Matching People with Jobs using AI

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About Me

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Microsoft Partner Consulting Firm
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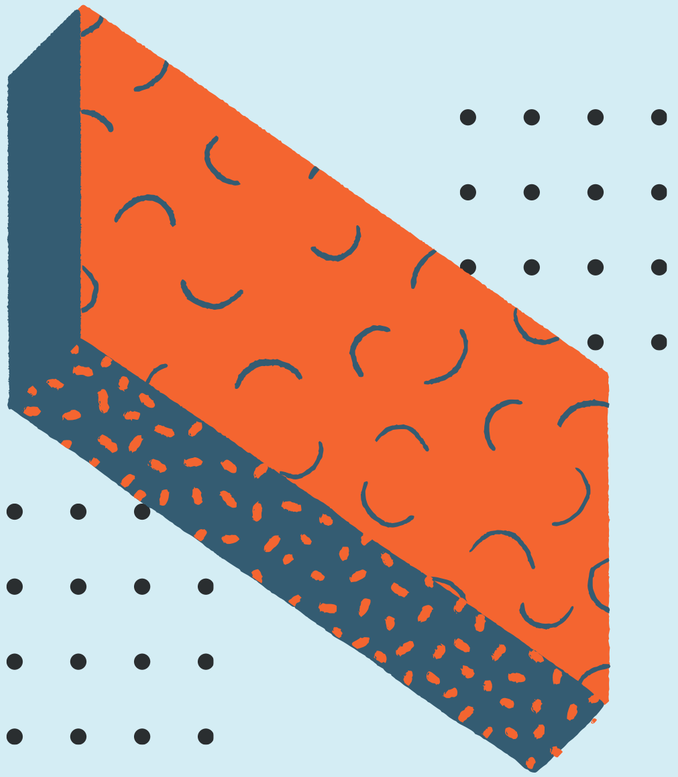
How might AI help underrepresented groups succeed?

~~Replacing~~ Augmenting the Human

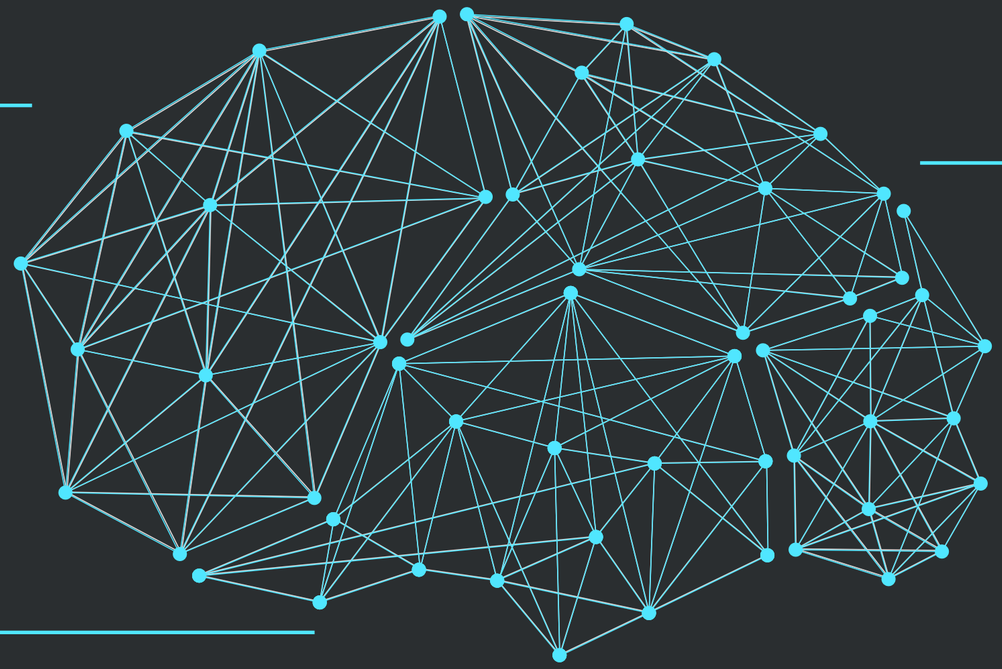


Decisions in recruitment and hiring are certainly wrought with bias and imbalance, but using an independent system trained on fair and unbiased data may help fix this issue.

