

A string of colorful felt balls in various colors (pink, red, teal, yellow, orange, green, purple) is strung on a black cord. The balls are arranged in a somewhat circular pattern, and the background is plain white.

SIMONA CERRATO | 4 APRIL 2023

SCIENTIFIC COMMUNICATION TECHNIQUES: SCIENCE JOURNALISM

NO COMMUNICATION

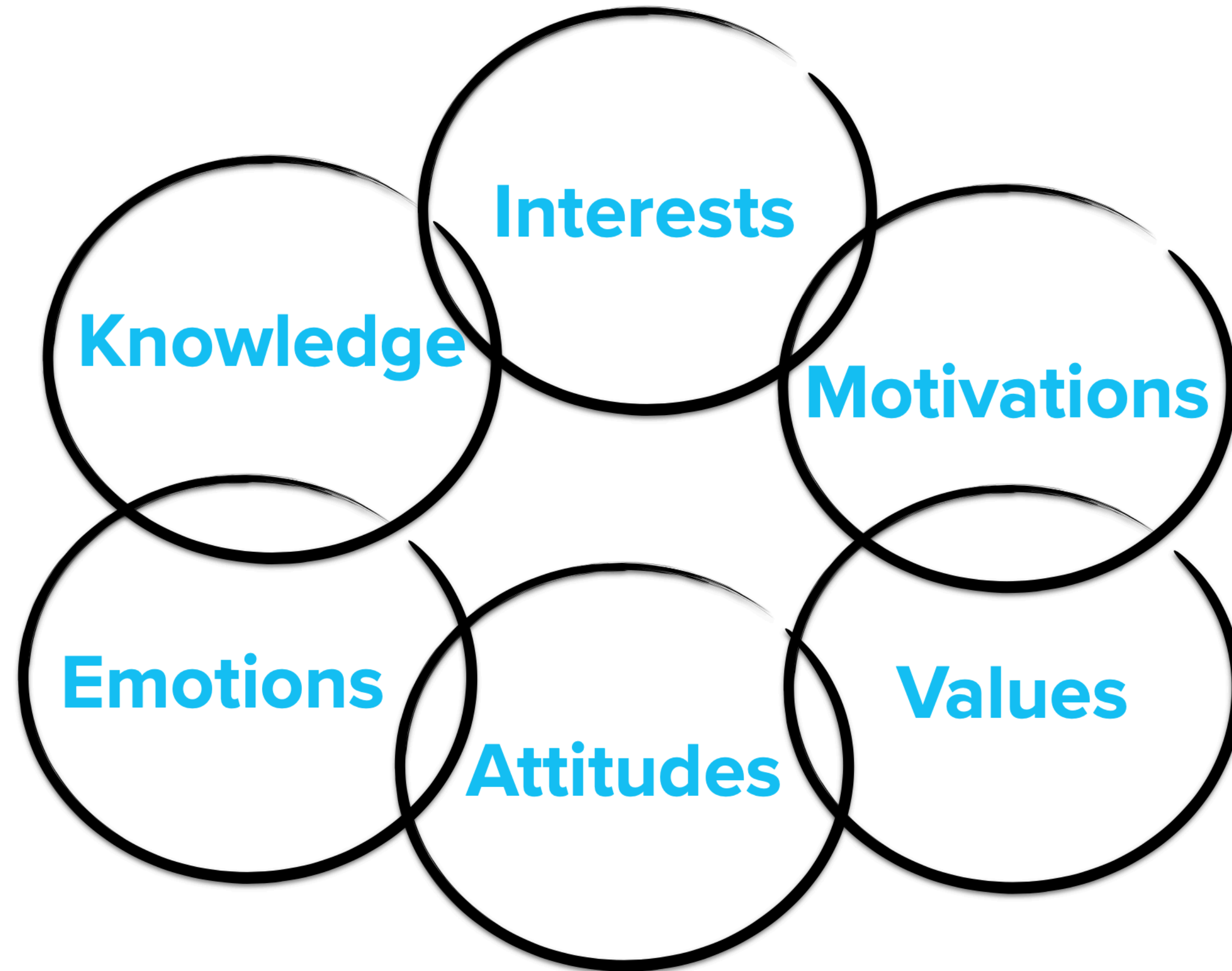


NO RESEARCH

SCIENCE COMMUNICATION IS

- practice
- research
- a job

DIALOGUE MODEL



ABOUT YOUR PUBLIC

- **age**
- **gender**
- **class**
- **education**
- **attitudes**
- **motivations**
- **what they know already**
- **expectations**
- **etc.**

TRUST

BEFORE STARTING

FOUR QUESTIONS

why...

what...

who...

when and where...

objectives: why communicate? what message?

personal history, self perception, interests and

priorities: to whom I want to communicate?

relevance, motivation, attention: why should they care?

media: which is the most appropriate?

content: what do they know already? possible links, analogies, stories...?

GOOGLE SEARCH: "LA RICERCA MATEMATICA NEI MEDIA ITALIANI"

 Il Sole 24 Ore

Scuola media in crisi: apprendimenti in calo e insegnanti in fuga

Come dimostrano le ultime rilevazioni internazionali Timss (matematica e scienze) le conoscenze in matematica dei nostri alunni in IV primaria...

1 month ago



 Donna Moderna

Perché le ragazze ancora non studiano la matematica

L'inimicizia tra femmine e STEM pare soprattutto un problema di parità nel mondo del lavoro ma va oltre. Perché la scuola media in Italia non...

4 weeks ago

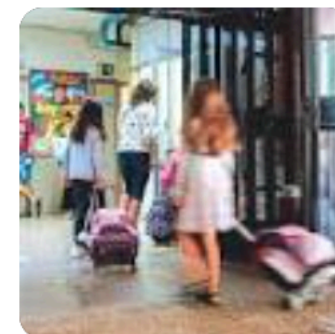


 Il Fatto Quotidiano

'In 10 anni la scuola media non è migliorata. Docenti precari e studenti scoraggiati:...

In Italia, gli alunni della scuola secondaria di primo grado imparano meno dei loro coetanei in Europa: in tre anni di medie peggiorano i...

1 month ago



 Corriere Fiorentino

Genio della matematica a 14 anni: «Il mio Superman è Figalli, mi iscrivo all'Università di Pisa come lui»

Fu il secondo italiano a ricevere quel premio, il primo fu Enrico Bombieri nel 1974, anche lui passato dalla Scuola Normale di Pisa. Insomma...

