Case Study

Meeting the needs of job seekers and recruiters with scalable **machine learning models**

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Summary

FUZU is a Helsinki-based company that aims to provide ambitious young East African professionals with job opportunities, career advice and new skills. Two years ago, the company began working with MindTitan to create machine learning models with the aim of streamlining its user onboarding experience and boosting engagement through personalised recommendations.

Outcomes

1. Built an effective recommendations engine that matches job seekers with potential employers.
2. Input data for the recommendation engine is obtained by classifying data from uploaded text documents such as resumes and cover letters.
3. Click-through rate for job applications increased by 30%
4. Classifies education level with 90% accuracy
5. Enabled Fuzu to become increasingly data-driven and laid the groundwork for further machine learning and natural language processing projects.

Meeting the needs of job seekers and recruiters with scalable machine learning models

According to the World Economic Forum, 15 to 20 million increasingly well-educated young graduates will enter the African workforce each year for the next three decades. It's therefore essential to ensure that they are provided with the chance to both improve their skills and access relevant, high quality career opportunities.

"Most of our users are young, ambitious professionals," explains Atte Keinänen, Head of Engineering at Fuzu Ltd. In 2015, the company launched a comprehensive career platform for the East African job market that provides job seekers with employment opportunities and recruiters with well-suited candidates. The company currently serves more than one million users in Kenya, Uganda and Nigeria.

15 000 000 +
well-educated young graduates each year join workforce

1 000 000 +
users in Kenya, Uganda and Nigeria

In 2019, Fuzu partnered with MindTitan to provide users with a streamlined, hassle-free onboarding experience and relevant job recommendations that were personalised to their skill sets and requirements.

FUZU
in 2019

→ → →

MINDTITAN
partner

Improving the user experience with streamlined onboarding

Alongside a job search platform, Fuzu offers learning resources, career advice and a thriving user community. “We serve a wide range of job seekers,” Atte explains, “but a typical user for us is a young university graduate in a major city, such as Nairobi or Mombasa, who may or may not already have some work experience. Fuzu is often a launch pad for people to land their first job, which is an exciting place to be in.”

> **We have always been a data-driven company, and we ask many questions from new users [such as their level of education] for providing them with accurate recommendations. To increase the registration completion rate, we wanted to reduce the amount of questions we as from our users.**

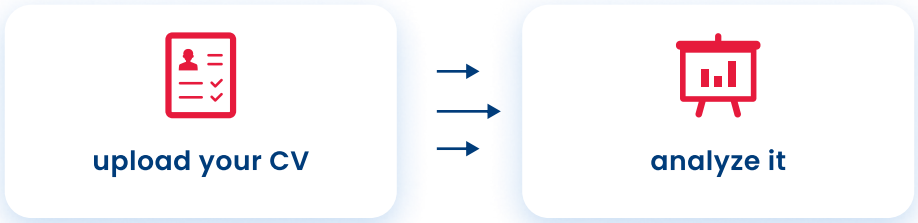
Atte Keinänen
Head of Engineering at **Fuzu Ltd**

Since its beginnings, the company has sought to support people through every step of the job seeking process, by helping them build detailed, visually-appealing resumes, identify their strengths and weaknesses and see how they compare to other candidates when applying for jobs. In order to do this, the company has to obtain considerable amounts of information from new users, which in the past meant a sometimes cumbersome onboarding process.

We have always been a data-driven company, which is why we have the most accurate ranking of job seekers and accurate job recommendations on the market. We ask many questions from new users to achieve the high-quality recommendations. To increase the completion rate of our registration flow, we wanted to reduce the amount of questions we ask. This will lead to a higher amount of fully filled user profiles, and increase the quality of the services provided.

At the same time, many potential users had pre-written resumes, cover letters and diplomas available in the form of text documents. While most job search websites require these types of documents to be uploaded separately in order to conform to platform data standardisation, Fuzu decided to make use of that text data to facilitate the onboarding process.

