



How AI is driving more inclusion

Marcus Law



AI in conjunction with machine learning can play a crucial role in transforming braille to text

From mobility solutions to enabling online shopping for the visually impaired, Raymond Ma, GM Europe, Alibaba Cloud, explains the assistive benefits of AI

Whether it's facilitating online shopping for the visually impaired, or an Alzheimer's test in a payment app, AI raises accessibility to a new level, making digital participation easier for seniors and people with visual impairments.

"Digitalisation can make a major contribution to independence and quality of life well into our advanced years," explains Raymond Ma, General Manager of Europe, Alibaba Cloud. "Thanks to online shopping and digital services, the elderly with physical disabilities can manage their everyday lives in a much more convenient way these days. Social networks, e-mails or video telephony programs also serve to combat social isolation in old age, addressing the issue of loneliness that can affect many people as the years advance.

"If seniors are 'offline' in these digitally-connected days, it is often due to the internet's complexity. This was the reason given by 42% of the 3,000 people aged

55 and over surveyed by cybersecurity company, Avast, in 2022 about their internet habits and behavior. Accessibility initiatives must therefore dramatically reduce complexity. Here it comes down to the integration of functions that are kept simple, such as increasing font sizes on websites or apps on one hand, and improving complex, target group-specific applications on the other.”

Taxi app for senior citizens - intuitive and on the spot

“Mobility is an important pillar of social participation,” Ma comments. “In isolated regions without a reliable and well established transport network, people that don’t have access to public transport or a car, are dependent on alternative transport services, such as ride-hailing. However, many ride-hailing apps are not friendly for older people to use.

“The Chinese navigation platform, Amap, shows what can be done. It has greatly simplified the ride-hailing experience in cooperation with the China Aging Development Foundation. A total of over 2,500 ride-hailing stations have been installed in 20 cities in China. They are easy to reach, as they are near apartment complexes or bus stations. Highly visible QR codes are placed there. If senior citizens need a ride, all they have to do is scan the QR code with their smartphone and they are directed to a page where they have to press a flashing button. The app does the rest - without cumbersome clicking through menus and the user-confusion that comes with it.”

AI app supports Alzheimer's pre-screening

“Even if some seniors are still hesitant about jumping into the digital world, they are currently the fastest-growing group on the net. That’s why web portals and apps represent a valuable touchpoint to the ageing target group, especially - for research. Take Alzheimer's, for instance. Many people shy away from going to the doctor, either out of shame or because they do not notice the first signs of dementia themselves.

“While apps for early detection of Alzheimer’s disease are still in their infancy in Europe, in China they have already become part of everyday life for many seniors,” Ma says. “Through a mobile app, seniors can answer cognitive tests in speech form and complete the classic clock test. This takes just ten minutes. The AI-powered app makes a preliminary assessment, relying on multimodal learning algorithms to analyse speech and writing.

“The app forwards the preliminary test results to a medical expert for validation. The final assessment is available within seven days. People who are classified as

particularly at risk based on their test results are advised via push notification to contact a medical expert.”

Braille to text - in a few seconds

“Sight deteriorates with age, but seniors are not the only group of people who benefit from enhanced visual accessibility. A total of 285 million people in the world live with a visual impairment, according to the World Health Organization (WHO). This group should not be neglected in the digital space. With screen readers, e-books and text to speech and speech to text solutions, accessible alternatives have swept the market. But Braille is still an important information vehicle for people with visual impairments. The translation of Braille is highly complex, though. Even today, translation programs require additional human expertise to create an accurate translation. This is where AI in conjunction with machine learning can play a crucial role.

“In a pilot project, the DAMO Academy, tested a Braille-to-text program based on AI. A combination of Optical Character Recognition (OCR) and Machine Learning now enables the real-time translation of Braille. The Braille is scanned with a small device and converted into a digital dot pattern using AI-supported image processing. The dots are translated into the romanised spelling for Mandarin, then into characters using Natural Language Processing (NLP). Thanks to powerful algorithms, the translation takes a few seconds. The translation system can even cope with Braille graphics, chemical formulae or mathematical equations.”

Online shopping without barriers

“Ordering goods online with just a few clicks, doing the weekly shopping, playing games or taking advantage of multiplatform offers, are day to day activities that most users take for granted when online. But they’re not often accessible to senior citizens or people with visual impairments. That’s why accessibility features are important to enable an inclusive shopping and entertainment experience for people of all ages and abilities.

“In China, for example, one of the country's largest online marketplaces, Taobao, makes it easier for older people to use the app with its ‘senior mode’ through larger fonts and icons as well as easier navigation and support for voice commands. It uses OCR technology to make it even easier for people with visual impairments to use. The AI-based feature makes image captions of over 100 million images daily accessible to screen readers. This is an enormous relief, given an average product page contains around 40 images.

“In order for people of all ages to benefit from technological progress, companies must rely on creative solutions and new developments, and that means taking a good look at initiatives where inclusive AI applications are used to make digital life accessible to all.”