3 weeks ago



GOOGLE SEARCH: "MATHS IN THE MEDIA"



MATHEMATICS

The New York Times

SCIENCE

Mathematics

Latest

Search

Oct. 22, 2021

In Watchmaking, the Pleasing Principles of Phi

A husband-and-wife team has introduced a watch using the mathematical formula said to create the most appealing results.

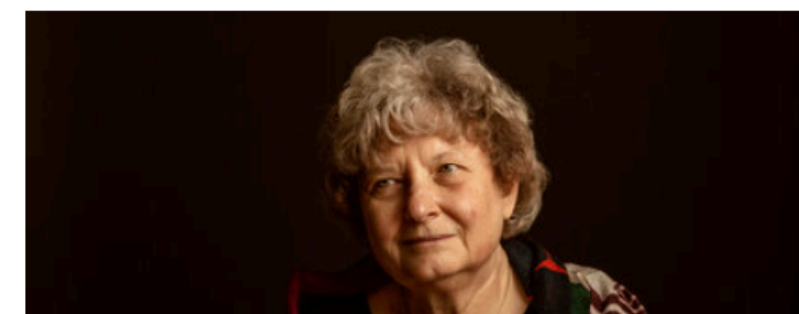
By MELANIE ABRAMS



Sept. 14, 2021

The Godmother of the Digital Image

The mathematician Ingrid Daubechies'



GOOGLE SEARCH: "MATHS IN THE MEDIA"

● Mathematics

VOICES



Michael Brooks It's time to revisit the history of African mathematics

INDEPENDENT PREMIUM



Blaise Pascal: One of the 17th century's best intellects



OBITUARIES

Bob Moses: Civil rights activist who used maths to fight inequality



INDEPENDENT PREMIUM

Pythagoras was a mystic who believed in immortality

GOOGLE SEARCH: "MATHS IN THE MEDIA"


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MATHEMATICS



Babylonians calculated with triangles centuries before Pythagoras

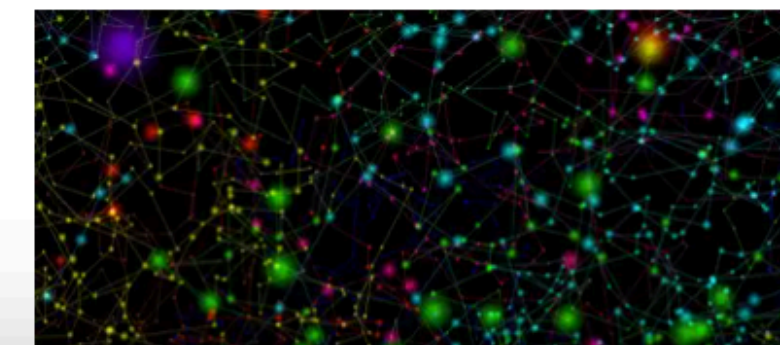
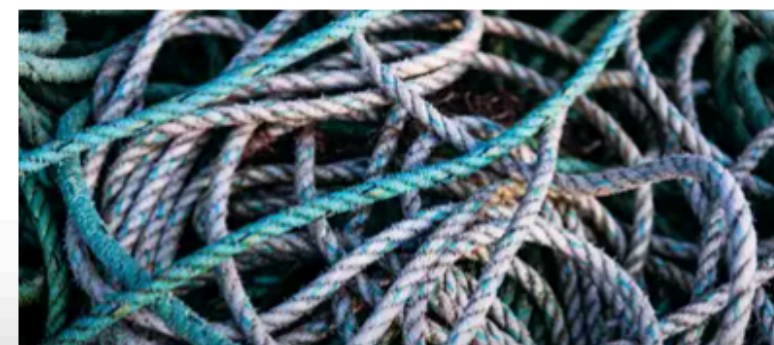
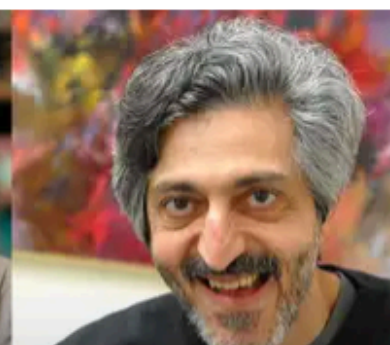
MATHEMATICS

An AI has disproved five mathematical conjectures with no human help

MATHEMATICS

Ada Lovelace

LATEST IN MATHEMATICS



HOW TO WRITE ABOUT MATH

PRE WRITING EXERCISE

Take one topic and write about it using different directives

FUNCTION

DIRECTIVE 1

what is it?

DIRECTIVE 2

so what?

DIRECTIVE 3

now what?

HOW TO WRITE MATH NEWS

OUT OF 1000 READERS

Out of 1000 readers:

1000 read the title

100 read the abstract

100 read the introduction

10 read the body of the paper

.5 read references to related work

.5 read conclusions and further work

WHY SHOULD I CARE?

relevance
motivation
attention

FOR YOUR PEERS

(problem in context)

methods

results

results in a wider perspective


Neural Correlates of Hate

[Article](#)[Metrics](#)[Related Content](#)[Comments: 2](#)**Semir Zeki^{*}, John Paul Romaya**

Wellcome Laboratory of Neurobiology, Department of Cell and Developmental Biology, University College London, London, United Kingdom

Abstract [Top](#)

In this work, we address an important but unexplored topic, namely the neural correlates of hate. In a block-design fMRI study, we scanned 17 normal human subjects while they viewed the face of a person they hated and also faces of acquaintances for whom they had neutral feelings. A hate score was obtained for the object of hate for each subject and this was used as a covariate in a between-subject random effects analysis. Viewing a hated face resulted in increased activity in the medial frontal gyrus, right putamen, bilaterally in premotor cortex, in the frontal pole and bilaterally in the medial insula. We also found three areas where activation correlated linearly with the declared level of hatred, the right insula, right premotor cortex and the right fronto-medial gyrus. One area of deactivation was found in the right superior frontal gyrus. The study thus shows that there is a unique pattern of activity in the brain in the context of hate. Though distinct from the pattern of activity that correlates with romantic love, this pattern nevertheless shares two areas with the latter, namely the putamen and the insula.