"AI isn't meant to replace the human, but instead give the human an enhanced capability to perform a task."

Azure Cognitive Services

Adding intelligence



Decision

Language

Vision

Speech

Web search

Azure Cognitive Services

The most comprehensive set of domain-specific AI services

Personalizer

Decision

Content Moderator

Anomaly Detector

Ink Recognizer

Computer Vision

Face

Vision

Video Indexer

Custom Vision

Form Recognizer

Text Analytics

Translator Text

Immersive Reader

Language

Language Understanding

QnA Maker

Speech to Text

Speech Translation

Speech

Speaker Recognition

Text to Speech

Bing Custom Search

Bing Video Search

Bing Entity Search

Bing News Search

Bing Local Business Search

Web search

Bing Web Search

Bing Image Search

Bing Autosuggest

Bing Visual Search

Text Analytics

Named Entity Recognition

Automatically detect entities, like places and landmarks

Sentiment analysis

Understand if a record has positive or negative sentiment

Key phrase extraction

Extract key phrases from a piece of text, and retrieve topics

Language detection

Identify the language,
120 supported languages

Named Entity Extraction of Skills (and other things)

An ideal candidate for this Charlotte-based position would be enterprising with a strong personal research agenda, a desire to work on social impact problems (climate, energy, healthcare, etc.), and a willingness to expand the vision to realize the goals of the group. It is highly desired to have a candidate with a track record in applying and securing funding from various government funding agencies through grant writing.

Required Skills

5+ years of experience in data science and machine learning applications
•At least 2+ years in a PI role in an academic or industry lab setting
•Excellent knowledge of statistical and machine learning modeling concepts
•Desire to mentor junior researchers
•Good communications skills: technical presentation, grant writing, peer-reviewed journals

