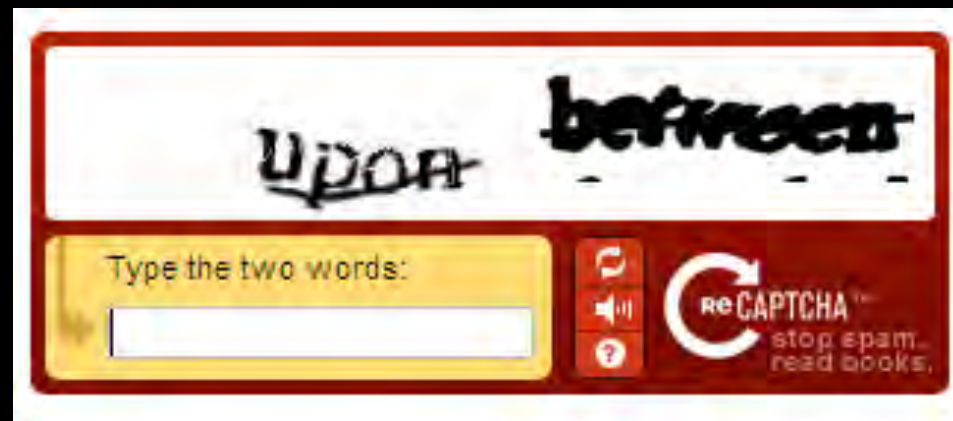
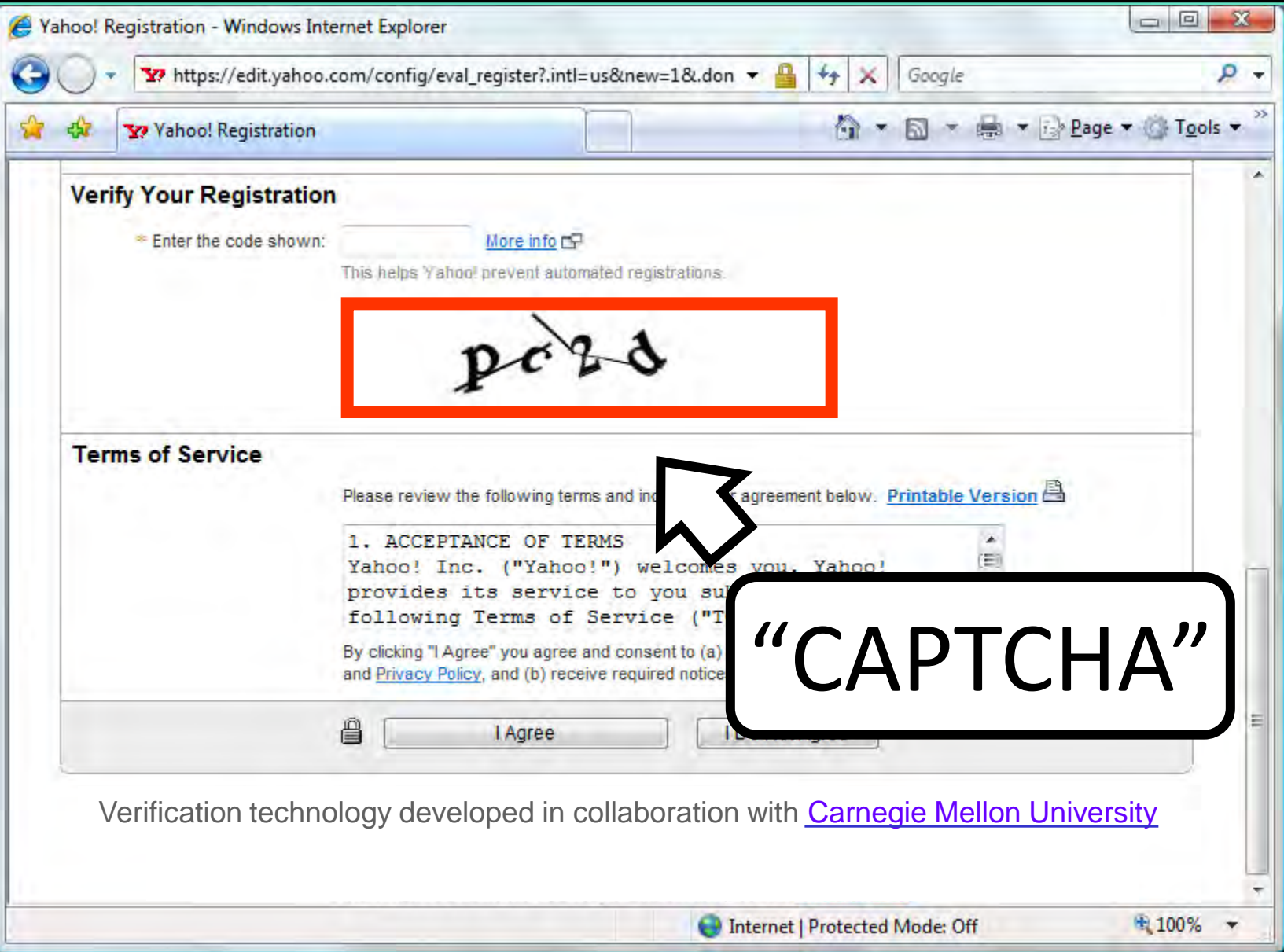


