Microsoft

Project Inclusion - Centralizing Inclusive Employer Related Information Using Data Mining & NLP

UW iSchool x Microsoft Capstone Project

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Executive Summary

A significant challenge for people with disabilities is the lack of awareness around accessible employers, programs, and opportunities within the community. Additionally, the information they seek on inclusive hiring practices, benefits, accommodations, and company culture is scattered across multiple sources. Our application uses data mining techniques on company blogs, Twitter, Glassdoor, YouTube, etc., to aggregate such information, and, in doing so, empowers the underserved disabled community to make more informed job-search decisions. The application also aims to help employers identify gaps in the information they provide, thus bringing them closer to diverse candidates' needs.

The Organization

- Microsoft Corporation is an American multinational technology company with headquarters in Redmond, Washington. It develops, manufactures, licenses, supports, and sells computer software, consumer electronics, personal computers, and related services.
- Microsoft is an advocate of people with disabilities - committed to influencing the future of technology to ensure global independence and inclusion in society in four areas of focus: Home, community, education, and employment.
- AI for Accessibility is a Microsoft program committed to empowering people living with disabilities. It grants support projects that use AI to empower people living with disabilities.
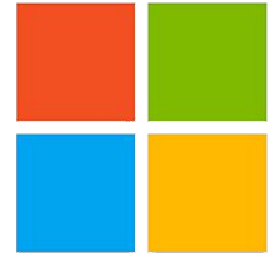
Microsoft

The Opportunity

- Inclusive employers are open to hiring candidates who identify as disabled, & offer dedicated accomodations and benefits.
- While searching for inclusive employers, these candidates look up information online.
- The information they seek on accommodations, benefits and overall company culture is hard to find and scattered across multiple sources (such as official company web pages, blog posts, Twitter, company review websites, YouTube videos, etc.).
- Our web application aims to decrease friction for disabled job seekers by centralizing information on inclusive employers.
- The goal of our product is to empower disabled candidates to make better decisions during their job search.

Project Scope

- As a starting point for the project, we focused on companies specifically in the technology industry.
- Amongst these, we did a quick check of the publicly available data for each, on the basis of which we selected three companies (Microsoft, Cisco, and Intel) for our MVP (Minimum Viable Product).
- To extract information about inclusive hiring practices, we limited ourselves to official company websites and chose to leave out third-party news websites or blogs.
- We added sources like Twitter, YouTube, and official company DEI reports to increase the diversity of our data sources.

Companies
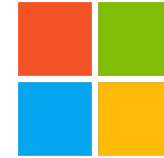
Sources

Diversity, Equity & Inclusion Reports

User Research

To understand the problem space better, we created a survey which we first circulated to the Disability Employee Resource Group at Microsoft, and then eventually through the wider UW network. We also scheduled 1:1 interviews with folks at Microsoft and UW to dive deeper.

Survey

Disability ERG (Employee Resource Group)

Facebook Groups

r/disability r/udub

Tweets from company leaders

iSchool Career Services

Student Disability Commission

Disability Advocacy Student Alliance

UW Disability Resource for Students

UW Career & Internship Center

UW Access Computing

Interviews

Neil Barnett
Director, Inclusive Hiring and Accessibility

Lisa Maberry
Diversity Program Manager, Global Talent Acquisition

Venkatesh Potluri
UW PhD Student, Identifies as Blind

User Research Insights

Here are some verbatim excerpts from our user research interviews and survey responses:

"Search Engines don't surface relevant information - just because you say disability, it (search engines) doesn't show results that people with disabilities expect"

"Candidates don't know they can spread their interviews out over multiple days"

Key Insights

"Do they have workplace accessible tools? This is especially important in a virtual environment"

"As a disabled candidate, I look for information on how accessible the interview process is"