 To add a note, highlight some text. [Hide notes](#)

 [Make a general comment](#)

Jump to

[Abstract](#)[Introduction](#)[Materials and Methods](#)[Results](#)[Discussion](#)[Supporting Information](#)[Acknowledgments](#)[Author Contributions](#)[References](#)

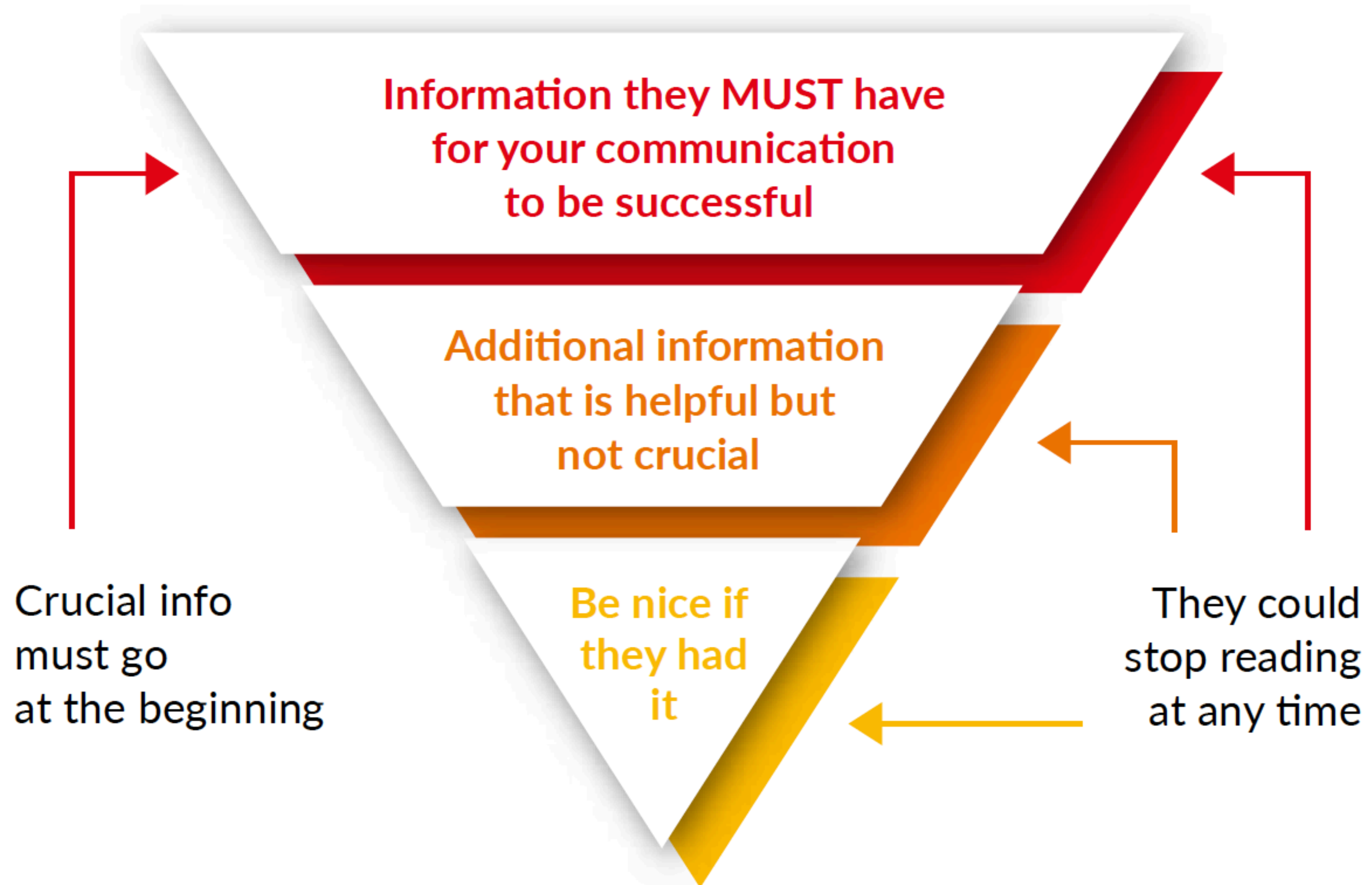
so what?



FOR THE GENERAL PUBLIC



The inverted pyramid



'Hate circuit' discovered in brain

› 17:52 28 October 2008 by [David Robson](#)

The proverbs tell us that there's a fine line between love and hate, and new scans of the brain's "hate circuit" have confirmed similarities between the two powerful emotions.

But whereas loved-up partners are likely to be less rational, the new scans show hate to be colder and more calculating.

[Semir Zeki](#) of University College London, UK, who has previously mapped the [neural circuits involved in romantic and maternal love](#), and colleague John Romaya selected 17 subjects who expressed a strong hatred for an individual - typically an ex-lover or colleague.

The subjects answered a questionnaire to assess the level of their hatred, and they provided the team with a photo of their nemesis, along with pictures of three other less provocative individuals.

Each subject then viewed their chosen photos for roughly 16 seconds, while an MRI scanner mapped the activity in their brain. By comparing their responses to the hated face with their reaction to the neutral photos, the team could identify the neurological circuits we use when feeling intense hatred.