Human Computation

Luis von Ahn

Carnegie Mellon University





Verification technology developed in collaboration with [Carnegie Mellon University](#)

“ Help! I’ve been waiting for 20 minutes, and nothing happens ”

The screenshot shows a Windows Internet Explorer browser window titled "Yahoo! Registration". The address bar contains the URL https://edit.yahoo.com/config/eval_register?.intl=us&new=1&.don. The page content includes a "Verify Your Registration" section with a text input field and a "More info" link. Below this is a large, textured image with the word "WAIT" in bold black letters. The "Terms of Service" section follows, with a "Printable Version" link and a scrollable text area containing the following text:

1. ACCEPTANCE OF TERMS
Yahoo! Inc. ("Yahoo!") welcomes you. Yahoo! provides its service to you subject to the following Terms of Service ("TOS"), which may be

By clicking "I Agree" you agree and consent to (a) the Yahoo! [Terms of Service](#) and [Privacy Policy](#), and (b) receive required notices from Yahoo! electronically.

At the bottom of the terms section are two buttons: "I Agree" and "I Do Not Agree". The browser's status bar at the bottom indicates "Internet | Protected Mode: Off" and a zoom level of "100%".

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Yahoo! Registration - Windows Internet Explorer


https://edit.yahoo.com/config/eval_register?.intl=us&new=1&.don

Yahoo! Registration

Verify Your Registration

Enter the code shown: [More info](#)

This helps Yahoo! prevent automated registrations.



Terms of Service

Please review the following terms and indicate your agreement below. [Printable Version](#)

1. ACCEPTANCE OF TERMS
Yahoo! Inc. ("Yahoo!") welcomes you. Yahoo! provides its service to you subject to the following Terms of Service ("TOS"), which may be

By clicking "I Agree" you agree and consent to (a) the Yahoo! [Terms of Service](#) and [Privacy Policy](#), and (b) receive required notices from Yahoo! electronically.

Internet | Protected Mode: Off 100%

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QUICKVOTE

Which is the best Computer Science
Grad School in the US?

Berkeley

MIT

CMU

Washington

Cornell

Stanford

vote

(From www.slashdot.org)

Yahoo! Registration - Windows Internet Explorer

https://edit.yahoo.com/config/eval_register?.intl=us&new=1&.don

Google

Yahoo! Registration

Verify Your Registration

Enter the code shown: [More info](#)

This helps Yahoo! prevent automated registrations.



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CAPTCHA Sweat Shops

Spam companies hire humans to
type CAPTCHAs **all day long**

\$2.50 per hour for each human

720 captchas per hour per human

1/3 cent per account



2012



Roughly 200 million CAPTCHAs are
typed every day

10s of human time per CAPTCHA

**Can we use this human
effort for good?**

Digitizing Books



→
Scan

DENMARK.

COPENHAGEN, Dec. 17—Noon.

The royal palace at Friedericheberg took fire last night. The King himself directed the operations for extinguishing the fire. The whole structure was, however, destroyed.

