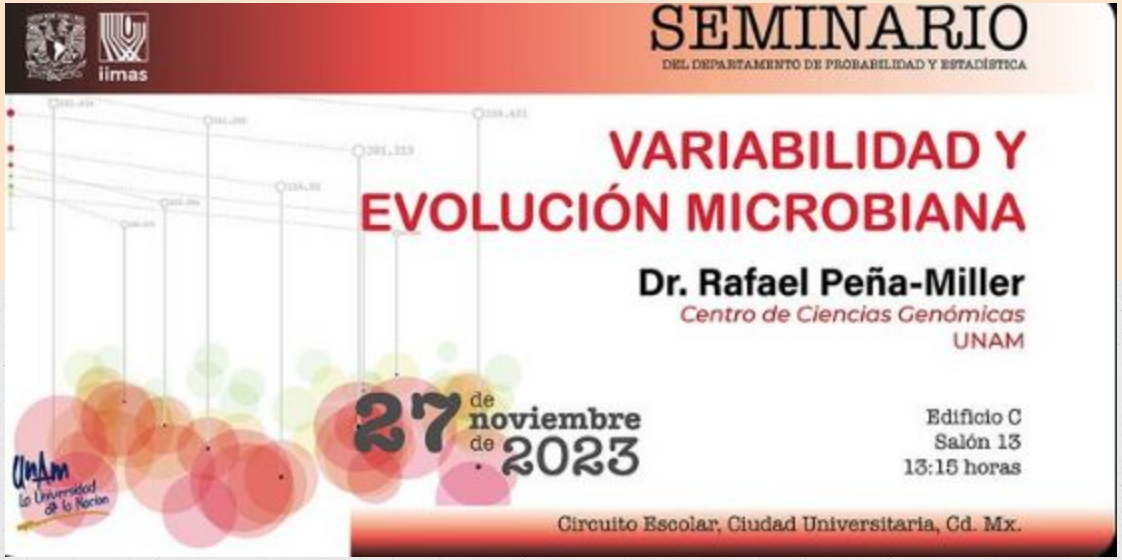
FisMatEcol Boletin

Noviembre 2023

Dr. Oliver López Corona
Dra. Elvia Ramírez Carrillo

Eventos


La mente que empieza en el humano...
¿Puede tener su fin en la máquina?
Programa y registro gratuito
1er Simposio de
Filosofía de la Computación
4 al 8 de diciembre de 2023
Teoría de la Computación y su Matemática Fundacional • Biocomputación • Computación Física y No-Convencional • Cómputo Emergente y de Frontera • Ciencia Cognitiva • Filosofía de la Inteligencia Artificial • Género y Estudios Sociales en Cómputo • Problemas Éticos en Cómputo • Estética del Cómputo
philcomp.org
philcomp.unam
Facultad de Ciencias UNAM, CDMX


iimas
SEMINARIO
DEL DEPARTAMENTO DE PROBABILIDAD Y ESTADÍSTICA
VARIABILIDAD Y EVOLUCIÓN MICROBIANA
Dr. Rafael Peña-Miller
Centro de Ciencias Genómicas
UNAM
27 de noviembre de 2023
Edificio C
Salón 13
13:15 horas
Circuito Escolar, Ciudad Universitaria, Cd. Mx.

SCME
SOCIEDAD CIENTÍFICA MEXICANA DE ECOLOGÍA

Circular 0

IX Congreso Mexicano de Ecología 2024

La sede para el próximo Congreso Mexicano de Ecología será la bella ciudad de

San Cristóbal de las Casas, Chiapas

El congreso se realizará el **último trimestre del año 2024**.
En cuanto tengamos confirmación de las instalaciones que estamos solicitando les informaremos de las fechas precisas del evento y las fechas clave para participar

IV Simposio Internacional sobre Cognición Sensorial 2023

IV International Symposium on Sensory Cognition 2023

https://sites.google.com/view/cognicionsensorial

Comité Organizador

Sonia María Ruiz Cejudo
José Darío Martínez Ezquerro
Bruno Mesz

Simposio Internacional sobre Cognición Sensorial

UIESSAE Unidad de Investigación Epidemiológica y en Servicios de Salud, Área Envejecimiento
IMSS

Centro de Ciencias de la Complejidad

Evento en Linea
24 de Noviembre 2023
cognicion.sensorial@gmail.com

@SnsoryCognition

Calendario C3 (reglamento)

Oportunidades

Search

Search... Search

Important Links

- Webmail Login
- Internal Login
- Website Login
- Website Feedback

Assistant Professor - Two Positions

The Department of Physics and Astronomy at the University of British Columbia in Vancouver invites applications from outstanding candidates for two tenure-track Assistant Professor positions in all fields of physics and astronomy, including (but not limited to) applied physics, astronomy, astrophysics, atomic molecular and optics physics, biophysics, condensed matter, gravitation, high energy or nuclear physics, medical physics and quantum information/quantum computing. We encourage applications from candidates across theory, observation, experiment and computation. The Department has a strong Engineering Physics program (https://www.engphys.ubc.ca/about/) and applicants with a background suitable for contributing to this are particularly encouraged to apply. Applicants must have a Ph.D. degree or equivalent in a relevant field, an outstanding research record, and potential for excellence in teaching. The successful candidates will create independent, internationally recognized research programs that complement the existing strengths of the department. The successful candidates will also be expected to teach effectively at the undergraduate and graduate levels, supervise graduate students and provide service within the Department, to the University and to the broader community. They will have a strong commitment to equity, diversity and inclusion, to create a welcoming community for all, particularly those who are historically, persistently or systemically marginalized.