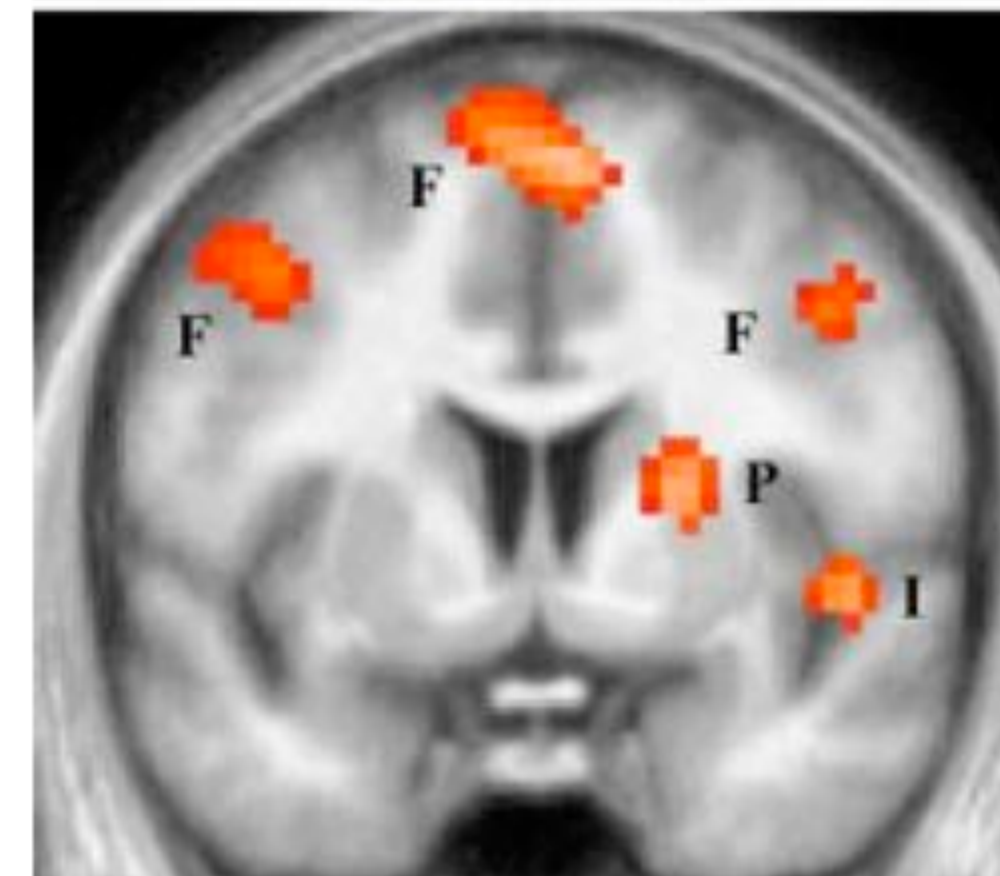
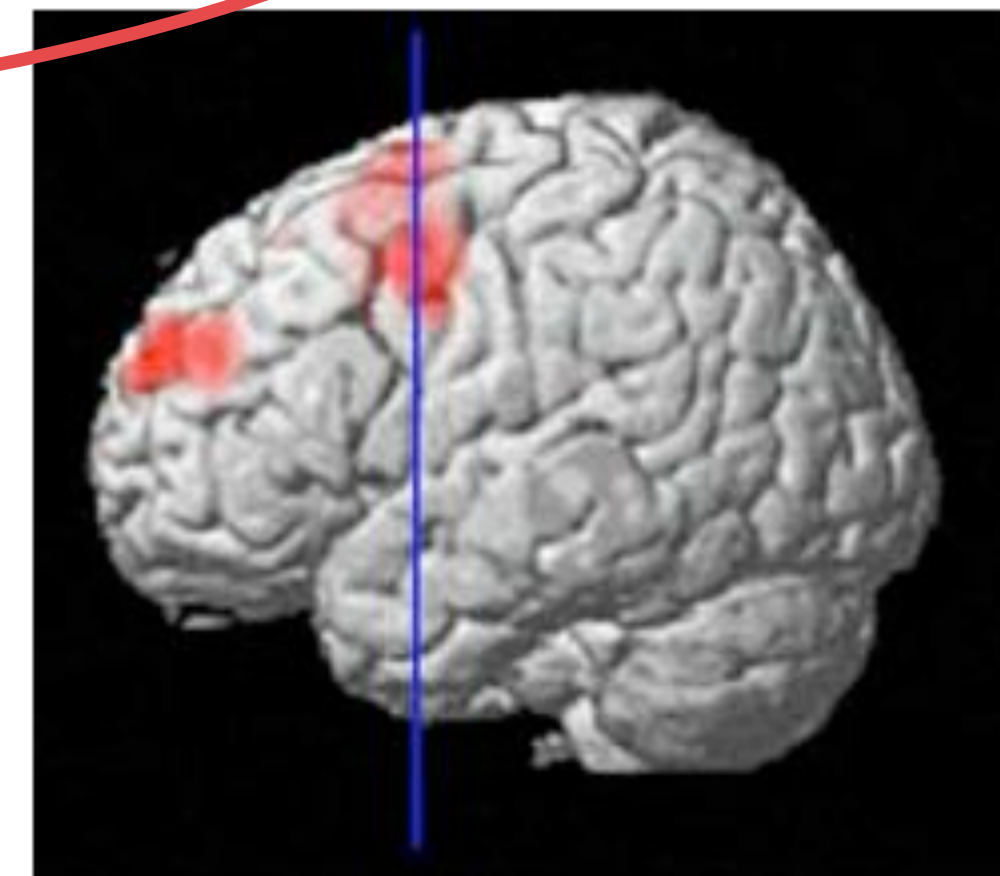
The results showed two brain regions that our "hate circuit" shares with the "love circuit" - the putamen and the insular cortex or insula.

The putamen is thought to be used to prepare the body for movement - so it's possible this be active either to provide protection of the loved one, or to prepare for an aggressive or spiteful act from the hated one. The insula is associated with feelings of distress, such as jealousy.

Scheming hatred

so what?

 PRINT  SEND  SHARE



The "hate circuit" of the brain - areas that activate when looking at a hated person - revealed by fMRI scans. F = frontal cortex; P = putamen; I = insular (Credit: UCL)

Ingredients of a good story

To build a good story keep in mind that the media and non-experts in general are interested in the following:

Consequences: the impact of the discovery/application/research on society.

News / Novelty factor: whether it's a first, that is, it has never happened before, nor been witnessed or achieved.

Change: how the research/application will affect our way of living, working, playing or our way of perceiving our surroundings.

Conflict: if there are alternative solutions/models (controversy is always interesting).

Record-breaking: something that's unique or that has been very difficult to observe, or is a record in size, length, duration, etc.

People: anything to do with real people, their lives and what they actually do.

YOUR TURN

HOW TO WORK

Split in small groups

Create a catchy title

Write the summary (two-three lines)

Take note on how to proceed the article

**Take note of possible problems
(definitions, metaphors, etc.)**

<https://royalsocietypublishing.org/doi/10.1098/rspa.2021.0457>

1

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Section

- Abstract
- 1. Introduction
- 2. Background
- 3. Description of the data
- 4. Methods
- 5. Results
- 6. Discussion
- 7. Conclusion

Data accessibility


Authors' contributions

Competing interests

Funding

Research articles

Modelling song popularity as a contagious process

Dora P. Rosati , Matthew H. Woolhouse, Benjamin M. Bolker and David J. D. Earn

Published: 22 September 2021 | <https://doi.org/10.1098/rspa.2021.0457>

Abstract

Popular songs are often said to be ‘contagious’, ‘infectious’ or ‘viral’. We find that download count time series for many popular songs resemble infectious disease epidemic curves. This paper suggests infectious disease transmission models could help clarify mechanisms that contribute to the ‘spread’ of song preferences and how these mechanisms underlie song popularity. We analysed data from MixRadio, comprising song downloads through Nokia cell phones in Great Britain from 2007 to 2014. We compared the ability of the standard susceptible–infectious–recovered (SIR) epidemic model and a phenomenological (spline) model to fit download time series of popular songs. We fitted these same models to simulated epidemic time series generated by the SIR model. Song downloads are captured better by the SIR model, to the same extent that actual SIR simulations are fitted better by the SIR model than by splines. This suggests that the social processes underlying song popularity are similar to those that drive infectious disease transmission. We draw conclusions about song popularity within specific genres based on estimated SIR parameters. In particular, we argue that faster spread of preferences for Electronica songs may reflect stronger connectivity of the ‘susceptible community’, compared with the larger and broader community that listens to more common genres.

