TECHNOLOGY HIGHLIGHTS

AR IN BEAUTY AND MAKEUP

Utilizing Object Recognition Technology, Tmall's Beauty Channel applies the latest AR technology to showcase makeup application results. The AR engine can display the applied makeup on seven facial features - including lips and eyebrows - within milliseconds, which greatly enhances the convenience of online beauty-product shopping.

SMART LIVE BROADCASTING

Today, live broadcasting has become an increasingly essential tool for attracting Chinese consumers. During peak times, online viewers of live broadcasts can reach up to two million people. To ensure a smooth and optimized viewing experience, Taobao has developed a new, real-time communication framework for audio and video streaming. Thanks to the technology, the signal latency has been reduced from five to seven seconds, to less than two seconds, which greatly improves the real-time interactive experience between broadcasters and users. In addition, speech AI can identify products mentioned by the broadcasters during livestreaming, and audiences can view product links displayed on the screen simultaneously.

TMALL GENIE VOICE SHOPPING

Tmall Genie – the smart speaker developed by Alibaba A.I. Labs - launched "voice shopping" for this year's Alibaba Global Shopping Festival. Users can place orders through voice commands via Tmall Genie, and for those who have activated the 'voice print' feature, they can also make transactions directly through Tmall Genie. During the pre-sales period, over three million users had experienced voice shopping, and over 600,000 orders were generated through this innovation.

Hundreds of consumer brands also partnered with Tmall Genie for this year's voice shopping experience. Products ranging from eggs, rice, laundry and cleaning products and yogurt, were among the most-popular products purchased using the voice shopping technology.

SMART CUSTOMER SERVICE CHATBOT

Alime Shop Assistant, which is a customer-service chatbot supported by Alibaba DAMO Academy's machine learning technologies, has served over 50 business units within the Alibaba ecosystem. The chatbot can support communication between buyers and sellers in over 10 languages - including English, Chinese, Portuguese, Spanish, Russian, Indonesian, Thai, Malaysian, Arabic, French and Vietnamese - and is compatible with cross-border e-commerce platforms, including Lazada and AliExpress.

For this year's Alibaba Global Shopping Festival, Alime has rolled out new features, including the ability to answer questions during live broadcasts, extracting answers from pictures and responding in a wide range of conversational styles.

- o **Chatbot for Live Broadcasting**
  The chatbot tailored for live broadcasts can understand and address complex questions raised by viewers – thanks to Alibaba's leading Natural Language Processing (NLP) and knowledge graph technologies. The swift response generated by the chatbot to questions raised by multiple viewers at the same time, can greatly enhance the shopping experience.

- o **Smart QA through Pictures**
  Alime can analyze the content of pictures through image parsing algorithms and automatically extract pictures that best address users' particular questions. It can then highlight the exact paragraphs or phases in the picture for users' easy viewing. To date, the technology has been used to answer queries related to different products, including home appliances, food and mum-and-baby items.

- o **Generating Text in Different Styles**
  Based on Data-to-Text and Group-to-Text technologies, along with knowledge grasp, Alime can now automatically generate a text response in four different styles based on merchants' actual needs – including formally written, orally, well-phrased and casual styles. The ability to respond in different styles to different target customers, is expected to be beneficial for merchants to convert inquiries into transactions.

MACHINE TRANSLATION IN 20 LANGUAGES

Alibaba DAMO Academy provides enhanced machine translation technology for the cross-border e-commerce platform, AliExpress. The technology can help small and medium-sized merchants globally to automatically translate their store and product pages into 20 languages, including Russian, Spanish, Turkish, French and Arabic, for buyers across Europe, Asia, America and the Middle East. In addition, an AI chatbot and a business consultation function in different languages were also provided to over one million merchants to help them gear up for Alibaba's Global Shopping Festival.

The machine translation technology is also used to support Lazada for real-time translation in six languages to facilitate communication between buyers and sellers in the South East Asia region, as well as localization of product pages and promotional information.

GREEN DATA CENTER

Alibaba announced it has successfully reduced energy consumption through self-developed green technologies, including liquid immersion and deep-water cooling. At such, the power consumption for every 10,000 e-Commerce transactions will be reduced to as low as 2 kWh. By immersing the servers into a specialized insulating coolant, the heat generated can be absorbed into external circulation cooling. As a result, it is expected that data center energy consumption can be reduced by as much as 70%, saving over 200,000 kWh on the day of the world's biggest online shopping festival.

An AI algorithm is also deployed to optimize the server load in the data center, as a way to facilitate smart control of electricity and thermal energy in order to enhance further energy savings.