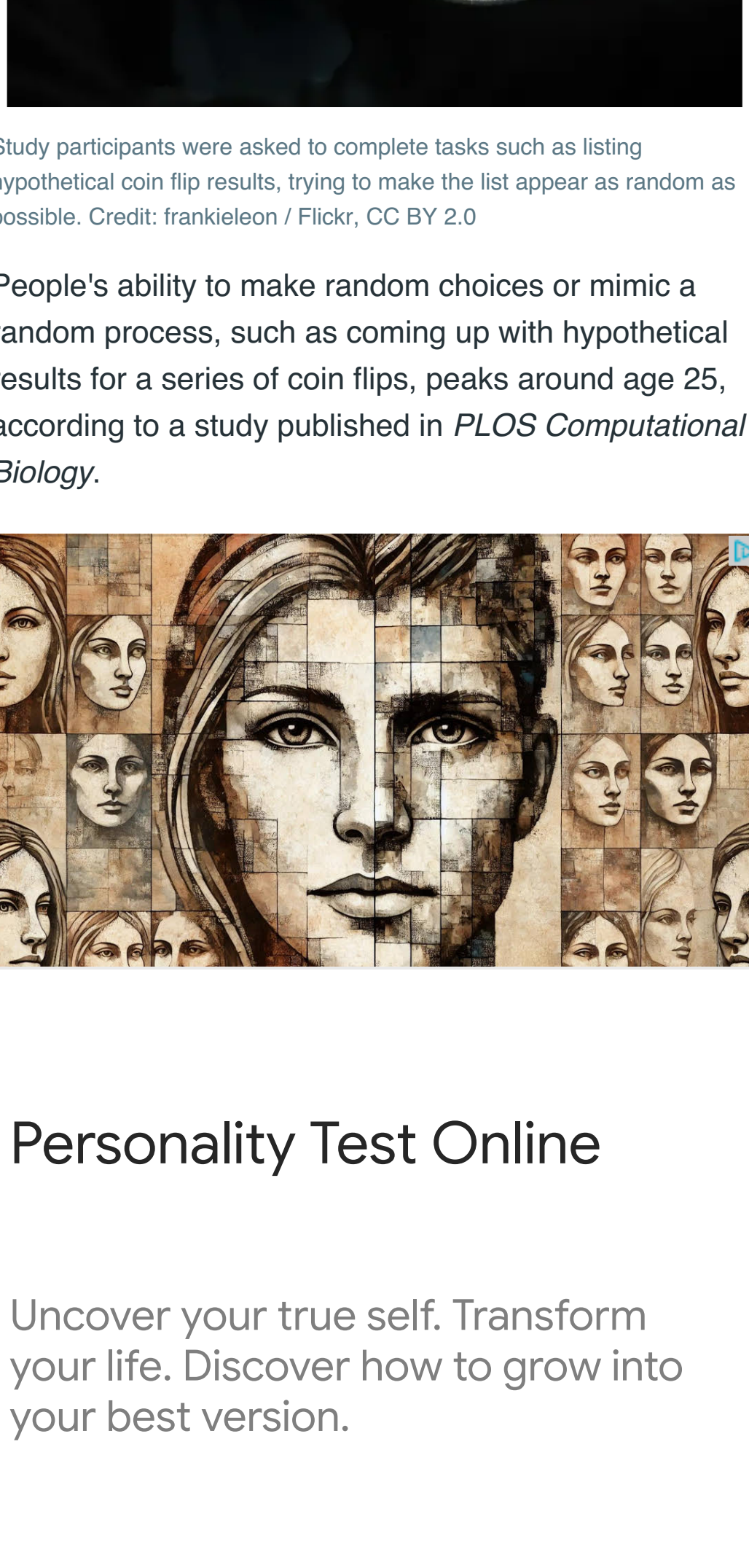


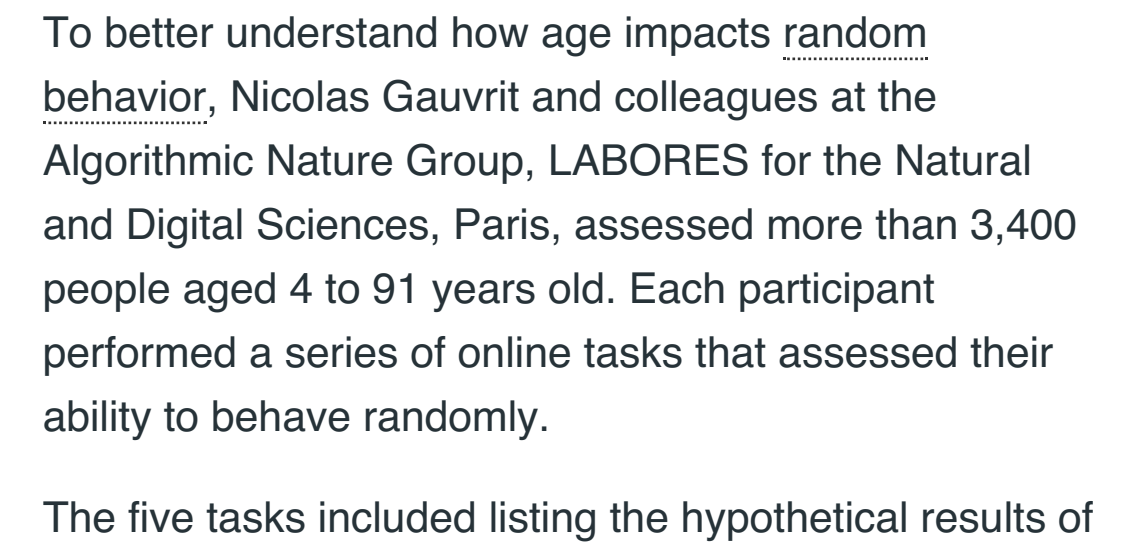
25 is 'golden age' for the ability to make random choices

by Public Library of Science



Study participants were asked to complete tasks such as listing hypothetical coin flip results, trying to make the list appear as random as possible. Credit: frankieleon / Flickr, CC BY 2.0

People's ability to make random choices or mimic a random process, such as coming up with hypothetical results for a series of coin flips, peaks around age 25, according to a study published in *PLOS Computational Biology*.



Personality Test Online

Uncover your true self. Transform your life. Discover how to grow into your best version.

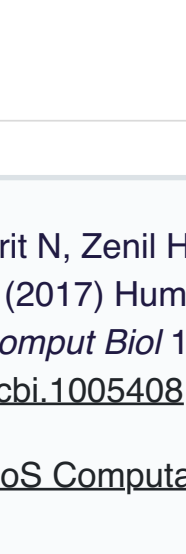
Personality Test

Learn More >

Scientists believe that the ability to behave in a way that appears random arises from some of the most highly developed cognitive processes in humans, and may be connected to abilities such as human creativity. Previous studies have shown that aging diminishes a person's ability to behave randomly. However, it had been unclear how this ability evolves over a person's lifetime, nor had it been possible to assess the ways in which humans may behave randomly beyond simple statistical tests.

To better understand how age impacts random behavior, Nicolas Gauvrit and colleagues at the Algorithmic Nature Group, LABORES for the Natural and Digital Sciences, Paris, assessed more than 3,400 people aged 4 to 91 years old. Each participant performed a series of online tasks that assessed their ability to behave randomly.

The five tasks included listing the hypothetical results of a series of 12 coin flips so that they would "look random to somebody else," guessing which card would appear when selected from a randomly shuffled deck, and listing the hypothetical results of 10 rolls of a die—"the kind of sequence you'd get if you really rolled a die."

