Sunday News No. 66

October 27th, 2019

An interesting but flawed article analyzing the history of industry relationships with scientific research was published this week on Nature.

The author misses the value of moonshot type projects that solve industrial problems because of the underlying first-rate science. Those projects have been an integral part of MIT, include corporate partners, have generated companies that sell over 1,9 trillion dollars a year, and over 80 Nobel prizes since World War II.

He also misses the unique Cambridge model that relied on absolute academic freedom including full ownership of IP by researchers. This laissez faire environment enabled the development of thousands of companies in the so-called Silicon Fen. It was changed in 2004. Read here the stimulating arguments of the defeated Campaign for Cambridge Freedoms.

Sunday News is a selection of about 20% of the links posted daily by the Explora community. I can add you if you want (need to have a Facebook account). Newcomers can check previous Sunday News editions at Explora live.
Have a Great Sunday
Antonio Camara

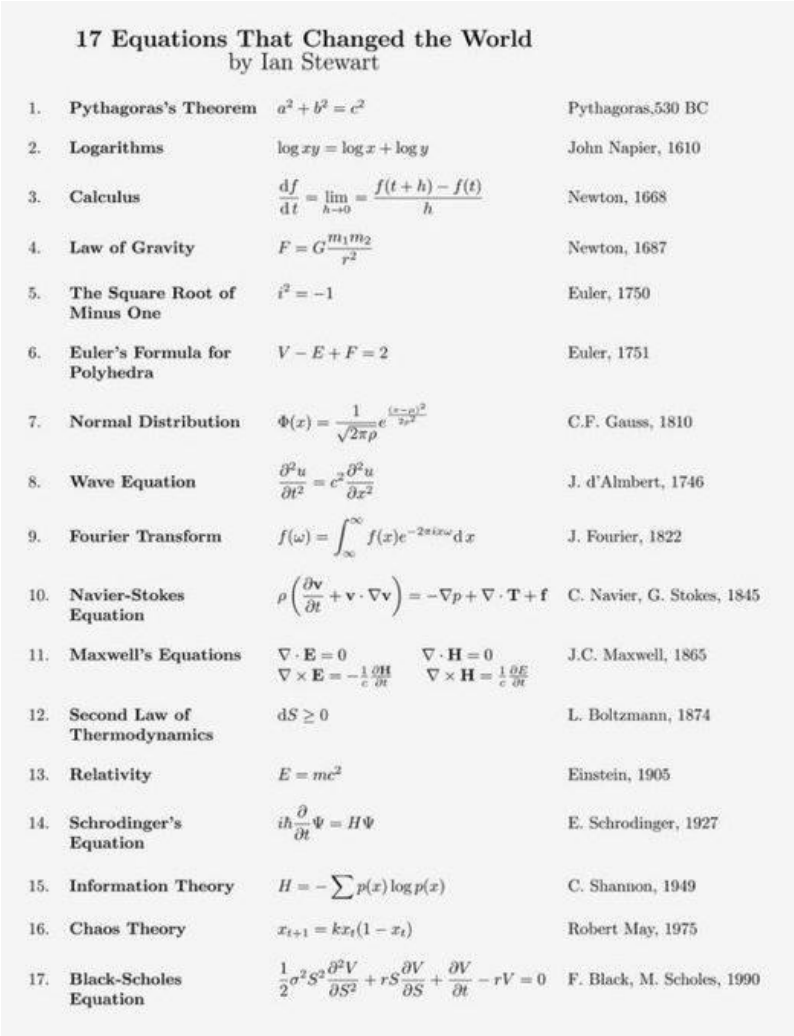
Education

Beyond 800 words: new digital story formats for news (a BBC doc)

A classic from the late Randy Pausch. He knew that he was about to die at the time of this remarkable lecture on Time Management. This is a topic that should be a mandatory requirement in Portuguese education

arXlive is a great place to find breakthrough research

US News global Universities ranking. Universities of Lisbon, Porto and NOVA are improving (slightly)