The Physics and Astronomy Department is one of the largest and most scientifically diverse in Canada. Our over 60 faculty members and staff are committed to attracting and training outstanding students and conducting forefront research spanning many fields. UBC researchers have ready access to local facilities such as TRIUMF, the Stewart Blusson Quantum Matter Institute, BC Cancer and the Djavad Mowafaghian Centre for Brain Health, and carry out research at international facilities, including SNOLAB, CERN, KEK and LIGO. UBC astronomers are involved in major observatories and space missions including ALMA, CHIME, CFHT, Euclid, GBT, Gemini, HST, JWST, and

Cornell University, School of Civil & Environmental Engineering

Position ID: Cornell-CEE-POSTDOC_MICROBIAL [#25327, GiomettoPD_WDR-00039184]
Position Title: Postdoc_Physics_Microbial
Position Type: Postdoctoral
Position Location: Ithaca, New York 14853-3501, United States [map]
Subject Areas: microbial ecology / microbial ecology
Environmental
Appl Deadline: none (posted 2023/08/22, updated 2023/08/14)
Position Description: Apply

Postdoc Positions: Physics of Evolving Living Matter

The Giometto lab (**http://giometto.cee.cornell.edu**) at Cornell University (Ithaca, NY) is seeking two postdoctoral scholars to investigate how physical constraints affect evolutionary adaptation of single cells and of dense microbial communities. Research in our lab is curiosity-driven and combines experimental work with model microorganisms, mainly Escherichia coli and Saccharomyces cerevisiae, with theoretical modeling inspired by Biological and Soft Matter Physics. The scope of the project will be defined jointly by the candidate and the PI to identify a research project of shared interest. Funds for each position are available for three years, subject to satisfactory performance.

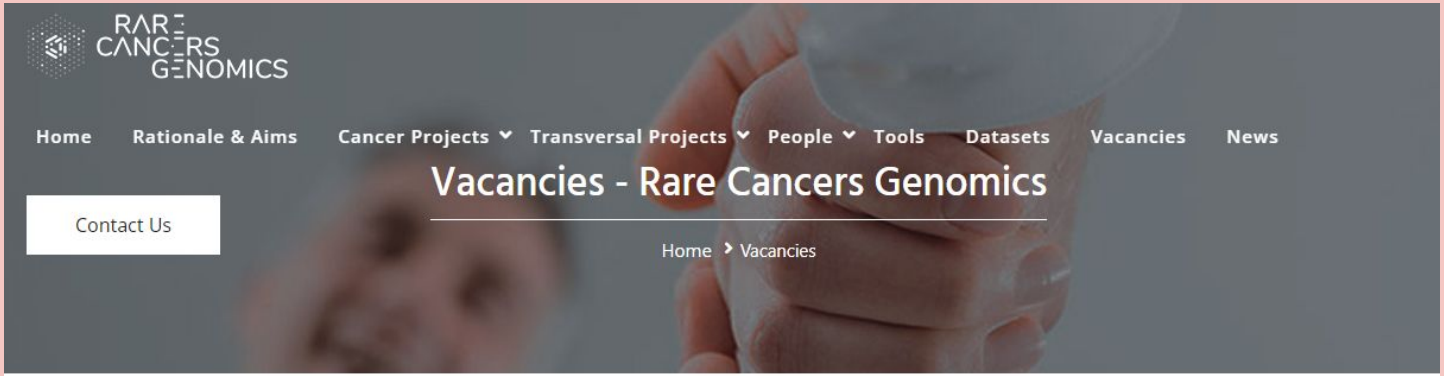
We are looking for candidates with either a theoretical or experimental background who are interested in pursuing a combination of theory and experiments, the relative weight of which will depend on the candidate and on the project. The ideal candidate would have prior experience in the lab in experimental Soft Matter Physics, Biological Physics, or experimental Microbiology and Evolution (experience with yeast and/or bacteria laboratory techniques would be beneficial), and hold a Ph.D. degree in Physics, Biology, Biochemistry, Chemical Engineering, or related fields. Most importantly, the ideal candidate should be passionate about research at the interface between Biology and Physics, be willing to learn new skills beyond their expertise, and to be part of a collaborative lab environment.

To apply: Application materials must be submitted on-line through AcademicJobsOnline at **https://academicjobsonline.org/ajo/jobs/25327**

Through this website, applicants should submit a cover letter describing their academic background, goals for pursuing a postdoc and career objectives, in addition to their CV, at least two papers or preprints they have authored along with a short description of their contribution, and the names/contacts of at least three advisors or collaborators who can serve as references. Evaluation of applications will begin immediately and continue until the positions are filled.

The Giometto lab values inclusivity and diversity, actively encouraging applications from candidates with diverse backgrounds. For eligible team members, there are specific NIH fellowship opportunities aimed at promoting diversity in health-related research, accessible through the lab's NIH funding. Alongside this commitment to a varied and vibrant community, the Principal Investigator (PI) focuses on the academic and professional development of group members. This involves active participation in formulating compelling research questions, developing robust proposals for fellowship applications, and providing personalized mentoring and networking opportunities.