Project Tech Workflow

To narrow down the source webpage pool, we devised keyword combinations for which search engines returned the most relevant results, and then passed these to the Bing Web Search API. The URLs thus returned were used to retrieve textual content from corresponding web pages. Additionally, we harvested tweets from official company handles and company leaders through the Twitter Research API. All of the above data was then passed through an NLP powered relevance filter.
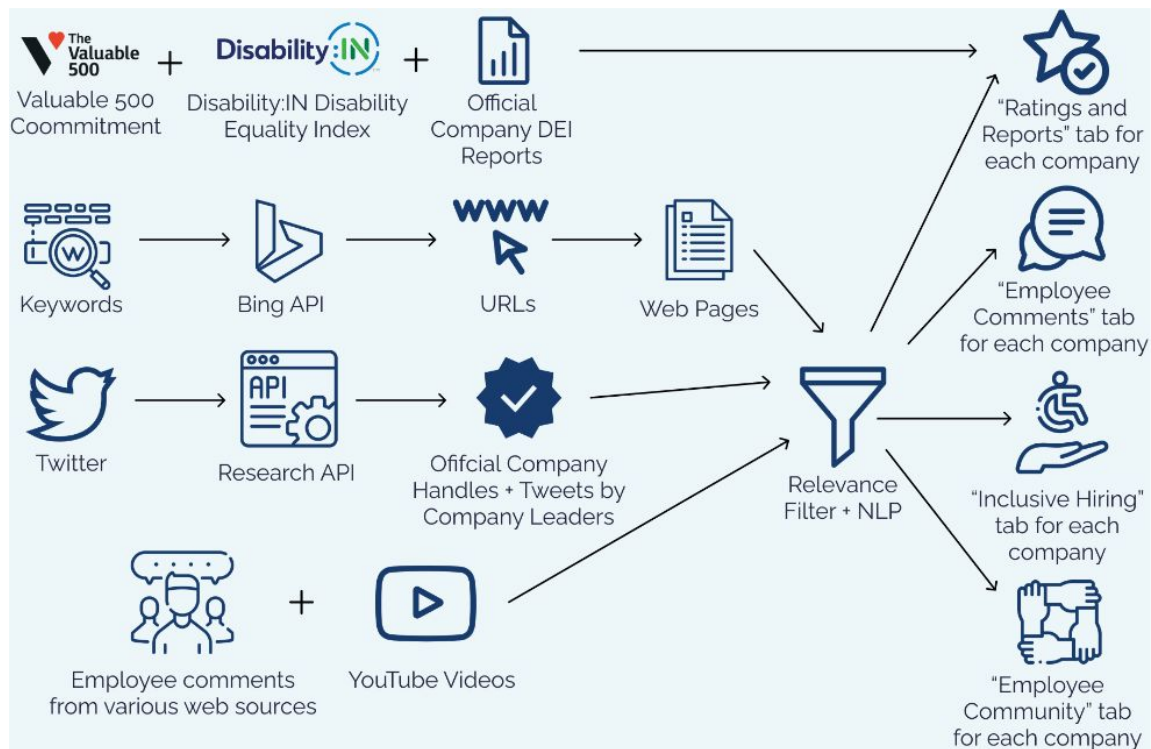
Project Outcome - Web Application

Web app URL:
https://projectinclusion.heroku app.com/

Homepage:
The landing page of our web app includes an accessible search box that allows users to view and select companies from a drop down list. We've also kept the page as minimal as we could, with just 2 other logos (one for Microsoft and the other for the University of Washington).

Project Inclusion

Select Company Submit

Project Outcome - Web Application (2)

Company Page:

For each company, we've categorized information into multiple tabs, with each tab having sub sections (and corresponding explanations where applicable). Here's an example of the Mission and Vision tab for Microsoft, which includes Microsoft's mission statement, their vision statement, corporate values and their Valuable 500 commitment (with an explanation of what Valuable 500 stands for).

Microsoft

Mission & Vision

Employee Community

Ratings & Reports

Employee Comments

Inclusive Hiring

Feedback Form

Return to Home

Mission Statement

Our mission is to empower every person and every organization on the planet to achieve more.

Vision Statement

Our vision is to help people and businesses throughout the world realize their full potential.