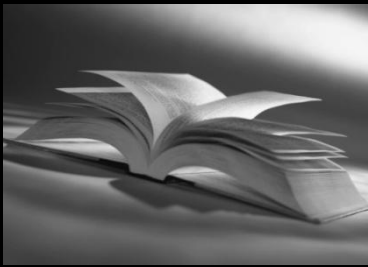
↓ OCR

DE xi li ARIi..

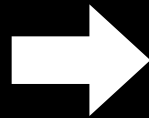
COPBCtrAGE\, DeC. 11 1 QOn.

Tlie royal palace at Frieclicherieberg took fire last night. The li.ing himself directed the operations fns extinguishing the lire. The whole structure

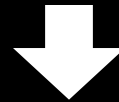
□ □ ,□□ □ □ □ □,ed.□



Scanned
book



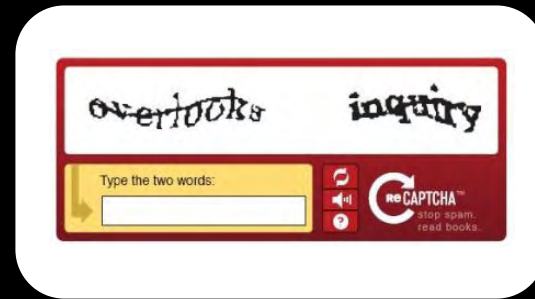
Word that OCR
can't read



Randomly distorted
image of word



Free





facebook

[login](#) [sign up](#) [tour](#)

Email:

lav@andrew.cmu.edu

Password:

Login

[Forgot Password?](#)

Sign Up and Start Using Facebook

Join Facebook to **connect with your friends, share photos, and create your own profile**. Fill out the form below to get started (all fields are required to sign up).

Full Name:

I am:

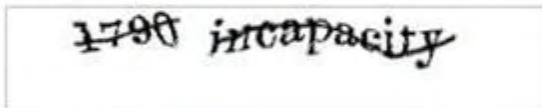
Email:

Password:

Date of Birth: Month: Day: Year:

Security Check:

Enter **both** words below, separated by a **space**. What's This?
Can't read this? Try another.



Text in the box:

I have read and agree to the [Terms of Use](#) and [Privacy Policy](#).

Security Check

Type both words separated by a space below

excellent yes

Type both words:



[Get a new word](#)



[Vision Impaired](#)



[Help](#)

The Security Check allows us to:

Ensure Fair Access to Tickets

Automated programs known as "Bots" cannot read distorted text as well as humans. The Security Check helps prevent automated programs from blocking other customers from getting tickets.

Digitize Books One Word at a Time

By entering the words in the box, you are also helping to digitize books from the Internet Archive and preserve literature that was written before the computer age.

Provide an Audio Option for Visually Impaired Customers

An audio option allows visually impaired customers to hear a set of 8 digits that can be entered instead of the word challenge.

You do not have permission to access this website if you are using an automated program.

[Continue](#)

Security Check provided by [reCAPTCHA](#). © Carnegie Mellon University, all rights reserved.

[los angeles craigslist \(central LA\)](#) > [casual encounters](#) > **create posting**

[log in to your account](#)

Your posting will expire from the site in 7 days.

[\(Apply for Account\)](#)

To finalize your post, type each of the following words into the box below and click continue.

SPORTS additions

stop spam
and bots.

Continue



Find folks to follow!

search

or [Login](#) / [Join Twitter!](#)

Create a Free Twitter Account

Username: Your URL: <http://twitter.com/USERNAME>
No spaces, please.

Password: 6 characters or more (be tricky!)

Confirm Password:

Email Address: In case you forget something

Humanness:

O'Neill's *absurdly*

Type the two words:



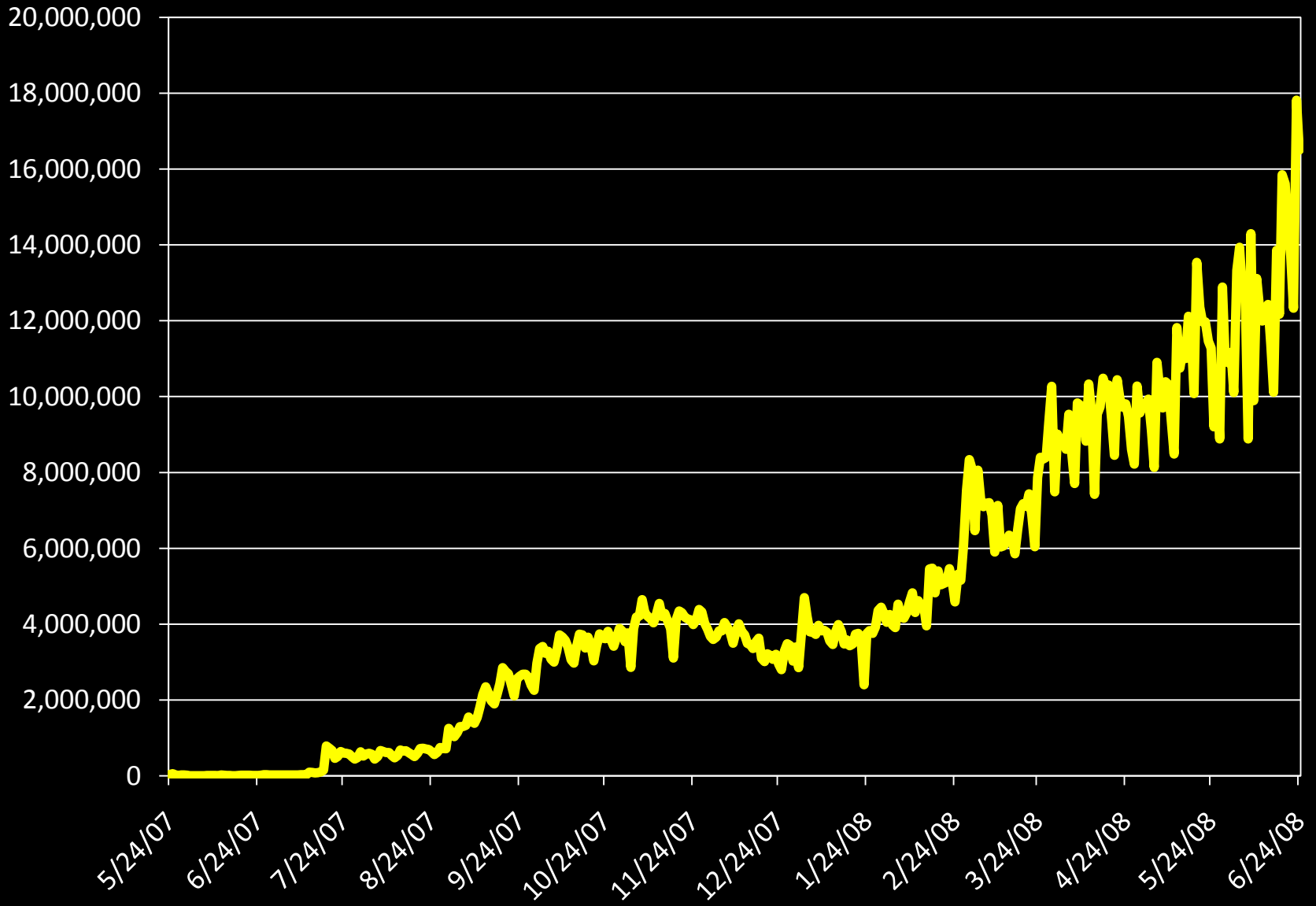
I want the inside scoop—please send me email updates!

By clicking on 'I accept' below, you confirm that you are over 13 years of age and accept the [Terms of Service](#).

Already a member?
Please [Sign In!](#)

Already use Twitter on your phone? [Head over here](#) and we'll get you signed up on the web.

Words Digitized Per Day





HOME

THE EMBASSY

CONNECTIN

bae

CHRISTIANS

Type the two words:





Search events: Enter your ZIP code

[Host A Party](#) [Find A Party](#) [Resources](#)

[Log in](#) [Sign up](#)

Sign Up to Party for Change

Sign up to host your own Party for Change or sign up to attend one in your area.

Username

Password

Password (again)

Zip Code

Email Address

Damn liberat

Type the two words:



Where do the Words Come From?

The New York Times

Years 1851-1980 will be completed in 2009

400,000,000

(6% of the world's population)

www.recaptcha.net