AI for Good: Neural Networks for Nonprofit Program Management

Abdus, one of 41,818 graduates from BRAC's apprenticeship model in his mentor's shop (in 2016).

The Power of AI: Equal Employment for Youth with Disabilities

As many nonprofit program managers know, finding jobs for youth with disabilities can be a challenge. Why is this such an issue? One major reason is that skill development programs may not be linked to what employers need.

One way to address the challenge of enabling youth with disabilities to develop the skills that employers want is through apprenticeship programs. We work at BRAC, one of the largest, fastest-growing NGOs in the world, and we've had great success running an apprenticeship program that uses artificial intelligence (AI) to improve our program results. This article aims to illustrate how we use AI technology to make our program successful.

The ROI of Our Apprenticeship Program

At BRAC, we pair adolescents who have dropped out school with a master craftsperson as part of a six month program. A master craftsperson is usually an experienced shop-owner or experienced worker within a particular trade. The program is called Skills Training for Advancing Resources, or STAR, and was presented as one of nine global solutions for young people by UNICEF's Generation Unlimited initiative. With STAR, two apprentices per shop learn a hands-on trade, which is chosen based on current market demands.

The results speak for themselves: 95% of STAR graduates find a job within one month of graduating.

A Successful Program Requires Mentors

To help people with disabilities be job-ready, they need to be matched with great mentors. Therefore, one of STAR's goals has been to create a community of master craftspersons that can successfully train, as well as mentor, to ensure that their protégés complete the program.

To find the right mentors, STAR used machine learning, a specific application of artificial intelligence, to process the data collected with Taroworks and Salesforce.org Nonprofit Cloud. An artificial neural network (or ANN) was used to analyse 7 years of data from business owners who have successfully trained people with disabilities since 2012. The data included their demographic profile, financial condition, professional experience, and educational background. This resulted in a trained model that could predict whether a master craftsperson was a likely candidate for successfully training young people with disabilities.

These are the four most significant factors of a master craftsperson's profile we have determined as most relevant for predicting whether or not she or he will be an effective mentor:

1. They have earned a minimum of a junior school level certificate
2. They own the business they are running
3. They have previously trained people for at least 4,000 hours
4. They have had at least 8 years of business experience in the particular trade

By taking advantage of the data analysis capabilities of AI technology, STAR has created a pool of reliable business owners across Bangladesh, even in the most underserved areas. Additionally, a trend among the apprentices with disabilities was observed. The success rate for graduation and graduates' income are significantly higher when they specialize in the following top three trades:

a. Tailoring and dressmaking for women
b. Tailoring and dressmaking for men
c. Beauty salon work for women

Our application of machine learning is now at a point where it automatically adapts to changes in the collected data of business owners. Before we started using AI for BRAC, our STAR program had 865 mentors suitable for youth with disabilities, but now we have 407% more mentors. Alongside this trend, we have seen a 2% increase in youth with disabilities that completed the program – within only 6 months time – a number we expect to quickly rise, given the large increase in available mentors.

BRAC program participant Shabnoor learning a trade hands-on with a customer in a beauty salon.

A Success Story of STAR Program Participants

Abdus Sobhan was 10 years old, working with his father on their farm, when their plow power tiller hit his foot and did so much damage that he lost his left leg. His relatives helped to cover his medical expenses, but he could not continue his education or find a job. Thankfully, there was an alternative route for success.

In 2016, Abdus started an apprenticeship as a tailor. His trainer, Tachmina, helped him to get his self-confidence back by teaching him how to run a business. “I was more than happy to teach the young man,” Tachima said. “I wanted Abdus to understand that he has just as much potential as anyone else.” Now, Abdus is 20 years old and earns 16,000 Bangladeshi taka (about $191 USD) per month. This is twice as much as the current minimum wage in Bangladesh’s garment industry. He is able to save money and is planning to open his own tailoring shop in Dhaka, the capital of Bangladesh.

Abdus in his current workplace in Dhaka, Bangladesh

Program Management with AI Is Not Rocket Science

You're wondering about how to enhance your nonprofit program with artificial intelligence? You can start moving your data to the cloud. That's the first step to process your data and finding actionable insights. Once you have moved the data to the cloud, results can quickly be seen with with tools like TaroWorks and Nonprofit Cloud.

At BRAC, we have used Taroworks and Nonprofit Cloud to create and administer mobile data collection surveys, digitize key elements of daily field management, and identify trends or roadblocks by visualizing the data on dashboards. What was really exciting for us was that field staff – who were not accomplished technology users – embraced the mobile app and cloud platform, to the point of even offering ideas for new data collection forms and building custom reports themselves. As a result, BRAC scaled the system from the original 15 pilot branches to 141 branches overnight. Currently, we have a database of around 84,581 people with the plan to expand to a half million over the next few years.

REFERENCE:

[1] Syed, Samira, and Shifur Rahman Shakil. "AI for Good: Neural Networks for Nonprofit Program Management - Salesforce.Org." Salesforce.Org, 11 Feb. 2019, www.salesforce.org/ai-for-good-neural-networks-for-nonprofit-program-management/. Accessed 22 July 2019.