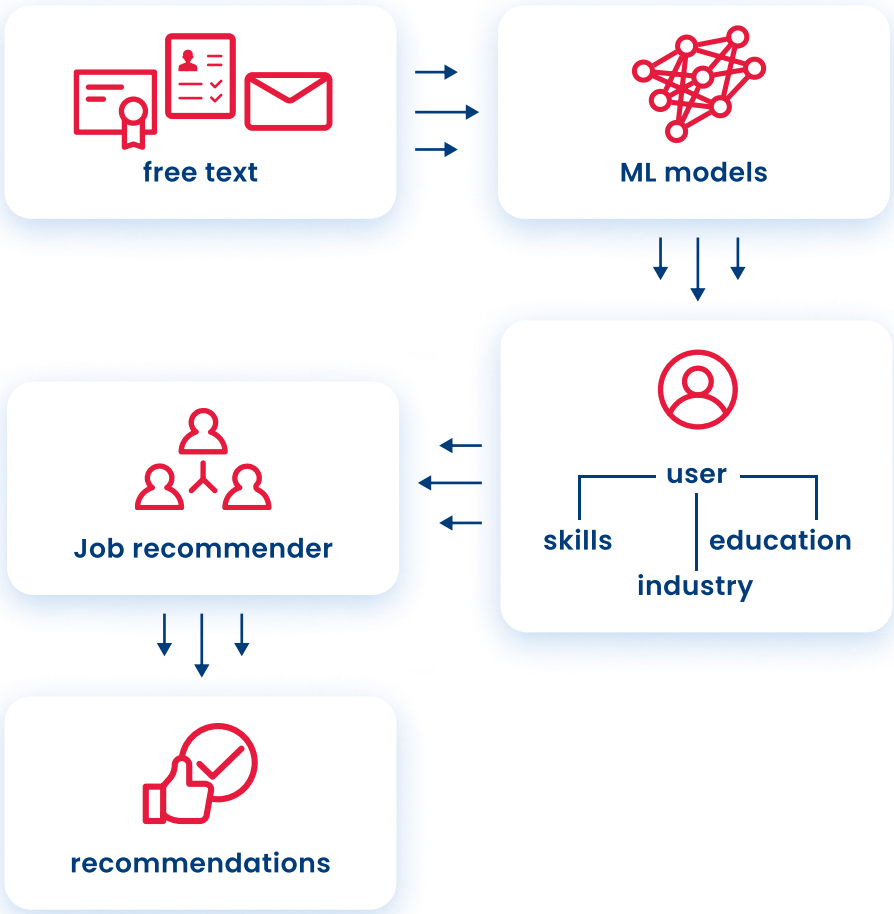
"Instead of requiring users to answer lots of questions, we ask them to simply upload their CV and then analyze it to provide a good user experience and accurate job recommendations," Atte says.



Keeping users engaged with personalised offers and recommendations

"When we began our collaboration with MindTitan, we already had a considerable amount of data based on the tens of thousands of jobs that we had posted since 2015. **The question we were asking was, how can we leverage this data and this system to provide additional benefit to the customers?" Atte says.**

These datasets were used as a starting point by MindTitan to start building and training machine learning models. Free text extracted from the resumes and cover letters uploaded by users classified into skills, seniority, industry and education level among others.



This not only means that users no longer have to spend time manually filling in their Fuzu profiles, it also enables the platform to provide them with job recommendations that fit their needs. At the same time, Fuzu can provide companies and headhunters with potential employee profiles with the skill sets they're looking for.

The platform makes recommendations based on users' previous interactions with the platform, including past job applications. While it's still early days, the Fuzu team has already observed some impressive changes. "These models provide us with a good understanding of users' educational backgrounds," Atte says, **"We're now able to determine education levels with 90% accuracy."**

Alongside an easy onboarding process, personalisation is key to user satisfaction and ensuring that busy job seekers and employers keep coming back to the platform. Fuzu sends out regular emails with personalised suggestions for jobs that candidates may like to apply for. Nowadays, marketers are well aware that useful, personalised content is what keeps emails out of spam filters and relevant to users' needs.

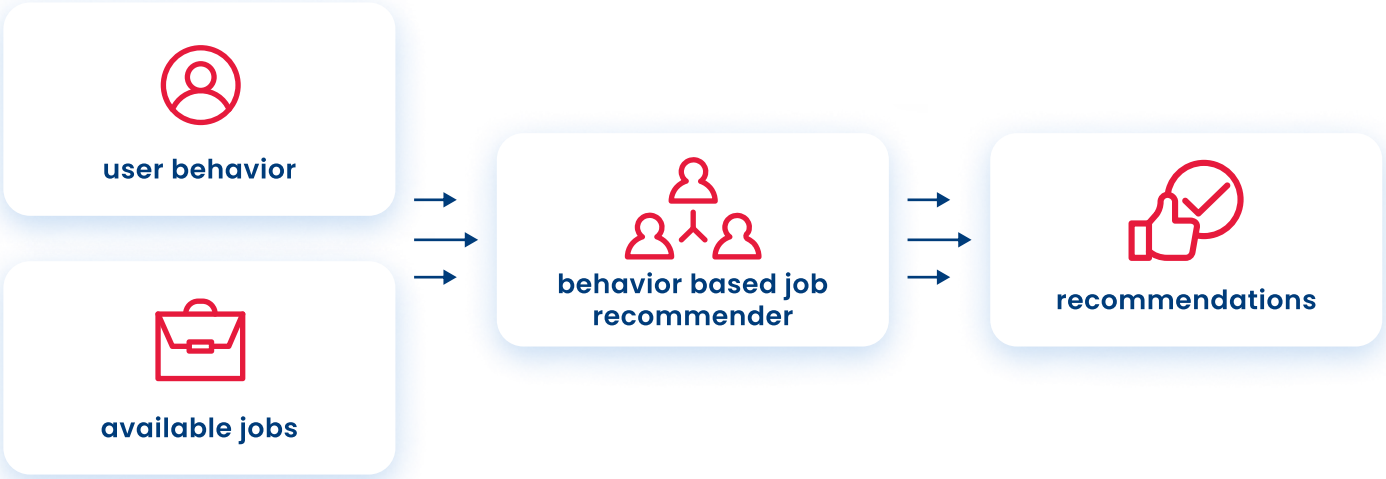
"Since launching our job recommendation algorithm based on user behavior, our click-through rate for applications has increased by 30%," Atte explains.