Video of The Week

Explore some related information to above article at following link.

https://www.youtube.com/watch?v=aemH_KpNfsk

https://www.youtube.com/watch?v=xw3H_Gsy84w

<https://www.youtube.com/watch?v=fO24yEXd028>

https://www.youtube.com/watch?v=JzIx1zrN_yU

<https://www.youtube.com/watch?v=gxaSVil4ESI>

News of The Week

Small-town freshers learning new-age tech skills to crack IT sector jobs

More and more candidates are registering to learn these skills in hopes of finding better employment opportunities in an increasingly competitive job market

Smaller towns and cities have registered a jump in the number of young engineers taking up cutting-edge, high-demand tech skills such as Gen AI, Machine Learning, data science, cloud computing, Fullstack development, and EV design, *The Economic Times (ET)* has reported. More and more people are registering to learn these skills in hopes of finding better employment opportunities in an increasingly competitive job market, the report said.

The newspaper cited enrollment data from smaller towns like Madurai, Nagpur, Vishakhapatnam, Coimbatore, Lucknow, Indore, Tiruchirapalli, Mysuru, Kottathur, Bhubaneswar and said that candidates registering from these regions accounted for more than 40 per cent of total candidates in 2023 compared to 30-32 per cent a couple of years ago, the *ET* report added.

upGrad, an online learning platform, registered a 50 per cent quarter-on-quarter rise in enrolments from freshers hailing from non-metro locations in the second quarter compared to the previous quarter.

IT sector facing challenges

The development is significant given the information technology sector, which happens to be the largest recruiter of white-collar talent, has been faced with

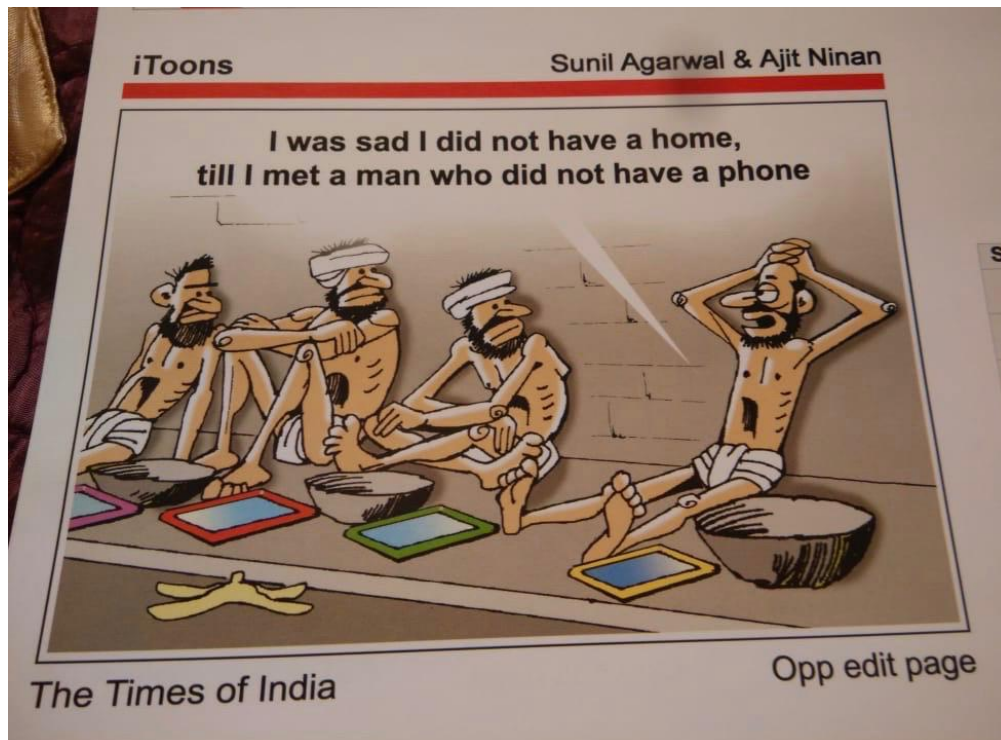
numerous challenges. In recent times, IT companies have decided to skip campus placements, cutting majorly on their entry-level recruitment, in order to control costs. Young graduates are spending Rs 1-4 lakh to acquire the niche skills to increase their chances of landing a good job.

What do the experts say?

Talking about the trend, cofounder of Great Learning, Hari Krishnan Nair told *The Economic Times*, "There is a conscious effort by freshers in the Tier 2 and 3 cities to acquire the latest skills to excel in a competitive job market as the selection process for entry-level talent is becoming more and more stringent in a tough job market."

Another industry expert, Co-founder of upGrad, Mayank Kumar was quoted in the report as saying, "Many in the smaller towns do not have access to quality higher education infrastructure. In many cases, the college curriculum is also not up to date. This is prompting many young engineers and graduates to learn skills that could give the relevant proficiency that many employers are looking for."

E Toon



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