Leveraging the Power of Artificial Intelligence for Candidate Matching

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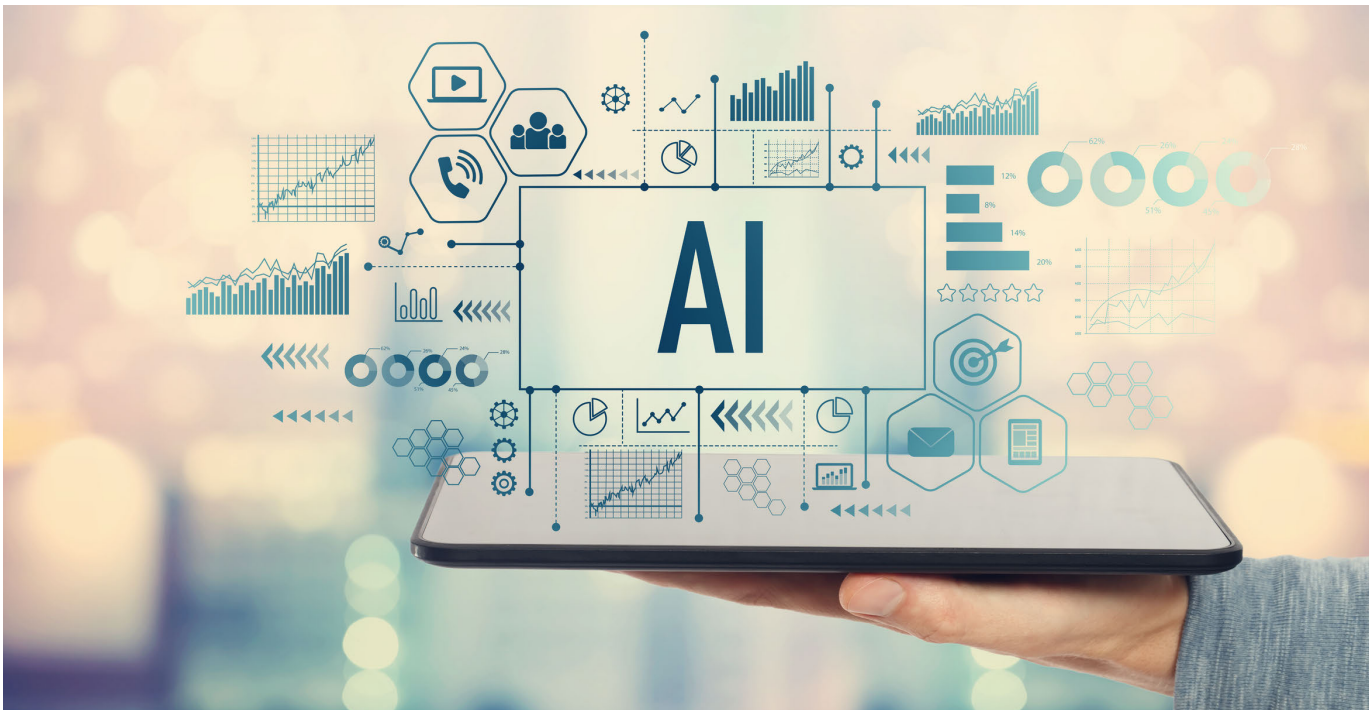

Many candidate search services consist of basic keyword entries into a search box, leaving recruiters to sort out what keywords they should use to get the best results. This method has drawbacks, and it can lead recruiters and employers to miss out on quality candidates from a larger pool of relevant individuals.

At Recruitology, we have developed Candidate Search, an automated system for candidate matching powered by artificial intelligence and more specifically, machine learning. Candidate Search reduces the time-consuming task of candidate-screening, and more importantly, speeds up the identification of the best candidates that fit a particular job.

Candidate Search ranks candidates with a matching score and puts them in “relevancy buckets” (including Great Match, Good Match and Possible Match), relative to a specific job based on the candidate’s qualifications and past work experience.

01

How We Match

The matching process starts by analyzing job descriptions and resume documents to identify and extract relevant data and then classify it according to occupations, skills, work activities, credentials (licenses or certifications), and education.

02

Normalizing Data to Get a Good Comparison

Once extracted, the structured data passes through a normalization process. Normalization is very important, as it expresses candidate profiles and job requirements in the same terms. This enables our technology to calculate the matching score. For example, if the system is matching a nursing assistant job, it will normalize the terms “CNA” and “Certified Nursing Assistant” from various candidate resumes as the same job title, ensuring these titles are both counted and not ignored in the matching process. Other job titles in different healthcare settings may include “personal care” or “psychiatric assistance.” By normalizing, we ensure that all relevant job titles and concepts are included in a search.

03

Building an Adaptive Learning Skills Dictionary

To keep up with emerging skills and technologies, we have developed an ever-growing adaptive learning skills dictionary. We continuously analyze thousands of jobs and resumes using natural language processing methodologies. When new skills and technologies are identified in a candidate resume or job description, these skills and technologies are automatically flagged, evaluated, and added, if they pass our evaluation threshold.

Another key component of Candidate Search is semantic skills matching, which measures the similarity between documents based on their semantic content -- the underlying meaning of terms -- instead of syntactic representation -- how the terms

fit together in context. The great advantage of semantic matching is that it will find relationships between skills that are worded differently. For example, the system will recognize the term “housekeeping” as being similar to the keyword phrase “house cleaning” or “household chores”.

04

Leveraging and Augmenting Third-Party Taxonomies

To analyze candidates, work experience is normalized by leveraging occupational taxonomy data from sources such as O*NET, an open database sponsored by the US Department of Labor. Occupational data normalization enables Candidate Search not only to match on fixed roles but similar roles as well, as it explores if the candidate’s experience and career pathway aligns to a job’s position. This way it can discover candidates that can make use of their current skills and experience with a minimum preparation to fill in a job position. In addition, the matching algorithm will rank candidates based on the demonstrated experience, for example a candidate with a current role will be ranked higher than a candidate with the same role held 10 years ago.

05

Predictive Analytics Helps Create a More Complete Job Description

Candidate Search also works by taking job postings that are poorly written and augmenting the job description with expanded job requirements, based on skills and capabilities trends discovered by predictive analytics techniques in Recruitology’s extensive database. For example, an employer may enter a job description with a job title and only a few sentences describing the job. Requirements completion ensures we have a more expanded job description so we can match it against a pool of relevant candidates. This allows us to deliver a list of ranked candidates to an employer for their particular job, even if they provide little information about the job, or it’s only a job title and a few lines.

06

Advanced Matching Technology Eases the Hiring Process

Artificial intelligence, natural language processing, machine learning, and data analysis are powerful tools that facilitate the match between the right candidate and the right job. They allow employers to go about their business posting jobs, and searching for candidates, while augmenting the results they receive. Our role at Recruitology is to work on these technologies behind the scenes, with employers and candidates often not even being aware of them, and not having to worry about making sure they've found the right match.

About the authors

Alejandra Salazar is a data scientist for Recruitology, where she focuses on leveraging artificial intelligence to help employers connect with talent. She has a Masters in Data Science from the University of New Haven.

Roberto Angulo is the founder and CEO of AfterCollege, Inc. and its sister company, Recruitology. Roberto is active in the SF Bay Area tech community and authored Getting Your First Job, as part of the For Dummies series. He has an A.B. in Economics from Stanford University.

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