17 Equations That Changed the World
by Ian Stewart

1.	**Pythagoras's Theorem**	$a^2 + b^2 = c^2$	Pythagoras,530 BC
2.	**Logarithms**	$\log xy = \log x + \log y$	John Napier, 1610
3.	**Calculus**	$\frac{\mathrm{d}f}{\mathrm{d}t} = \lim_{h \to 0} = \frac{f(t+h) - f(t)}{h}$	Newton, 1668
4.	**Law of Gravity**	$F = G\frac{m_1 m_2}{r^2}$	Newton, 1687
5.	**The Square Root of Minus One**	$i^2 = -1$	Euler, 1750
6.	**Euler's Formula for Polyhedra**	$V - E + F = 2$	Euler, 1751
7.	**Normal Distribution**	$\Phi(x) = \frac{1}{\sqrt{2\pi}\rho} e^{\frac{(x-\rho)^2}{2\rho^2}}$	C.F. Gauss, 1810
8.	**Wave Equation**	$\frac{\partial^2 u}{\partial t^2} = c^2 \frac{\partial^2 u}{\partial x^2}$	J. d'Almbert, 1746
9.	**Fourier Transform**	$f(\omega) = \int_{\infty}^{\infty} f(x) e^{-2\pi i x \omega} \mathrm{d}x$	J. Fourier, 1822
10.	**Navier-Stokes Equation**	$\rho\left(\frac{\partial \mathbf{v}}{\partial t} + \mathbf{v} \cdot \nabla \mathbf{v}\right) = -\nabla p + \nabla \cdot \mathbf{T} + \mathbf{f}$	C. Navier, G. Stokes, 1845
11.	**Maxwell's Equations**	$\nabla \cdot \mathbf{E} = 0$ $\quad \nabla \cdot \mathbf{H} = 0$ $\nabla \times \mathbf{E} = -\frac{1}{c}\frac{\partial \mathbf{H}}{\partial t}$ $\quad \nabla \times \mathbf{H} = \frac{1}{c}\frac{\partial E}{\partial t}$	J.C. Maxwell, 1865
12.	**Second Law of Thermodynamics**	$\mathrm{d}S \geq 0$	L. Boltzmann, 1874
13.	**Relativity**	$E = mc^2$	Einstein, 1905
14.	**Schrodinger's Equation**	$i\hbar\frac{\partial}{\partial t}\Psi = H\Psi$	E. Schrodinger, 1927
15.	**Information Theory**	$H = -\sum p(x) \log p(x)$	C. Shannon, 1949
16.	**Chaos Theory**	$x_{t+1} = kx_t(1 - x_t)$	Robert May, 1975
17.	**Black-Scholes Equation**	$\frac{1}{2}\sigma^2 S^2 \frac{\partial^2 V}{\partial S^2} + rS\frac{\partial V}{\partial S} + \frac{\partial V}{\partial t} - rV = 0$	F. Black, M. Scholes, 1990

Food

Would you like fries with that? McDonald's already knows the answer based on your license plate and previous history

The present and future of food tech investment opportunity

Space farmers could grow crops in Lunar and Martian soil

Mobility

Lime's loss to top $300 million in 2019. "The company's vehicles tend to break down before they can generate much cash…and it costs to run warehouses that repair and position the vehicles"

Mitsubishi's new electric car shows off AR dashboard in concept video

Cities, Nature and Clean Tech

101 small ways you can improve your city

Attribution science: the science that fossil fuel companies fear

Rats trained to drive tiny cars find it relaxing, scientists report

How to make use of all of a tree. "A giant Finnish timber mill explores sustainable forestry"

Shapeshift: bold new products from recyclable materials

Los Angeles is testing 'plastic asphalt' that makes it possible to recycle roads

Mars shows man the final frontier of circular economy

Developing new companies
The new science of talent

The Steve Jobs speech that made Silicon Valley obsessed with pirates

Scott Galloway, a NYU Professor and his interesting State of Play (retail, innovation, unicorns)

"An archive of valuable and famous internal company memos" via Benedict Evans

There is one major company doing crypto right: Square. But Zuckerberg argues that Facebook's Libra is the only crypto that will be able to compete against China's digital token projects

Startup CEO salaries

Finding Genius: Keith Rabois, Founders Fund (great interview)

AR/VR/AI/Quantum Computing (DARQ)**/IoT**
Audio augmented reality

What's missing from this new airport? An air traffic control tower. AR based air control

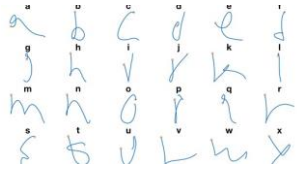
Plicca makes Rockstart Top 10 AI startups. Really proud and happy for them. NOVA FCT Campus is now the birthplace of many exciting up and coming deep tech companies

Another of them is Ynvisible, that branched out into Canada, Germany and Sweden. Just announced this week: Ynvisible Interactive and Electroninks to bring electrochromics to educational consumer electronics

From Big Data to personal lives: how AI-Powered tools will help today's professionals (useful: the future of productivity tools)

How to develop a deep learning chatbot (excellent although quite technical)

Now the machines are learning how to smell



AI allows paralyzed person to 'handwrite' with his mind

The quantum computing supremacy wars: Google claims supremacy; not so fast, says IBM. And China may be ahead of everyone

Far out

'You've Got to Be Kidding Me'**:** WeWork employees outraged over Adam Neumann's billion-dollar payout in SoftBank rescue (unbelievable)

The landscape of cell and gene therapies

Creepy human-like skin makes your phone ticklish and pinchable

A face-scanning algorithm increasingly decides whether you deserve the job (overly creepy)

Is brain stimulation the next big thing? "Over the past decade, athletes, coaches, and researchers have been seduced by the performance-boosting promises of brain stimulation."

Digital rosary discovered to be hackable. Vatican says it has fixed bugs in its new wearable

The 'Joker' stairs might be New York's latest tourist attraction

The 2010s have broken our sense of time

Need costume ideas? "Check out the literature for bad guys, scary women and diabolical creatures"

Out with the old, in with the young. Inter-generational conflict is not new. Listen to the 1967's Who's My Generation

New ideas for intergalactic living