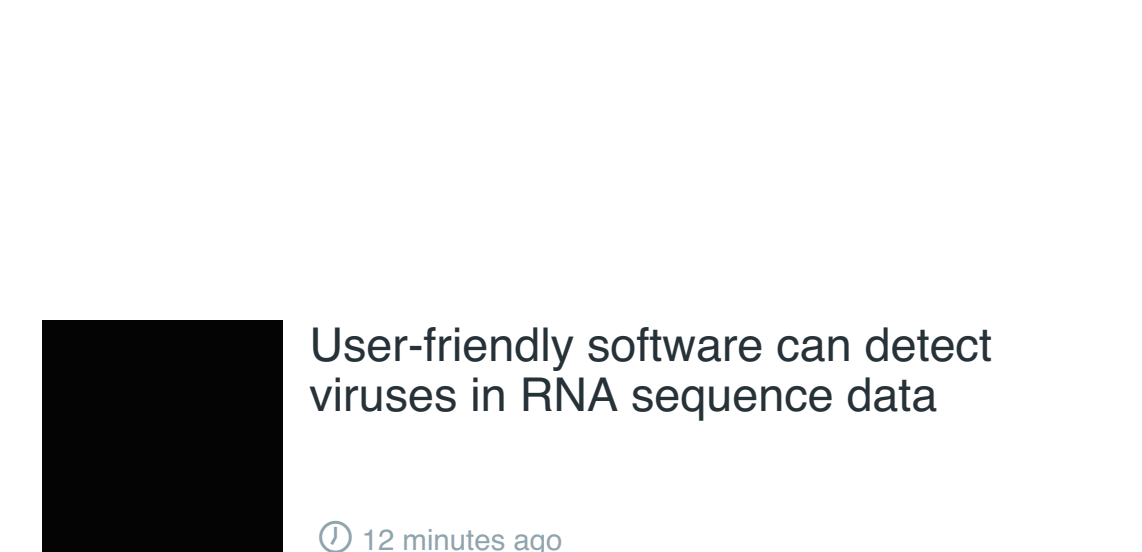


This is an attempt to explain what we think are some of the most salient results of our research packed in a 4-minute video. Among other striking results, we have recently shown that humans best outsmart computers when they are tested on randomness generation at the age of 25. When competing against all possible algorithms, humans behave most

The scientists analyzed the participants' choices according to their algorithmic randomness, which is based on the idea that patterns that are more random are harder to summarize mathematically. After controlling for characteristics such as gender, language, and education, they found that age was the only factor that affected the ability to behave randomly. This ability peaked at age 25, on average, and declined from then on.

"This experiment is a kind of reverse Turing test for random behavior, a test of strength between algorithms and humans," says study co-author Hector Zenil. "25 is, on average, the golden age when humans best outsmart computers," adds Dr. Gauvrit.

The study also demonstrated that a relatively short list of choices, say 10 hypothetical coin flips, can be used to reliably gauge randomness of human behavior. The authors are now using a similar approach to study potential connections between the ability to behave randomly and such things as cognitive decline and neurodegenerative diseases.



Personality Test Online

Uncover your true self. Transform your life. Discover how to grow into your best version.

Personality Test

Learn More >

More information: Gauvrit N, Zenil H, Soler-Toscano F, Delahaye J-P, Brugger P (2017) Human behavioral complexity peaks at age 25. *PLoS Comput Biol* 13(4): e1005408. doi.org/10.1371/journal.pcbi.1005408

Journal information: [PLoS Computational Biology](#).

Provided by [Public Library of Science](#)

+ Explore further

Understanding predictability and randomness by digging in the dirt

509 shares Feedback to editors

Related Recommended

Understanding predictability and randomness by digging in the dirt

Mar 28, 2017

Quantum physics entangled with human randomness

Nov 29, 2016

Here's the best way to shuffle a pack of cards – with a little help from some maths

Feb 23, 2017

How random is your randomness, and why does it matter?

Sep 19, 2016

Researchers demonstrate how the brain can handle so much data

Dec 15, 2015

Quantum obstacle course changes material from superconductor to insulator

Nov 30, 2016

Load comments (0)

User-friendly software can detect viruses in RNA sequence data

12 minutes ago

Women from the Bronze Age already carried heavy loads on their heads, skeletal analysis finds

15 minutes ago

How cancer drugs impact cells at the molecular level

17 minutes ago

Sustainability certificates for palm oil plantations can have unintended consequences

18 minutes ago

Superbug-fighting paint promises cleaner hospitals and safer public spaces

25 minutes ago

World on course to trigger multiple climate 'tipping points' unless action accelerates, research warns

33 minutes ago

Tightening the math behind a key quantum process

45 minutes ago

New regulatory protein of the neuronal cytoskeleton identified

46 minutes ago

A possible explanation for why there is so much molecular hydrogen in space

48 minutes ago

From boiling hot to freezing cold: Sudden flips in temperature set to increase with climate change

49 minutes ago

How bats multitask in order to drink during flight

58 minutes ago

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report

Report