Diversity and Inclusion are a part of Cornell University's heritage. We are a recognized employer and educator valuing AA/EEO, Protected Veterans and Individuals with Disabilities. We also recognize a lawful preference in employment practices for Native Americans living on or near Indian reservations. Cornell University is an innovative Ivy League university and a great place to work. Our inclusive community of scholars, students, and staff impart an uncommon sense of larger purpose, and contribute creative ideas to further the university's



Vacancy 1

Postdoctoral appointment on single-cell and spatial 'omics of rare cancers

Keywords: *medical genomics, cancer, single-cell sequencing, data science*

Location: International Agency for Research on Cancer / World Health Organization, Lyon (Gerland bio-district), France

Start date: early 2024 (flexible)

Duration: 2 years with expectation of renewal

Salary: 2,950€ net per month

Vacancy 2

Postdoctoral appointment on deep-learning image and 'omics data analysis of rare cancers

Keywords: *medical genomics, cancer, data science, deep-learning*

Location: International Agency for Research on Cancer / World Health Organization, Lyon (Gerland bio-district), France

Start date: early 2024 (flexible)

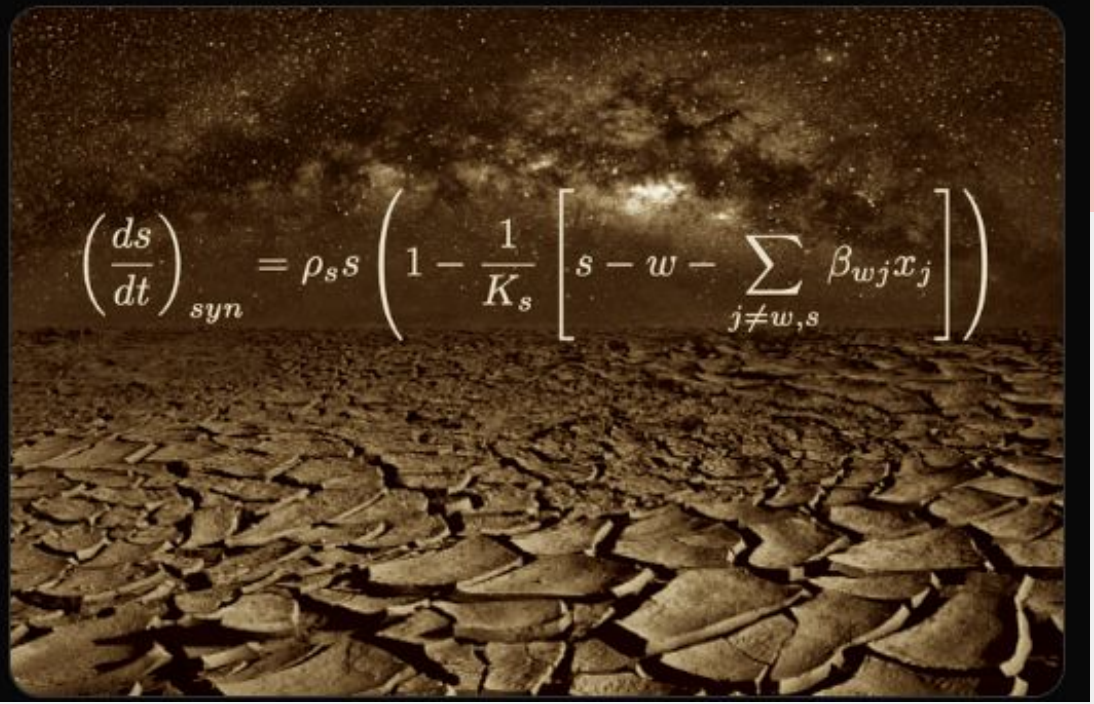
Duration: 2 years with expectation of renewal

Salary: 2,950€ net per month

Ricard Solé reposteó

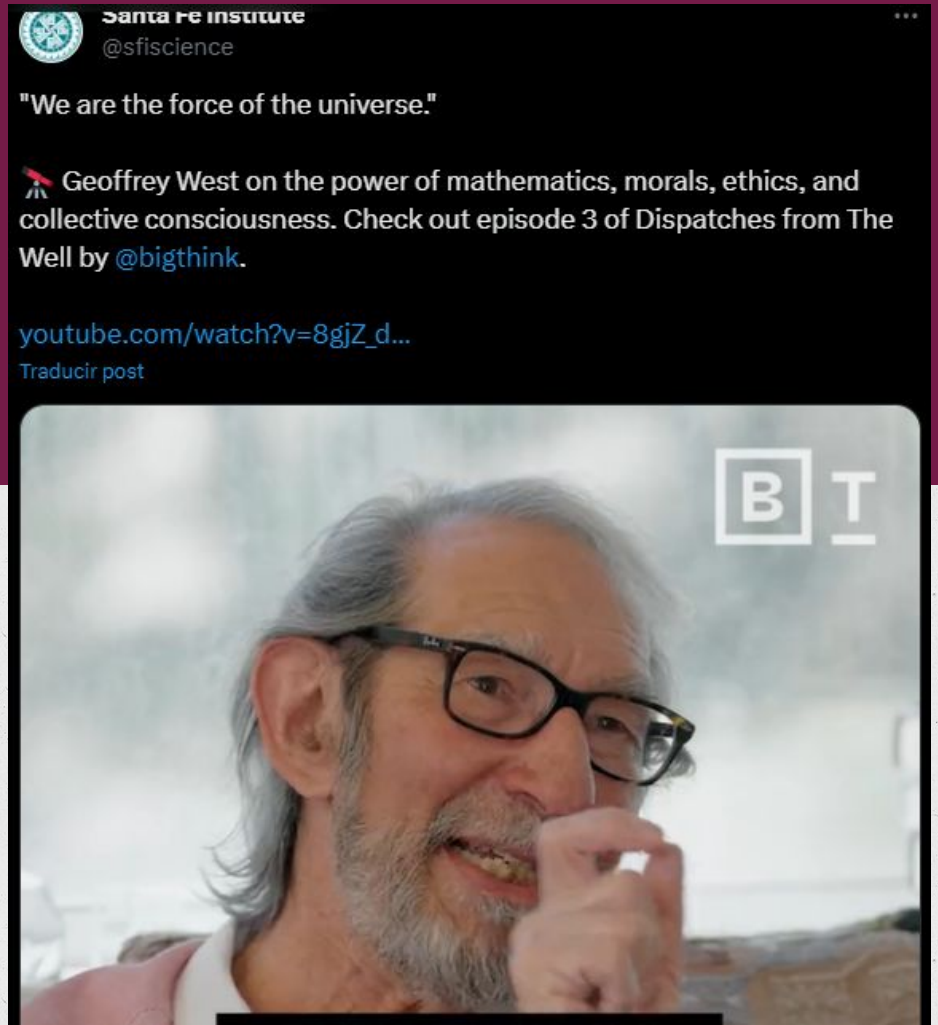
Ricard Solé @ricard_sole · 26 oct.

