I'm Not a Robot:
Can AI Classify CAPTCHA Images?

DS 4002 | Addison Lowman | May 5, 2024

In an age where technology is in every aspect of our lives, ensuring the security of online platforms becomes more important than ever. CAPTCHAS, once prized as the frontline defense against bots and automated attacks, are beginning to face challenges from advancing AI and machine learning algorithms. As a result, there is an urgent need to reevaluate the efficacy of image-based CAPTCHAs and explore alternative methods to safeguard digital security.

As a new intern at the Federal Bureau of Investigation, you have been tasked with a mission of utmost importance in the realm of cybersecurity. As an integral part of the FBI's Cyber Division, you're aware of the constant barrage of threats facing the nation's digital infrastructure. Motivated by the FBI's unwavering commitment to safeguarding national security, your project aims at the intersection of image classification and CAPTCHA security. With the potential ramifications of accurate image recognition on cyber defense strategies at the forefront of your mind, you will need to provide evidence-based guidance to your supervisors on how to better support digital security.

Deliverable

The object of this project is to determine how effective AI is when identifying CAPTCHA images. You will be tasked with presenting your findings clearly and concisely, highlighting the potential implications of accurate image classification on CAPTCHA security. This issue will then have the potential to become the next focal point of the FBI's Cyber Division. In this case, you want to have unwavering evidence that CAPTCHAs are or are not an effective security measure. To support your conclusions, you will need to create (1) a GitHub repository to store your data and (2) a brief presentation.

This project involves image classification of sixty thousand images into ten different categories. There are several image classification methods you could use, such as TensorFlow or OpenCV. Choosing the best method of classification is paramount to your success and future at the FBI.

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