<https://www.theguardian.com/science/2021/sep/22/mathematicians-discover-music-really-can-be-infectious-like-a-virus>

Science

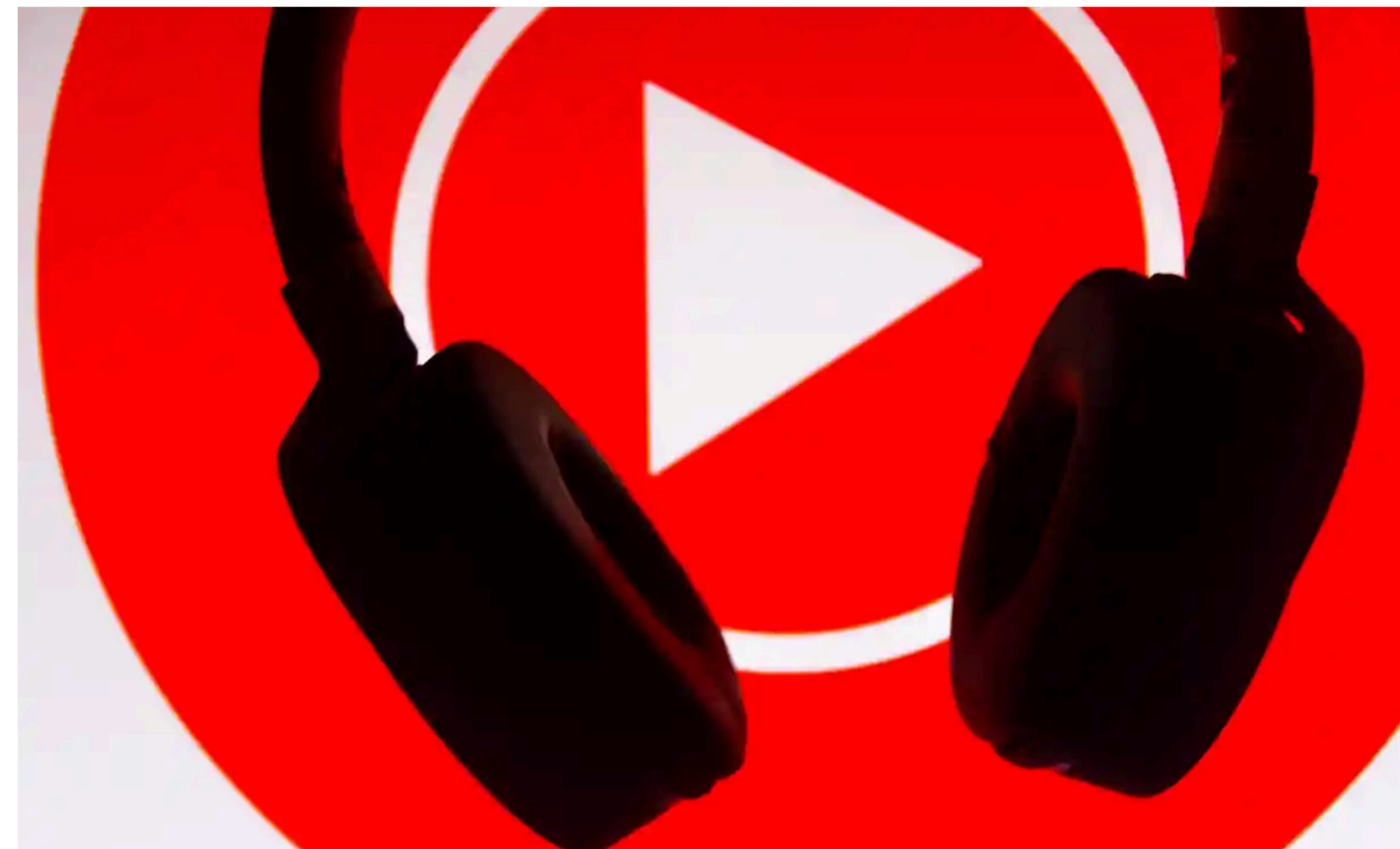
This article is more than 1 month old

Mathematicians discover music really can be infectious - like a virus

New music download patterns appear to closely resemble epidemic curves for infectious disease, study finds

Linda Geddes *Science correspondent*

Wed 22 Sep 2021 07.01 BST



▲ Electronica appears to be the most infectious music genre, according to the research. Photograph: Rafael Henrique/SOPA Images/Rex/Shutterstock

Pop music is often described as catchy, but it seems you really can infect friends with your music taste. The pattern of music downloads after their release appears to closely resemble epidemic curves for infectious disease - and electronica appears to be the most infectious genre of all.

Dora Rosati, lead author of the study and former graduate in maths and statistics at McMaster University in Ontario, Canada along with colleagues, wondered whether they could learn anything about how songs become popular using mathematical tools that are more usually applied to study the spread of infectious diseases.

<https://nyaspubs.onlinelibrary.wiley.com/doi/10.1111/nyas.14680>

2

ANNALS *of* THE NEW YORK
ACADEMY OF SCIENCES

Original Article

Egg and math: introducing a universal formula for egg shape

Valeriy G. Narushin, Michael N. Romanov✉, Darren K. Griffin✉

First published: 23 August 2021 | <https://doi.org/10.1111/nyas.14680>

[Read the full text >](#)

 PDF  TOOLS  SHARE

Abstract

The egg, as one of the most traditional food products, has long attracted the attention of mathematicians, engineers, and biologists from an analytical point of view. As a main parameter in oomorphology, the shape of a bird's egg has, to date, escaped a universally applicable mathematical formulation. Analysis of all egg shapes can be done using four geometric figures: sphere, ellipsoid, ovoid, and pyriform (conical or pear-shaped). The first three have a clear mathematical definition, each derived from the expression of the previous, but a formula for the pyriform profile has yet to be derived. To rectify this, we introduce an additional function into the ovoid formula. The subsequent mathematical model fits a completely novel geometric shape that can be characterized as the last stage in the evolution of the sphere—ellipsoid—Hügelschäffer's ovoid transformation, and it is applicable to any egg geometry. The required measurements are the egg length, maximum breadth, and diameter at the terminus from the pointed end. This mathematical analysis and description represents the sought-for universal formula and is a significant step in understanding not only the egg shape itself, but also how and why it evolved, thus making widespread biological and technological applications theoretically possible.