We are hiring. Do you want to work on designing complex ecosystems as a strategy against climate change, using synbio & maths? Joining forces with @CSLab_UPF @EMBLBarcelona & @BCNCollab we open a new postdoc position @_JamesSharpe @ftmaestre @upfmeli embl.org/jobs/position/...



Conceptos

Somos una fuerza del universo?



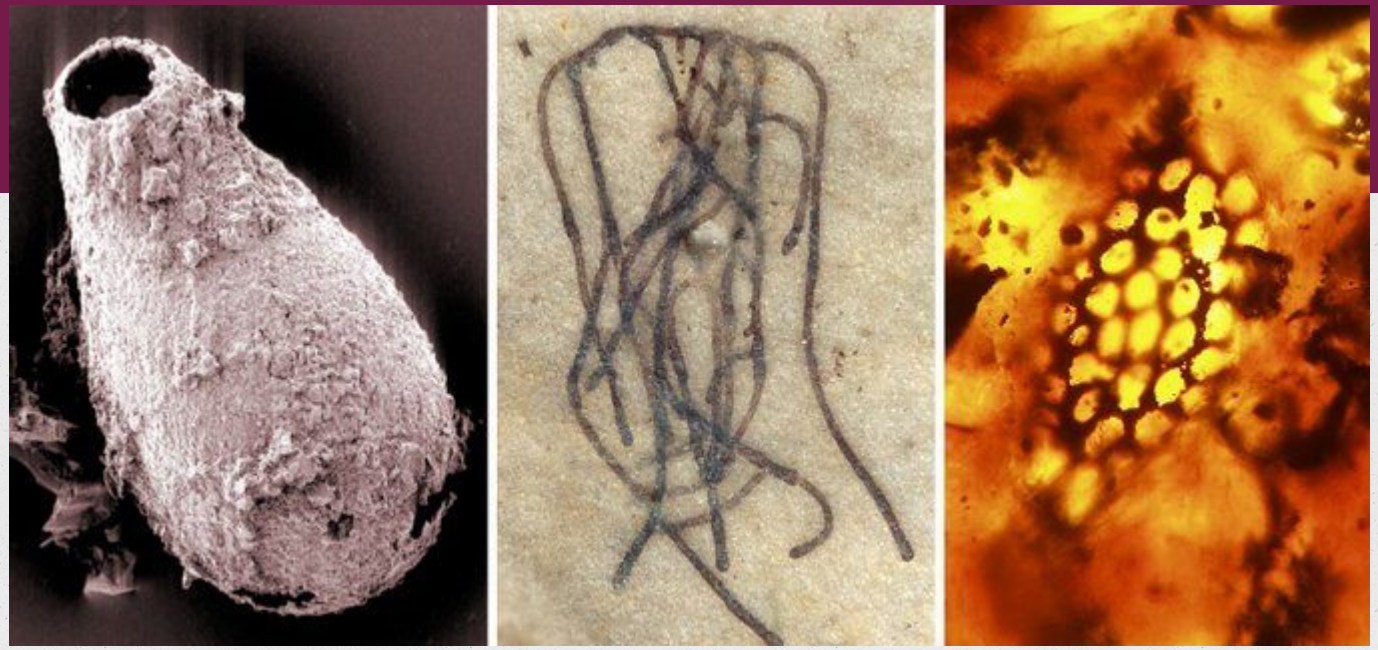
Renormalización

Focus | **09 November 2023**

The renormalization group

A Focus issue celebrating the 50th anniversary of Kenneth Wilson's work on the renormalization group.

