculine tone in the job descriptions significantly lowers the chances of attracting female applicants.

Experimentation Setting

Job Description

Skills2Vec

- Custom NER to identify skills
- Skills2Vec with 50x1 dimensions for each skill

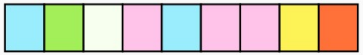


Education

Experience

POS Tags

- POS Tags for all words that are not skills, Edu, Exp



Engineered Features

- # skills
- Yrs Exp Range
- Edu requirements
- # of time Exp demoted with a number
- Similarity between skills

Dependent variable

% M Vs. F applied

% M/ F available in that specific job market

If %F applied < % F available then 0 else 1

Example:

Data Scientist

Applied Candidates in DFW

82% - Males
18% - Females

External Labor Market

80% - Males
20% - Females

Dependent Variable: 0

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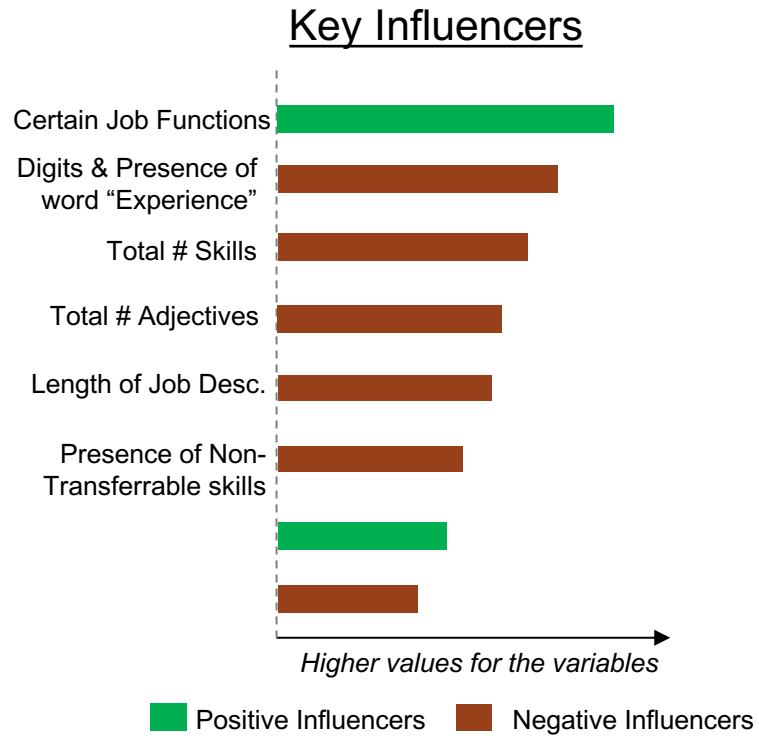
Experimentation Outcome



Variables ranked based on their importance in predicting Gender

- Positive Influencers:
  - Job Functions
  - Presence of similar skills
- Negative Influencers:
  - Total # Skills
  - Total # Adjectives
  - Length of JD
  - Presence of Non-Transferable Skills

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Towards Building Ethical AI for HR

- Garbage in, garbage out. If the data used for training the models is biased, AI will only exacerbate the problem of bias.
- Start by using AI to enrich the existing HR practices, instead of replacing them.
- Focus on designing systems designed to show causation over correlation

Thanks!

Any questions ?