LE CANZONI CONTAGIOSE COME MALATTIE

Vi è mai capitato di sentire una canzone in talmente tanti posti da farvi venire la nausea? Uno studio scientifico ha trattato le canzoni come se fossero virus, dimostrando che anch'esse possono essere contagiose.

Come per le malattie ci sono soggetti più suscettibili di altri, in questo caso gli amanti della musica elettronica.

<https://www.sciencedaily.com/releases/2021/08/210827133748.htm>

Science News

from research organizations

A universal equation for the shape of an egg

Date: August 31, 2021

Source: University of Kent



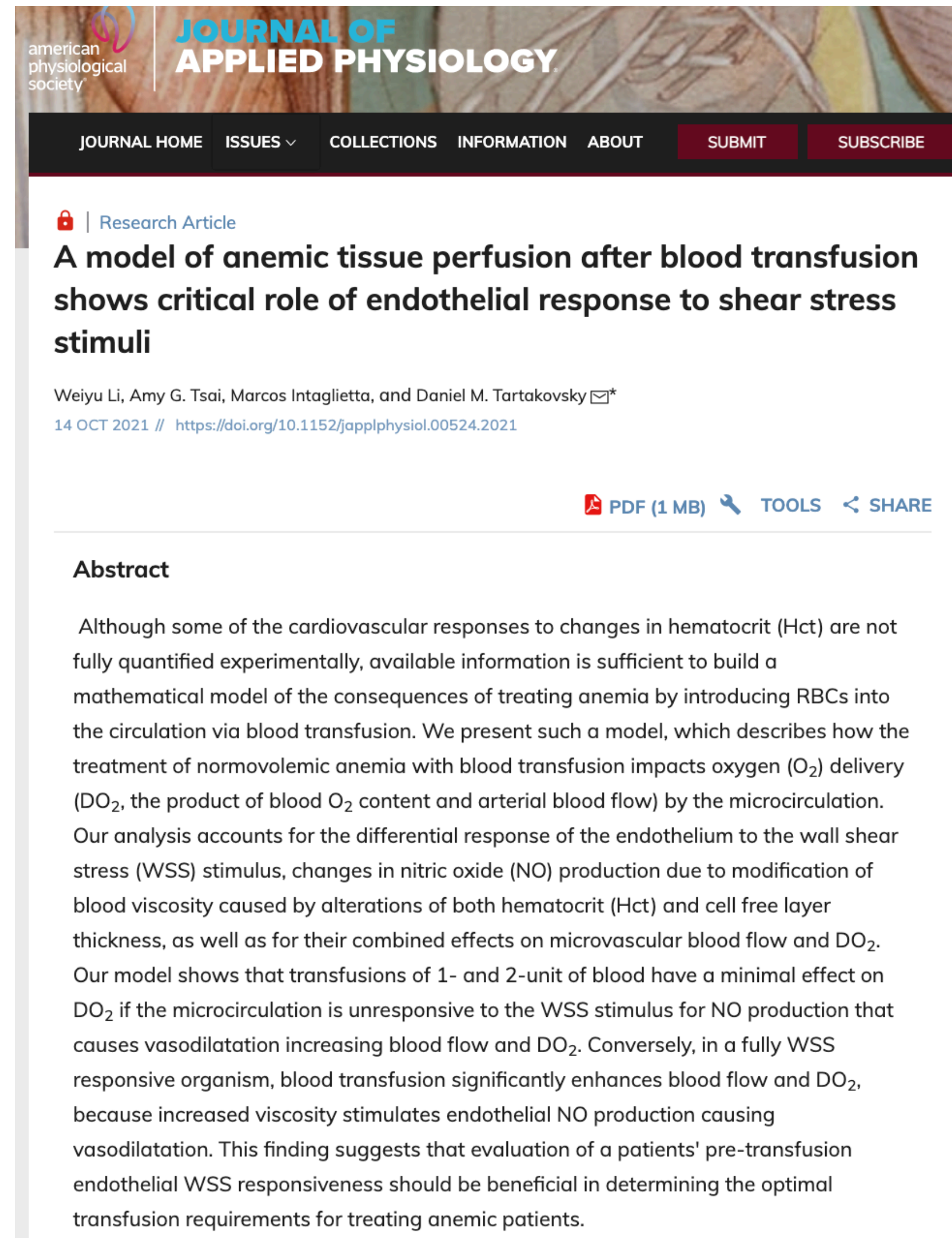
Chicken egg (stock image).

Credit: © yuthana Choradet / stock.adobe.com

Researchers from the University of Kent, the Research Institute for Environment Treatment and Vita-Market Ltd have discovered a universal mathematical formula that can describe any bird's egg existing in nature, a feat which has been unsuccessful until now.