Microfosiles y el otro mundo perdido



Los microbios perdidos

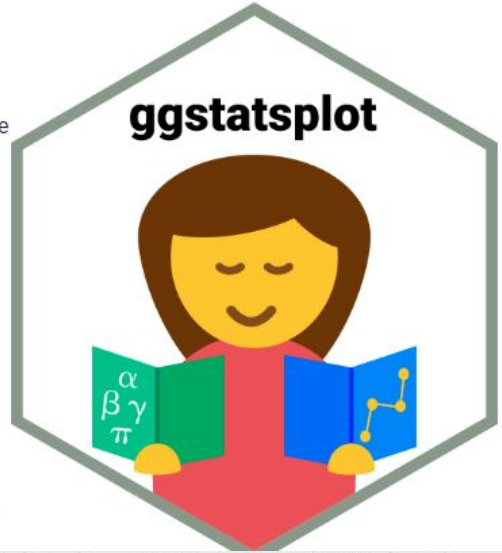
ggstatsplot 0.12.1.9000 Get started Reference Articles Changelog

{ggstatsplot}: {ggplot2} Based Plots with Statistical Details

Status	Usage	Miscellaneous
R-CMD-check passing	downloads 422K	codecov 100%
lifecycle maturing	downloads 583/day	JOSS 10.21105/joss.03167

Raison d'être

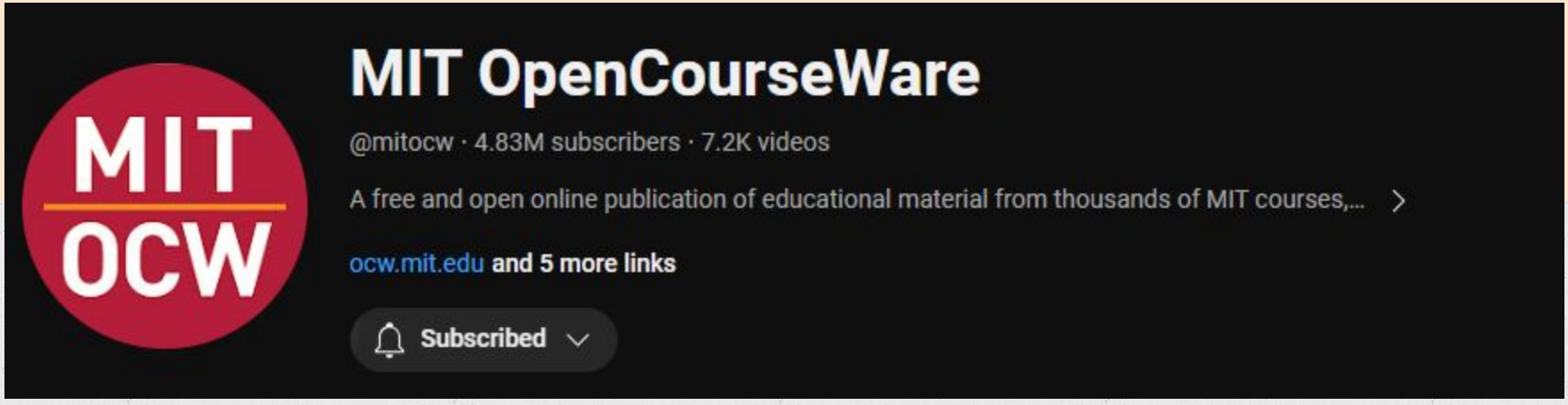
> "What is to be sought in designs for the display of information is the clear portrayal of complexity. Not the complication of the simple; rather ... the revelation of the complex." - Edward R. Tufte



{ggstatsplot} is an extension of {ggplot2} package for creating graphics with details from statistical tests included in the information-rich plots themselves. In a typical exploratory data analysis workflow, data visualization and statistical modeling are two different phases: visualization informs modeling, and modeling in its turn can suggest a different visualization method, and so on and so forth. The central idea of ggstatsplot is simple: combine these two phases into one in the form of graphics with statistical details, which makes data

El destino del libre albedrío

Cursos


MIT OpenCourseWare
@mitocw · 4.83M subscribers · 7.2K videos
A free and open online publication of educational material from thousands of MIT courses,...
ocw.mit.edu and 5 more links
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This is CS50x

CS50's Introduction to Computer Science

OpenCourseWare

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David J. Malan
malan@harvard.edu

- CS50x Movie Night 2022
- CS50x Puzzle Day 2022
- How to Prepare for Technica...
- Zoom Meetings

- CS50 Educator Workshop
- Gallery of Final Projects
- What's new for 2022?

teaches students how to think algorithmically and solve problems efficiently. Topics include abstraction, algorithms, data structures, encapsulation, resource management, security, software engineering, and web programming. Languages include C, Python, and SQL plus HTML, CSS, and JavaScript. Problem sets inspired by the arts, humanities, social sciences, and sciences. Course culminates in a final project. Designed for concentrators and non-concentrators alike, with or without prior programming experience. Two thirds of CS50 students have never taken CS before. Among the overarching goals of this course are to inspire students to explore unfamiliar waters, without fear of failure, create an intensive, shared experience, accessible to all students, and build community among students.

▶ **Watch an introduction**

How to Take this Course

Even if you are not a student at Harvard, you are welcome to "take" this course for free via this OpenCourseWare by working your way through the course's eleven weeks of material. If you'd like to submit the course's problem sets and final project for feedback, be sure to create an edX account, if you haven't already. Ask questions along the way via any of the course's communities!

- If interested in a verified certificate from edX, enroll at cs50.edx.org instead.
- If interested in a professional certificate from edX
  - in web development, enroll at cs50.edx.org/programs/web instead.
  - in artificial intelligence, enroll at cs50.edx.org/programs/ai instead.
- [illegible] instead.
- If interested in transfer credit and accreditation from Harvard Extension School, register at web.dce.harvard.edu/extension/csci/e/50 instead.

