CONCOURS CENTRALE•SUPÉLEC

Anglais

TSI 2015

4 heures — Calculatrices interdites

L'usage de tout système électronique ou informatique est interdit dans cette épreuve.

Rédiger en anglais et en 400 mots une synthèse des documents proposés, qui devra obligatoirement comporter un titre. Indiquer avec précision, à la fin du travail, le nombre de mots utilisés (titre inclus), un écart de 10% en plus ou en moins sera accepté.

Ce sujet propose les 3 documents suivants :
- un texte extrait d'un blog, accompagné d'une illustration ;
- un extrait d'un article paru dans *The Guardian* du 27 février 2013 ;
- un extrait d'un article paru dans *The New York Times* du premier avril 2014.

L'ordre dans lequel se présentent les documents est aléatoire.

"The computer is a tool, not a partner — an instrument for catching the curve, not for inventing it."

Frank Gehry

Frank Gehry (born in Toronto, 1929) is a Canadian-American architect known for postmodern designs, including the Guggenheim Museum in Bilbao, Spain, and the Fondation Louis Vuitton in Paris.

The **Ray and Maria Stata Center** is a 720,000-square-foot academic complex designed by Pritzker Prize-winning architect Frank Gehry for the Massachusetts Institute of Technology (MIT).

The architect says his $300 million new computer science and artificial intelligence building at M.I.T. "looks like a party of drunken robots got together to celebrate."

Boston Globe architecture columnist Robert Campbell wrote a glowing appraisal of the Stata Center on April 25, 2004. According to Campbell, "the Stata is always going to look unfinished. It also looks as if it is about to collapse. Columns tilt at scary angles. Walls teeter, swerve, and collide in random curves and angles. Materials change wherever you look: brick, mirror-surface steel, brushed aluminum, brightly colored paint, corrugated metal. Everything looks improvised, as if thrown up at the last moment. That's the point. The Stata's

appearance is a metaphor for the freedom, daring, and creativity of the research that's supposed to occur inside it."

However, mathematician and architectural theorist Nikos Salingaros has harshly criticized the Stata Center: "An architecture that reverses structural algorithms so as to create disorder — the same algorithms that in an infinitely more detailed application generate living form — ceases to be architecture. Deconstructivist buildings are the most visible symbols of actual deconstruction." (*Anti-Architecture and Deconstruction*, 2007)

GT (Gehry Technologies) Digital Project is a suite of powerful 3D Building Information Modeling (BIM) applications created by Gehry Technologies using Dassault Systemes' CATIA V5 as a core modeling engine.

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theguardian

Who Owns the Future? by Jaron Lanier — review

by Laurence Scott, Wednesday 27 February 2013

The groundbreaking computer scientist asks whether we have given up too much power to the big digital corporations

Jaron Lanier, groundbreaking computer scientist and infectious optimist, is concerned that we are not making the most of ourselves. In *Who Owns the Future?* he tellingly questions the trajectory of economic value in the information age, and argues that there has been a fundamental misstep in how capitalism has gone digital. For Lanier, late capitalism is not so much exhausted as humiliating: in an automated world, information is more important to the economy than manual labour, and yet we are expected to surrender information generated by or about ourselves — a valuable resource — for free.

Information here is a broad term for any conscious intellectual, artistic, or pragmatic contribution to the production of goods, services and cultural output, but it also includes the data that we unconsciously radiate simply by exhibiting certain behavioural and consumer traits. Lanier's project is to foresee how livelihoods might be better sustained in a world in which information is king.

In his view, disproportionate economic power now accumulates around companies who "own the fastest computers with the most access to everyone's information". We donate extremely lucrative information — our interests, demographic predilections, buying habits, cyber-movements — in exchange for "free" admission into social media networks. [...]

To counteract this one-way, feudal system of financial gains, he suggests that we become more ferocious agents of our own informational resources. His vision of a humanistic information economy is one in which participants achieve "economic dignity" by being proportionally compensated for all their contributions to the massive clusters of information — the so-called "big data" — circulating across digital networks.

To illustrate what he means, Lanier describes a couple who found love on an online dating site and whose subsequent marriage has proved long-lasting. In his economy of compensation, if 30 years later another young couple is paired up using some of the statistical data supplied by the first couple's compatibility, then the latter should receive a tiny royalty payment for the use of this information. One of the frightening aspects of a digital world is that it does not forget, but Lanier believes we can use this lack of forgetting to account for the myriad complex ways in which we each supply useful data. In such an economy we would, throughout our lives, be financially buoyed by an accumulation of small remunerations for both our intellectual and biometric property. One of Edith Wharton's characters, a novelist, declares that "a keen sense of copyright is my nearest approach to an emotion." She would brim with feeling in Lanier's world of nanopayments. [...]

