Luis von Ahn

Luis von Ahn is a software engineer, an entrepreneur and a Consulting Professor in Computer Science at Carnegie Mellon University in Pennsylvania. He was born in 1978 in Guatemala. He is known for pioneering work on CAPTCHAs, as the founder of reCAPTCHA and as the founder and CEO of Duolingo.

Early Life and Education

Von Ahn grew up in Guatemala City with his parents who were both physicians. He attended a private English school there, which he has described as a great privilege. His mother bought him a Commodore 64 computer at age eight, this sparked his curiosity and fascination with technology and computers.
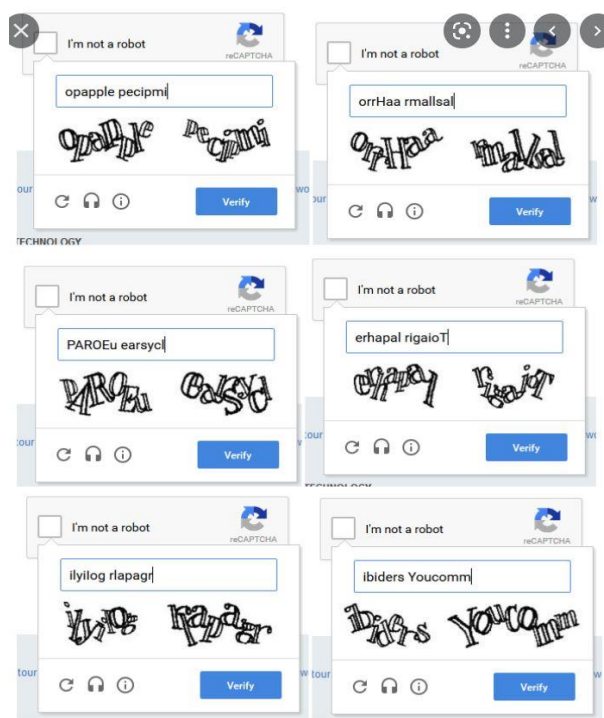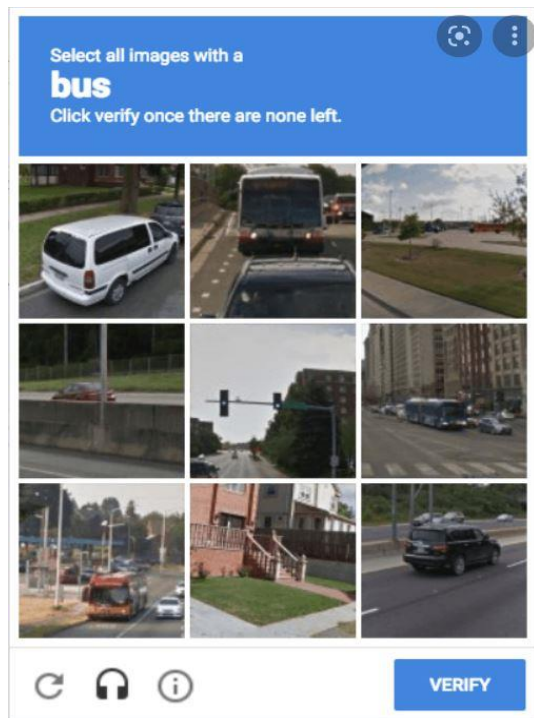
After leaving school, he attended Duke University where he earned a BS in Mathematics in 2000. In 2005, he achieved his PhD in Computer Science at Carnegie Mellon University. A year later he became a faculty member there, in the Computer Science Department.

Work

Von Ahn's early work was researching in the field of cryptography. He coined the term 'human computation' in his PhD thesis in 2005. This refers to methods that use both human work and computers to find solutions to problems that couldn't be solved with only one or the other.

While working with his thesis advisor Manuel Blum, Von Ahn did ground-breaking work on CAPTCHAs. CAPTCHAs, standing for "Completely Automated Public Turing test to tell Computers and Humans Apart", is a test to determine if a user is human or not. They are sometimes described as reverse Turing test as the computer is testing the human.

CAPTCHAs are most commonly based on reading distorted text or picking objects out of an image. The test uses the human sensory and cognitive ability to solve simple tasks that are extremely difficult for a computer to mimic. These skills included the recognition of distorted letters and objects when the image is noisy. Humans can separate one letter from another even when they are crowded close together leaving very little white space between them, as they are in CAPTCHAs. Humans can also recognise characters with a lot of variation to their shape, teaching a computer to identify all these variations would be very difficult. This makes CAPTCHAs very hard for a computer to solve.

Von Ahn invented reCAPTCHA in 2007 after realising that the 200 million CAPTCHAs being completed everyday at the time, could be used in a more productive way. reCAPTCHA is used to digitise books. It does this by showing multiple users words that the optical character recognition could not identify and when their answers match, it returns the digitised word to its sentence in the book.

In 2008, Von Ahn created Games with a Purpose, or GWAPs, which are games used to collect human knowledge necessary for a computational problem. The most well-known example of these is the ESP Game, which Von Ahn developed. Its an online two player game with both players being shown the same image and having to write a phrase or a list of words that describe the image. If their answers match, they win a point. These matches are correct descriptions of the images and are used for more precise image search technology. Google uses the ESP Game to make their Google Image Search more accurate.

In 2009, along with Severin Hacker, Von Ahn created the massively popular and successful language learning app, Duolingo. It was originally started as a translation tool but soon shifted focus to language learning. In the early stages, Von Ahn read many books on language instruction and researched the 3,000 most used words for each of the languages. He used these words to construct basic sentences. An algorithm was used to create lessons that covered translation, speaking, written and aural comprehension. The tool could be programmed to give feedback to users and refer them to earlier lessons. He used crowdsourcing to help with writing lessons for the littler spoken languages on the app such as Hawaiian.

Impact

Von Ahn's work has had a major impact on the field on Software Engineering. His revolutionary work on CAPTCHAs has changed how we use the internet. Thousands of websites use his technology to secure their site from bots, including Facebook and Ticketmaster. reCAPTCHA transcribes over 40 million words per day. Duolingo has been downloaded over 300 million times and is changing how people are learning languages. He has received numerous awards including a MacArthur Fellowship in 2006, a Sloan Fellowship in 2009 and the Lemelson-MIT award in 2018, to name but a few.

Sources

(n.d.). Retrieved from https://en.wikipedia.org/wiki/Luis_von_Ahn

(n.d.). Retrieved from https://en.wikipedia.org/wiki/CAPTCHA

ADAMS, S. (2019, August 31). *'Game of Tongues', Forbes, vol. 202, no. 6.* Retrieved from
https://search-ebscohost-com.elib.tcd.ie/login.aspx?direct=true&db=bth&AN=137314492

Scanlon, J. (2008, April 11). *Profile: Luis von Ahn.* Retrieved from https://eds-p-ebscohost-
com.elib.tcd.ie/eds/detail/detail?vid=1&sid=ca2ab077-3e97-4289-8de3-
be66674bd284%40redis&bdata=#AN=35269050&db=bth