And make sure to check the description for a lot of extra resources that go along with the course.

MEMORIA DE LA ESCUELA


Game Theory
Collective Behavior
Nonlinear Dynamics
Emergence
Networks
Complex Systems
Self-Organization
Systems Theory
Pattern Formation
Evolution & Adaptation

Mi propuesta de que es lo que debería enseñarse y cómo.

Curso semestral 2021-2

INTRODUCCIÓN A LA COMPLEJIDAD

Materia optativa de la Facultad de Ciencias – UNAM

Maximino Aldana

Instituto de Ciencias Físicas y Centro de Ciencias de la Complejidad de la UNAM

02/MAR/21 SESIÓN - 01 ▼

Cultura

Conceptos de complejidad en el arte japonés

Comisiones de Ilustración

Científica y Naturalista

¿Necesitas una ilustración para tu

Tesis de ciencia?

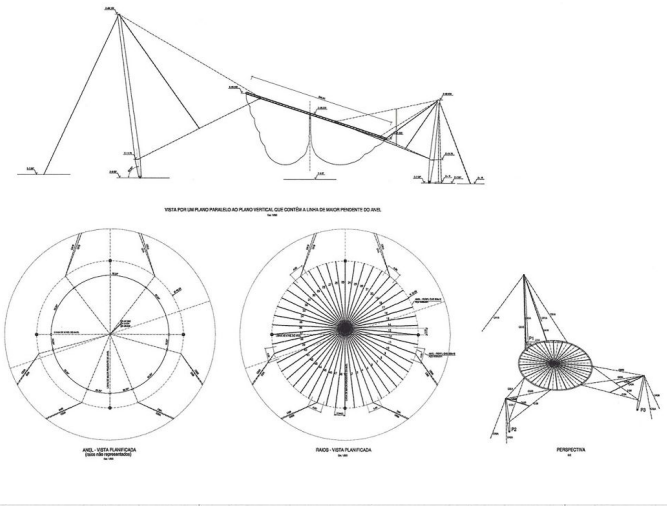
https://www.facebook.com/AdrialychnisArt

Sculptor merges engineering and art to conjure connections among people and nature

Stephen Ornes Authors Info & Affiliations

November 8, 2023 | 120 (46) e2315793120 | https://doi.org/10.1073/pnas.2315793120

Artist Janet Echelman thinks big. One of her recent installations is a 229-foot-long mesh sculpture suspended over a downtown intersection in Columbus, Ohio—the largest public artwork in the city's history. Unveiled in June 2023 and titled *Current*, it sweeps down from its highest perch more than 1
cascading forms that look like complicated waves
below, by pedestrians, or from above, by passeng
blue. *Current* is not Echelman's largest, however.
Unnumbered Sparks, which she installed in 2015
sculpture, *She Changes*, was installed in a small t
measures 300 feet long.



UNAM

Centro de Ciencias de la Complejidad

RAÍZ COLECTIVO
ARTE CONTEMPORÁNEO

ARTE, CIENCIA Y COMPLEJIDAD

EXPOSICIÓN

GENIUS LOCI

el espíritu del lugar

CONFERENCIA INAUGURAL

Manolo Cocho, Germán Vegas,
Estefany Garces y Solange Adum Abdala

Jueves 30 de noviembre de 2023 • 12 a 14 horas • Auditorio del C3 • Transmisión por YouTube del C3

Artículo

On the roles of function and selection in evolving systems

Michael L. Wong, Carol E. Cleland, Daniel Arend Jr., +5, and Robert M. Hazen Authors Info & Affiliations

Contributed by Jonathan I. Lunine; received July 8, 2023; accepted September 10, 2023; reviewed by David Deamer, Andrea Roli, and Corday Seldon

October 16, 2023 | 120 (43) e2310223120 | https://doi.org/10.1073/pnas.2310223120

Significance

The universe is replete with complex evolving systems, but the existing macroscopic physical laws do not seem to adequately describe these systems. Recognizing that the identification of conceptual equivalencies among disparate phenomena were foundational to developing previous laws of nature, we approach a potential "missing law" by looking for equivalencies among evolving systems. We suggest that all evolving systems—including but not limited to life—are composed of diverse components that can combine into configurational states that are then selected for or against based on function. We then identify the fundamental sources of selection—static persistence, dynamic persistence, and novelty generation—and propose a time-asymmetric law that

Review Article | Published: 17 October 2023

Towards a biologically annotated brain connectome

Vincent Bazinet, Justine Y. Hansen & Bratislav Misic

Nature Reviews Neuroscience **24**, 747–760 (2023) | Cite this article

Abstract

The brain is a network of interleaved neural circuits. In modern connectomics, brain connectivity is typically encoded as a network of nodes and edges, abstracting away the rich biological detail of local neuronal populations. Yet biological annotations for network nodes — such as gene expression, cytoarchitecture, neurotransmitter receptors or intrinsic dynamics — can be readily measured and overlaid on network models. Here we review how connectomes can be represented and analysed as annotated networks. Annotated connectomes allow us to reconceptualize architectural features of networks and to relate the connection patterns of brain regions to their underlying biology. Emerging work demonstrates that annotated connectomes help to make more veridical models of brain network formation, neural dynamics and disease propagation. Finally, annotations can be used to infer entirely new inter-regional relationships and to construct new types of network that complement existing connectome representations. In summary, biologically annotated connectomes offer a compelling way to study neural wiring in concert with local biological features.