<https://journals.physiology.org/doi/abs/10.1152/jappphysiol.00524.2021>

3



The screenshot shows the top portion of a research article page. At the top left is the American Physiological Society logo. The journal title 'JOURNAL OF APPLIED PHYSIOLOGY' is prominently displayed in the center. Below the title is a navigation bar with links for 'JOURNAL HOME', 'ISSUES', 'COLLECTIONS', 'INFORMATION', 'ABOUT', 'SUBMIT', and 'SUBSCRIBE'. The article title is 'A model of anemic tissue perfusion after blood transfusion shows critical role of endothelial response to shear stress stimuli'. The authors listed are Weiyu Li, Amy G. Tsai, Marcos Intaglietta, and Daniel M. Tartakovsky. The publication date is 14 OCT 2021. There are icons for PDF (1 MB), TOOLS, and SHARE. The abstract text begins with 'Although some of the cardiovascular responses to changes in hematocrit (Hct) are not fully quantified experimentally, available information is sufficient to build a mathematical model of the consequences of treating anemia by introducing RBCs into the circulation via blood transfusion. We present such a model, which describes how the treatment of normovolemic anemia with blood transfusion impacts oxygen (O₂) delivery (DO₂, the product of blood O₂ content and arterial blood flow) by the microcirculation. Our analysis accounts for the differential response of the endothelium to the wall shear stress (WSS) stimulus, changes in nitric oxide (NO) production due to modification of blood viscosity caused by alterations of both hematocrit (Hct) and cell free layer thickness, as well as for their combined effects on microvascular blood flow and DO₂. Our model shows that transfusions of 1- and 2-unit of blood have a minimal effect on DO₂ if the microcirculation is unresponsive to the WSS stimulus for NO production that causes vasodilatation increasing blood flow and DO₂. Conversely, in a fully WSS responsive organism, blood transfusion significantly enhances blood flow and DO₂, because increased viscosity stimulates endothelial NO production causing vasodilatation. This finding suggests that evaluation of a patients' pre-transfusion endothelial WSS responsiveness should be beneficial in determining the optimal transfusion requirements for treating anemic patients.'

TITLE 3

text text text

New model points to solution to global blood shortage

Date: October 19, 2021

Source: Stanford University

Summary: A mathematical model of the body's interacting physiological and biochemical processes shows that it may be more effective to replace red blood cell transfusion with transfusion of other fluids that are far less in demand.

Share: [!\[\]\(17acf1afa8cdf0b67c53d4865a5ed469_img.jpg\)](#) [!\[\]\(ece8cabb5adcd402275b8866019cc3b8_img.jpg\)](#) [!\[\]\(4fe6c1f6e7bbe5a2699a4abd6267bb58_img.jpg\)](#) [!\[\]\(70a50cebc68af4280759ff1f65916f6e_img.jpg\)](#) [!\[\]\(a864435f938b4616d4c31924501fac76_img.jpg\)](#)

RELATED TOPICS

Health & Medicine


- > [Anemia](#)
- > [Hypertension](#)
- > [Blood Clots](#)

FULL STORY

Blood transfusions save lives, yet the precious fluid is in desperately short supply, not just in the U.S. but around the globe. But what if transfusions don't always require blood?

https://www.science.org/doi/full/10.1126/science.abg5999

4













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HOME > SCIENCE > VOL. 373, NO. 6551 > CAULIFLOWER FRACTAL FORMS ARISE FROM PERTURBATIONS OF FLORAL GENE NETWORKS

RESEARCH ARTICLE f t in

Cauliflower fractal forms arise from perturbations floral gene networks

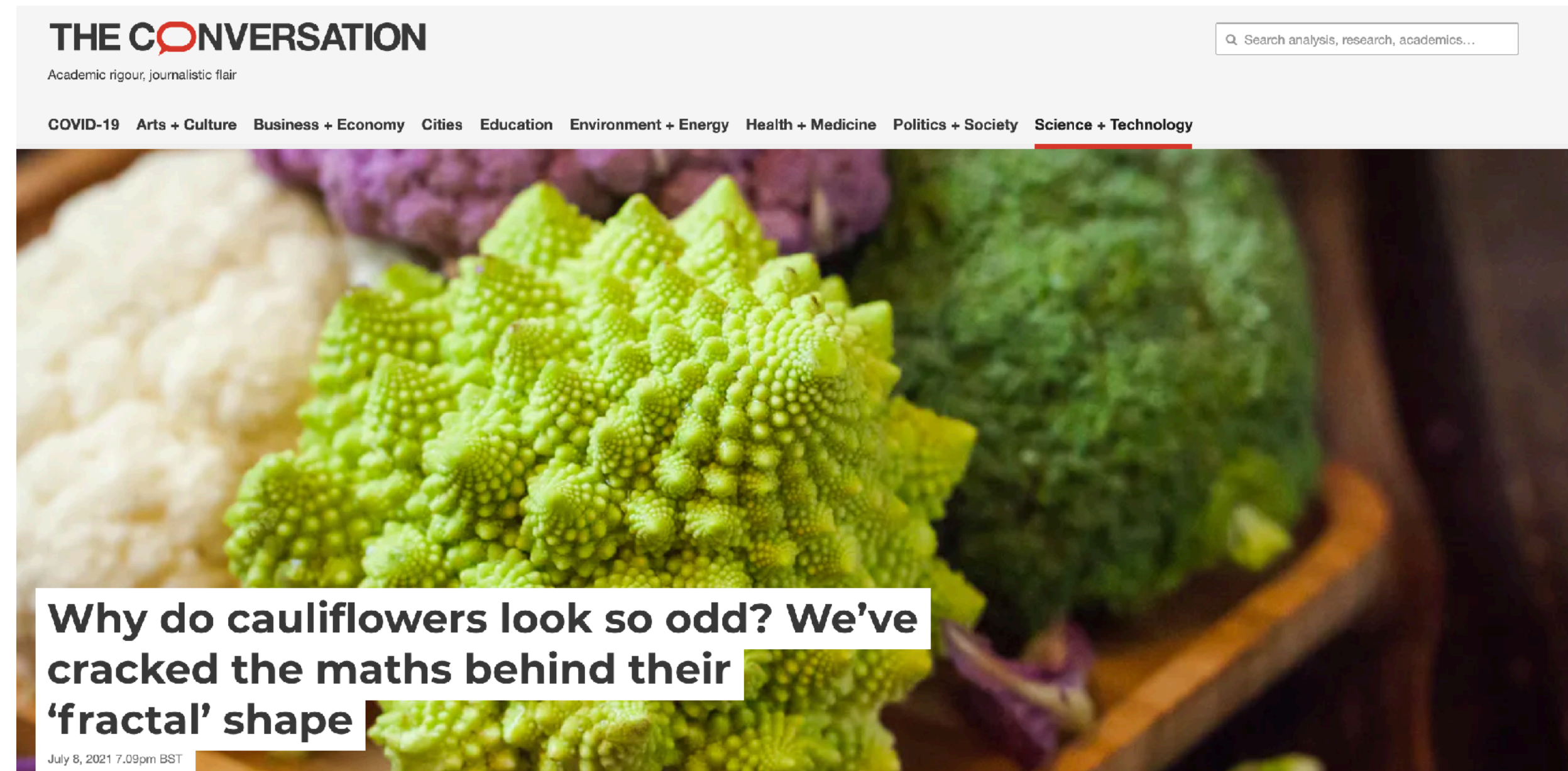
EUGENIO AZPEITIA , GABRIELLE TICHTINSKY , MARIE LE MASSON , ANTONIO SERRANO-MISLATA , JÉRÉMY LUCAS , VERONICA GREGIS 
CARLOS GIMENEZ , NATHANAËL PRUNET , ETIENNE FARCOT , [...] FRANCOIS PARCY  +5 authors [Authors Info & Affiliations](#)