•**Preferred Skills**

Large-scale dataset analysis, high-performance and parallel computing
•Evidence of securing project funding through government or private entities
•Desire to work on social impact problems (climate change, energy systems, smart systems, health tech—are a huge plus)
•Good network of collaborators in academia and industry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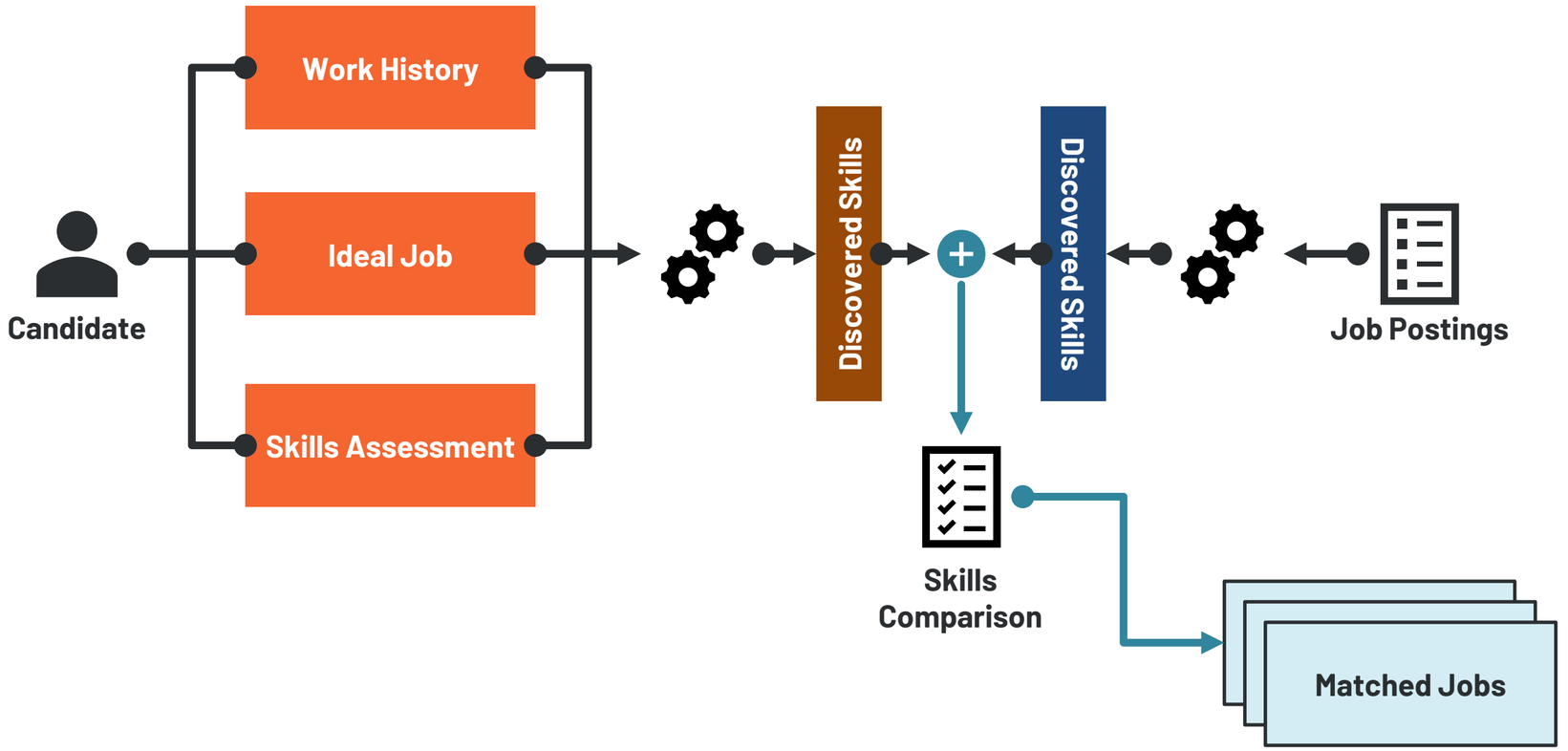
Building a Recommendation System...



Comparison and Scoring of Results

The scoring and ranking of candidates vs. jobs is pretty straightforward.

Simply calculate the statistical correlation between each job and candidate based on skills (and location or other factors)

Candidate Skills

Candidate	Data Analysis	Finance	Public Speaking	…	Graphic Design
Bob	1	0	1	…	0
Jane	0	0	1	…	0
…	…	…	…	…	…
Xavier	1	1	0	…	1

×

Position Skills

Position	Data Analysis	Finance	Public Speaking	…	Graphic Design
Data Scientist	1	0	1	…	0
Financial Consultant	1	1	1	…	0
…	…		…	…	…
Digital Marketer	0	0	1	…	1

Candidate Match

Candidate	Data Scientist	Financial Consultant	…	Digital Marketer
Bob	0.84	0.63	…	0.38
Jane	0.26	0.49	…	0.61
…	…	…	…	…
Xavier	0.13	0.42	…	0.91

Key Takeaways

Pre-trained AI tools like the Azure Cognitive Services APIs provide a low-code solution for lots of machine learning tasks.

These models are benchmarked and vetted for generalized performance and balance.

Using AI, we can augment the matching of candidates to jobs using a more mathematical approach rather than one based solely on human decisions.

This may help increase fairness in the job placement process for underrepresented people across all industries.

Some Resources…

- Azure Cognitive Services Text Analytics API
  - https://docs.microsoft.com/en-us/azure/cognitive-services/text-analytics/overview
- Microsoft AI for Good - https://www.microsoft.com/en-us/ai/ai-for-good
- Fairlearn – A framework to help evaluate fairness in AI systems
  - https://fairlearn.org/
- BlueGranite Solution Brief on OurAbility
  - https://www.bluegranite.com/playing-matchmaker-pairing-people-with-accessible-careers-using-microsoft-ai-services