Article | Open access | Published: 11 October 2023

Learning from prepandemic data to forecast viral escape

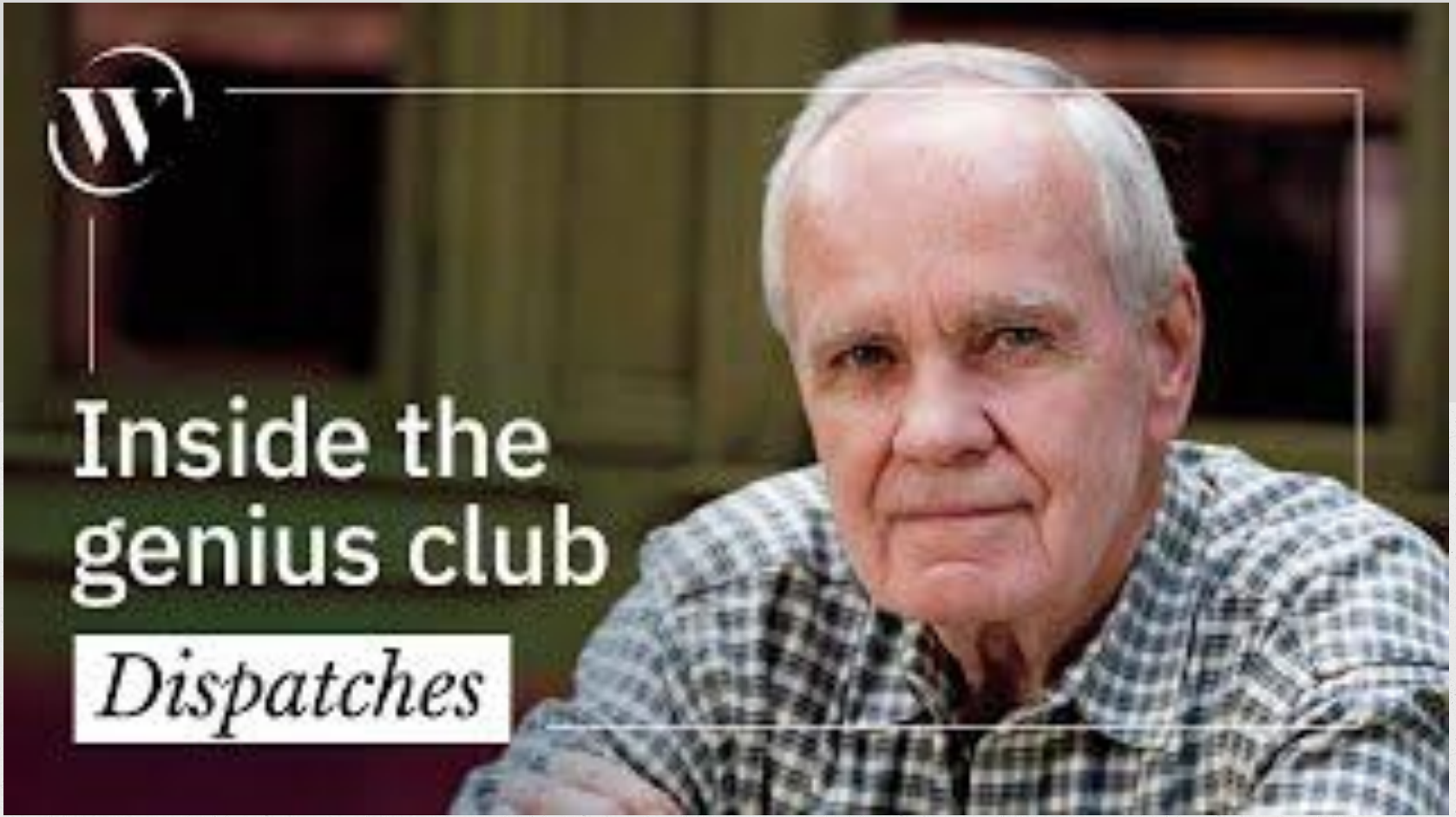
Nicole N. Thadani, Sarah Gurev, Pascal Notin, Noor Youssef, Nathan J. Rollins, Daniel Ritter, Chris Sander, Yarin Gal & Debora S. Marks

Nature **622**, 818–825 (2023) | Cite this article

Abstract

Effective pandemic preparedness relies on anticipating viral mutations that are able to evade host immune responses to facilitate vaccine and therapeutic design. However, current strategies for viral evolution prediction are not available early in a pandemic—experimental approaches require host polyclonal antibodies to test against[1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16], and existing computational methods draw heavily from current strain prevalence to make reliable predictions of variants of concern[17,18,19]. To address this, we developed EVEscape, a generalizable modular framework that combines fitness predictions from a deep learning model of historical sequences with biophysical and structural information. EVEscape quantifies the viral escape potential of mutations at scale and has the advantage of being applicable before surveillance sequencing, experimental scans or three-dimensional structures of antibody complexes are available. We demonstrate that EVEscape, trained on sequences available before 2020, is as accurate as high-throughput experimental scans at

Videos


Inside the genius club
Dispatches


¿QUÉ SE ESTUDIA
EN MATEMÁTICAS?