SCIENCE • 9 Jul 2021 • Vol 373, Issue 6551 • pp. 192-197 • DOI: 10.1126/science.abg5999

Abstract

Throughout development, plant meristems regularly produce organs in defined spiral, opposite, or whorl patterns. Cauliflowers present an unusual organ arrangement with a multitude of spirals nested over a wide range of scales. How such a fractal, self-similar organization emerges from developmental mechanisms has remained elusive. Combining experimental analyses in an *Arabidopsis thaliana* cauliflower-like mutant with modeling, we found that curd self-similarity arises because the meristems fail to form flowers but keep the “memory” of their transient passage in a floral state. Additional mutations affecting meristem growth can induce the production of conical structures reminiscent of the conspicuous fractal Romanesco shape. This study reveals how fractal-like forms may emerge from the combination of key, defined perturbations of floral developmental programs and growth dynamics.

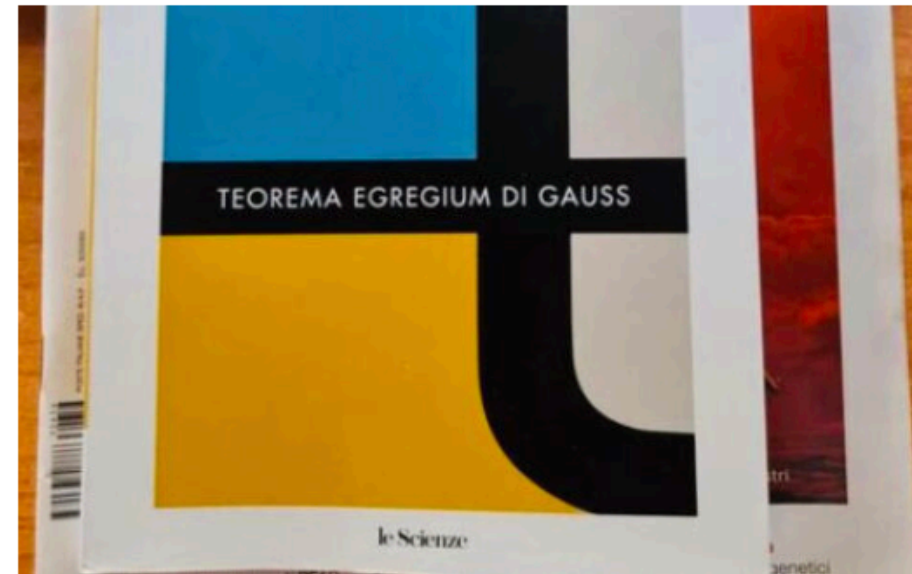
<https://theconversation.com/why-do-cauliflowers-look-so-odd-weve-cracked-the-maths-behind-their-fractal-shape-164121>



Have you ever stared at a cauliflower before preparing it and got lost in its stunningly beautiful pattern? Probably not, if you are in your right mind, but I reassure you it's worth a try. What you'll find is that what at first sight looks like an amorphous blob has a striking regularity.

If you take a good look, you will see that the many florets look alike and are composed of miniature versions of themselves. In maths, we call this property self-similarity, which is a defining feature of abstract geometrical objects called fractals. But why do cauliflowers have this property? Our new study, published in Science, has come up with an answer.

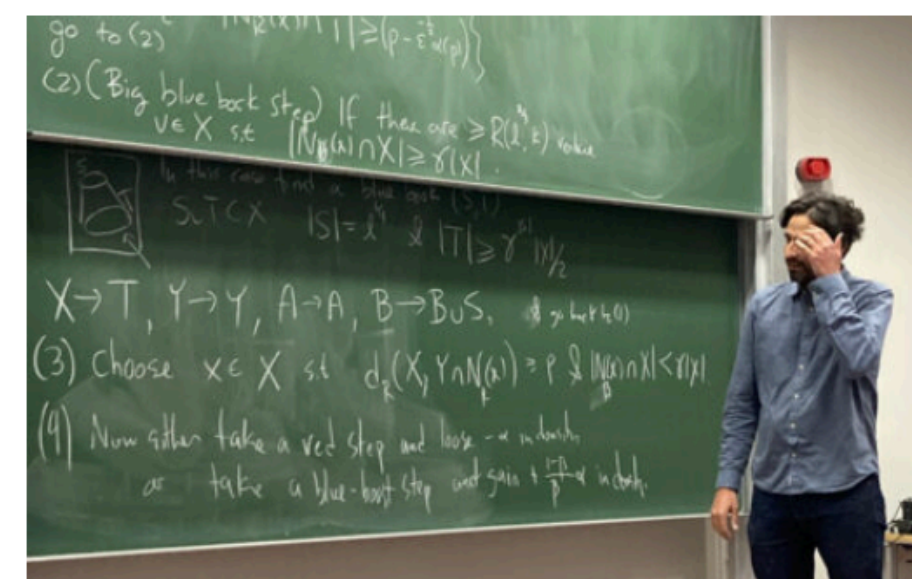
On the front page



Mathematical revolutions:
Gauss's egregium theorem



Do you know my name?
Between mathematics and
literature



Number 16 of the magazine "Mathematics for the Open Days" is online

by admin | Apr 4, 2023 | Disclosure

Number 13 of the magazine "Mathematics for Open Days", produced by students and professors of the Department of Mathematics of the University of Pisa, is out.

<http://maddmaths.simai.eu/>

MADDMATHS!



THE ELEVATOR PITCH

OR...

30 seconds to say everything

WHAT IT IS

**It is a clear, brief message about you,
your accomplishments, your goals**

(and...

**How you can benefit a company or an
organization)**

STRUCTURE

- 1) Who are you, what do you do, what are your skills?**
- 2) What does distinguish you from everybody else?**
- 3) What do you want?**

CONTENT

One single important message

Do not make a lesson

Do not use jargon

Minimize the technical terminology

EXAMPLES



<https://www.youtube.com/watch?v=8dZxqSM-hVc>

<https://www.youtube.com/watch?v=klj5nKGVNvY>