Corporate Values

Our people, our technology, and changing the world.

The Valuable 500 Commitment

The Valuable 500 is the global CEO community revolutionising disability inclusion through business leadership and opportunity. Valuable 500 companies and leaders have committed to putting disability inclusion on their business leadership agenda.
Valuable Leader: Satya Nadella

Microsoft's Valuable 500 Commitment:
The Microsoft mission is to empower every person and every organization on the planet to achieve more. This includes the over 1 billion people with disabilities around the world. To live our mission, we strive to create accessible products, services, websites, and company culture for all.
We are taking an integrated approach to disability inclusion, embedding four accessibility pillars into the DNA of the company:

Web App Accessibility

- Since the primary audience for our web app were persons with disabilities, we wanted to make sure that our web app was accessible.
- We thus ensured that our design followed accessibility standards and guidelines, which meant including alt text for images, choosing colorblind friendly color schemes, and making the website navigable by keyboard.
- During development, we used online accessibility testing tools to ensure that our web app met Web Content Accessibility Guidelines (WCAG) 2.1 standards.
- With help from our sponsor, we were able to run our web app through potential end users who identified as having a disability, and were able to factor in their feedback.
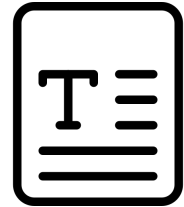
Accessible Design
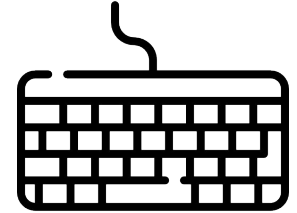
Navigable by Keyboard

Colorblind Friendly

Alt Text

Benefits

The Big Picture

Promote equity & inclusion of information access

Empower underserved & marginalized communities

For Job Seekers

Accessible web application
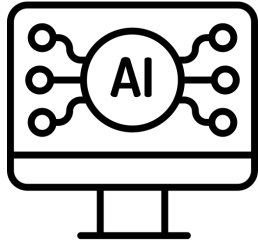
Centralized source of information
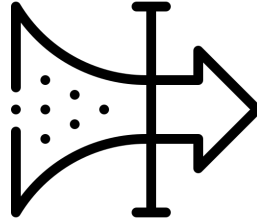
For Employers

Identify gaps in Information

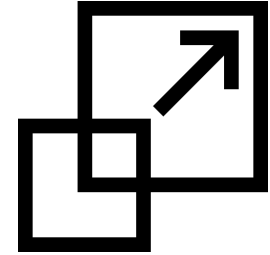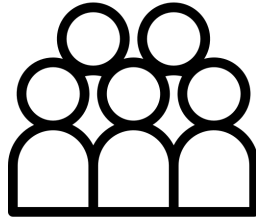Bring them closer to the needs of candidates
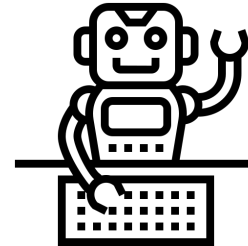
Next Steps

Involving advanced AI/NLP

Including wider audience for user research

Improving relevance filter algorithm

Automating end-to-end process

Scaling website to include more companies/industries

The Team

Aayush Shah

Shikhar Shah

Vaibhav Rao

Thank You!

Appendix

- Link to project (web application) - https://projectinclusion.herokuapp.com/
- Link to video walkthrough of web application - https://www.youtube.com/watch?v=R6R0PL0jpKg&ab_channel=AayushShah
- Link to iSchool website with project poster and other project info - https://ischool.uw.edu/capstone/projects/2021/project-inclusion-centralizing-inclusive-employer-related-information-using
- Link to project poster (not accessibility friendly) - https://projectinclusion.netlify.app/
- Link to iSchool blog post featuring our project - https://ischool.uw.edu/news/2021/05/msim-team-partners-microsoft-aid-job-seekers-disabilities
- Link to GitHub repo with project code - https://github.com/aayush1909/inclusive-employement