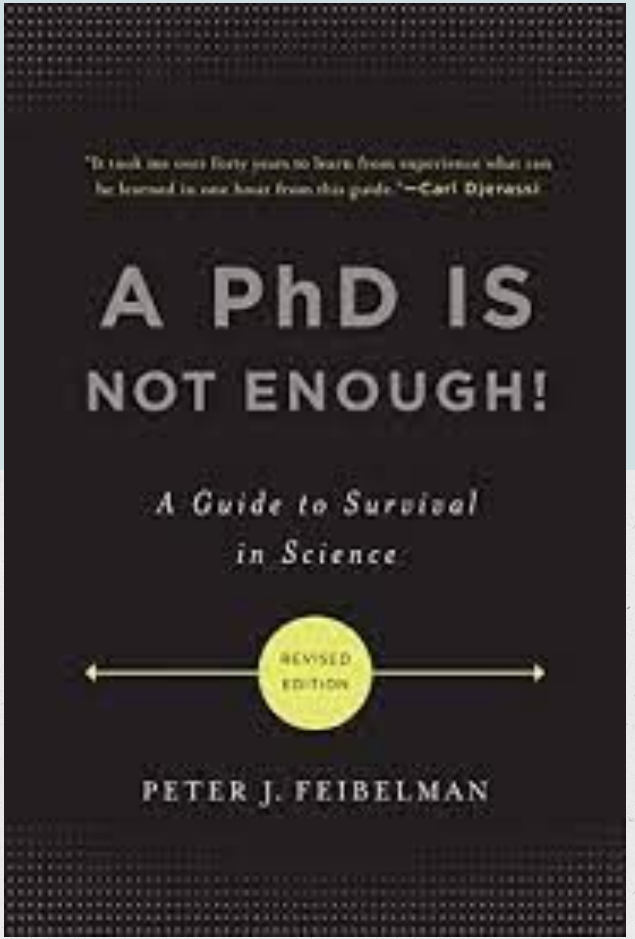

Mi experiencia
como
profesor
de
FÍSICA

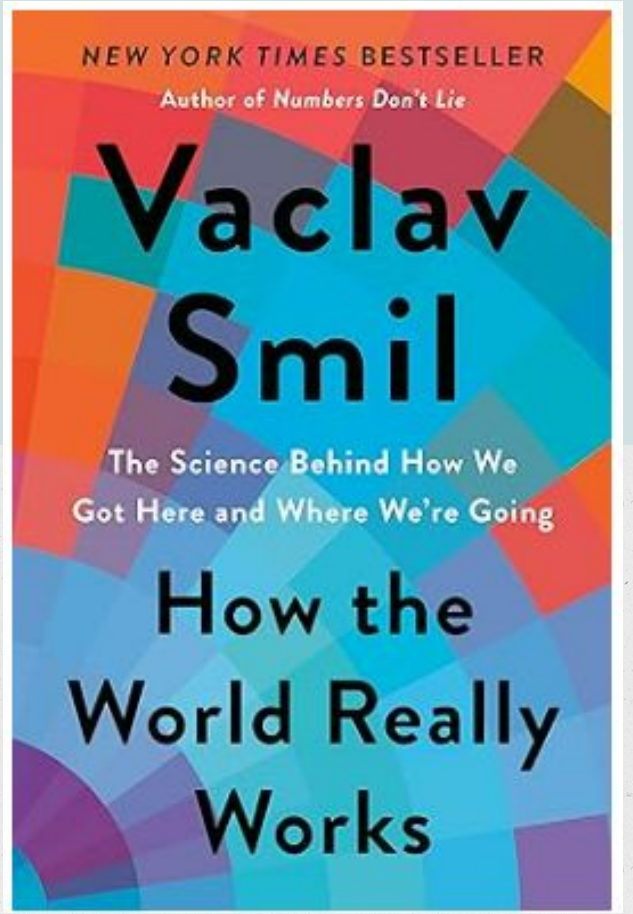
Escuela de Gobierno @EGobiernoyTP · 30 ago.

Hoy en @TheDataPub, el Dr. Oliver López-Corona (@otrasenda_AC) habló del peligro de las narrativas falsas basadas en datos; se refirió a los límites de la inferencia en sistemas complejos, así como a las fallas típicas en el razonamiento estadístico y probabilístico.

Libros


TOP 7
LIBROS
PROBABILIDAD
y ESTADÍSTICA
EL ÚLTIMO
TEOREMA
DE FERMAT
$x^n + y^n \neq z^n$


"It took me over forty years to learn from experience what can be learned in one hour from this guide."—Carl Djerassi
A PhD IS NOT ENOUGH!
A Guide to Survival in Science
REVISED EDITION
PETER J. FEIBELMAN


NEW YORK TIMES BESTSELLER
Author of Numbers Don't Lie
Vaclav Smil
The Science Behind How We Got Here and Where We're Going
How the World Really Works

Notas


SCIENCE NEWS
MARS GLOWS GREEN

Science News @ScienceNews · 21 nov.

Most terrestrial plants and animals departed the ocean for land only once in their distant past, but crabs did it several times in their evolution.

CRÓNICA

Academia

ESTUDIO

UNAM: Ausencia de proteínas durante infancia debilita conectividad cerebral

• Puede fomentar la pérdida de la capacidad del organismo humano para responder ante cambios y perturbaciones del medio ambiente. Los resultados se publican en la revista PLOS ONE