Ensuring scalability and room for growth

The job offers on Fuzu come from two sources: user submissions from companies seeking to recruit new employees, and cross-posted content from partnerships with other job search platforms. By using categorization algorithms, Fuzu has been able to spend considerably less time on identifying and posting content from partner platforms that is of interest to their users.

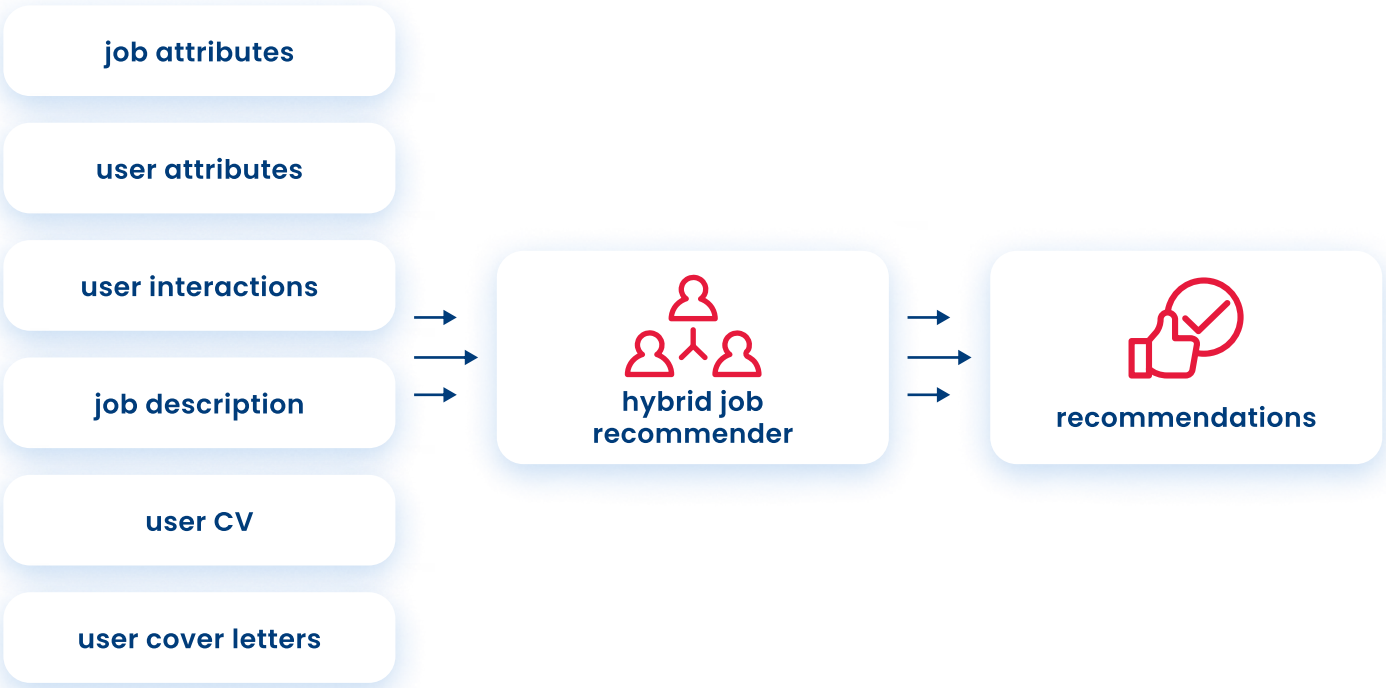
"We can now recognize specific industries with a high level of accuracy," Atte explains, "Whether it's a healthcare, agriculture-related or software development job, we can now pre-fill lots of fields, like educational level and job category, thanks to these predictive models". Behavior recommendations are made using collaborative filtering, while hybrid neural networks enable integration of textual and structured data in order to take into account all available information.

Behaviour Based Recommendation Engine



"We want to make our platform as scalable as possible," Atte says "so we're continuously working to iterate and improve the models built by MindTitan and find new ways to use them.

Hybrid Job Recommender



Last month for example, we were able to double the speed of some of the algorithms". “We have always been data driven, but working with MindTitan was what enabled us to really launch our data science and machine learning work. Together with MindTitan, we can continuously grow and explore new areas where we can use these technologies.

> **“It’s good to know that when we want to take our language models to the next level, we can call on MindTitan’s expertise. They feel like an extension to our team, rather than just consultants. I know I can reach out and get an answer to my question the very same day**

Atte Keinänen
Head of Engineering at **Fuzu Ltd**

The Fuzu team is looking forward to continuing its text analysis work and exploring the possibilities offered by natural language processing. “There are huge advances all the time. At some point, we may be able to use NLP to help people write better job applications. We want to keep trying out all these cutting edge technologies to see how they could benefit our users, and look forward to continuing to work with MindTitan on those projects.” Atte concludes.