A typical dream of revolution is to promise a new age of social transparency. After the storming of the Bastille, French revolutionaries banned masks and costumes, decrying the carnivalesque custom of the masquerade as both symbolic of aristocratic tyranny and a security threat. Facebook founder Mark Zuckerberg famously claimed that "By giving people the power to share, we're making the world more transparent." Lanier is interested in a type of partial unmasking whereby digital economies operate according to the principle that "Information is people in disguise." This ethos emphasises that information is not a neutral, boundless resource to be exploited, but rather is morally inextricable from the humans who supply it. [...]

So should we be excited or frightened by Lanier's vision? An economy of individuals who manufacture commercial products merely by existing has nightmarish implications, and, given his belief that com-

mercialism should be celebrated for having driven the progress of modernity, Lanier isn't the best person to dispel them. "Advertising counterbalances the tendency of people to adhere to familiar habits," he claims. This hagiography of the billboard is a far cry from Orwell's dismissal of advertising as a stick rattling inside a swill-bucket — in Lanier's future the bucket will be hung around our necks. [...]

And yet one of the triumphs of Lanier's intelligent and subtle book is its inspiring portrait of the kind of people that a democratic information economy would produce. His vision implies that if we are allowed to lead absorbing, properly remunerated lives, we will likewise outgrow our addiction to consumerism and technology. Lanier's New World is founded on hard, fulfilling work. He concedes that such a radical reorganisation of worth will demand from us new levels of maturity, discipline and collective responsibility — but then who said dignity should be downloadable for free?

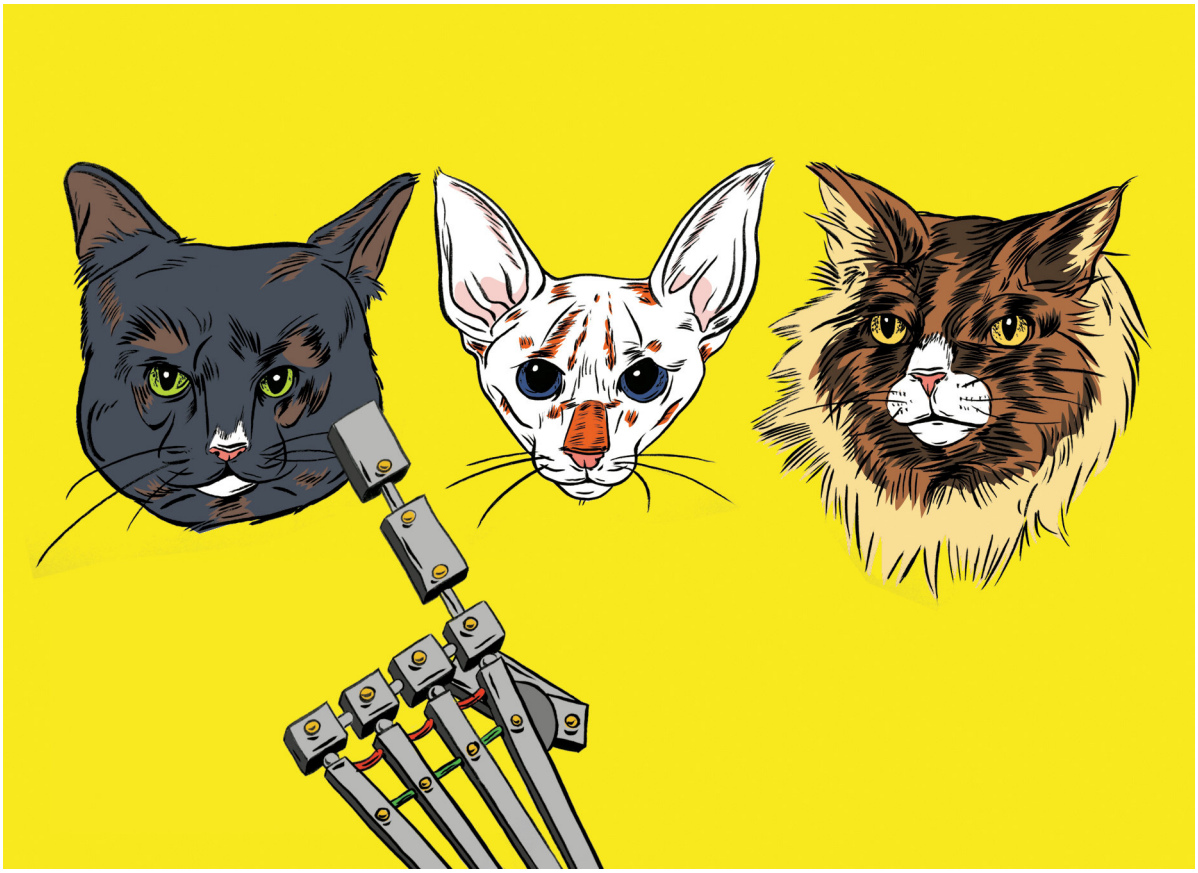
The New York Times

Hey, Robot: Which Cat Is Cuter?

Annie Lowrey[1]

April 1, 2014

Deep Thoughts This Week:
1. There are few things that robots cannot yet do.
2. But we're inadvertently teaching them those skills.
3. That includes my job.



One recent morning, while contemplating writing this column, I scrolled through thousands and thousands of listings for mundane microgigs on Mechanical Turk, or Mturk, a decade-old platform created by Amazon. On Mturk, which advertises paid "human intelligence tasks," I could review and correct transcriptions. I could tag images, perform a Google search, write

[1] Annie Lowrey is an economics reporter for The Times.

a few sentences on a given topic, rate jokes or list items found on a receipt. For each, I would make a nickel or a quarter.

Computers are great at rote, simple tasks. This, of course, has wreaked havoc on all sorts of jobs throughout our economy. Robots have replaced countless machinists and garment workers. Kayak and Priceline, among others, have all but crowded out travel agents. Automated scanning systems are slowly phasing out the checkout clerk, while Tesla is hoping to sell its zippy plug-in cars straight to customers, eliminating the salesman. (And soon those cars might drive themselves.) Mturk and its competitors, like CrowdSource, are intended for the menial jobs that still require a flicker of human intelligence and that computers can't replicate, like deciding whether a photograph is safe for work or understanding a thick, slang-laden accent. [...]

Crowdsourcing platforms are hurrying along the automation of more and more of these tasks. Erik Brynjolfsson, a co-author of the popular book "Race Against the Machine," cites image recognition as one obvious place where humans have helped robots replace them. Crowdworkers can collect pennies for identifying adorable cats in photographs, and then companies take that data and improve software that identifies adorable cats with a marginal cost that approaches zero. "We're at a real inflection point in terms of artificial intelligence and machine learning," Brynjolfsson said. "Things are speeding up." [...]

This is, of course, the latest iteration of a process that has been going on at least since the evolution of the ax and the plow: Man invents a machine to make life easier, and then that machine reduces the need for man's work. Ultimately, it's a virtuous cycle, because it frees humans up to work on higher-value tasks. But technological change can also cause huge economic dislocations. And right now, the great fear is that robots are taking over jobs faster than humans can adjust. [...]

"Software substitution, whether it's for drivers or waiters or nurses" is coming, Bill Gates said recently at the American Enterprise Institute in Washington. "Twenty years from now, labor demand for lots of skill sets will be substantially lower. I don't think people have that in their mental model."

Journalists have often thought of themselves as impervious to automation, but there are creeping signs that the robots have come for our gigs too. Last month, after an earthquake woke up Los Angeles, the first post on the temblor at The Los Angeles Times gave the basic information and carried one Ken Schwencke's byline. "This information comes from the USGS Earthquake Notification Service and this post was created by an algorithm written by the author," it noted at the end.

Yet that does not necessarily mean that half of all journalists — or half of all Americans, for that matter — will lose their jobs to the robots, never to reclaim them. Economists refer to this fear as the "lump of labor" fallacy, the incorrect assumption that there is a finite amount of work to be done, and that the more robots do, the less there will be for the rest of us. In the past, after all, humans have proved remarkably adept at thinking up new things to do when plows, cows, steam trains and dishwashers arrived to help free up some of our time. [...]

The challenge, in other words, is for humans to allow software, algorithms, robots and the like to propel them into higher-and-higher-value work. For journalists like me, that might mean letting computers take over on earnings reports, weather, earthquake warnings and flash sports scores — and doubling down on narratives, investigations and analytical pieces. This very column, for example. I distilled my thoughts down to four bullet points and offered two Turkers a rather handsome sum of $2 to write four sentences. In half an hour, I had my responses back: "Writing projects derived from crowdsourcing are best used for blogs, backlinking, nonexpert informational articles and other needs that do not require 100 percent accuracy. The major downside to crowdsourced work is the vast variability of skills and work ethic..."

For now, at least, I think my job is safe.