

**From:** Joi Ito <[REDACTED]>  
**To:** George Church <[REDACTED]>  
**Cc:** Jeffrey Epstein <[REDACTED]>  
**Subject:** Re: Further reflections on our conversation Feb-29  
**Date:** Mon, 07 Mar 2016 22:05:23 +0000

---

Discussed this with Jeffrey so adding him.

- Joi

On Mar 6, 2016, at 10:16 PM, george church <[REDACTED]> wrote:

Joi,  
Further reflections on our conversation Feb-29. (We should chat at least once per leap day -- hopefully much more).  
We didn't get to "Extended Intelligence" -- but we did get to genius -- which I connect to IA below.

Like it or not, the MacArthur fellowship is (nearly uniquely) associated with genius.

"We avoid using the term "genius" to describe MacArthur Fellows because it connotes a singular characteristic of intellectual prowess. The people we seek to support express many other important qualities: ability to transcend traditional boundaries, willingness to take risks, persistence in the face of personal and conceptual obstacles, capacity to synthesize disparate ideas and approaches."

(Ironically), the second definition, above, looks more like genius than the first (straw man) definition about "singular characteristic", but perhaps a third definition could be better still. Some well-known awards favor discovery and serendipity (over invention and intention) and hence favor one-hit-wonders, which don't necessarily tell us much about intelligence. If the MacArthur Foundation wants to detach the term genius from the current fellows program, then it could do so very effectively by having a separate category which **IS** about genius. If another concern is conserving Foundation resources, they could offer few per year (perhaps less than one) and much less funding per award (since by the age at which people have shown multiple signs of genius, they are probably fine financially and nearly dead).

Four people have received two Nobel Prizes. Marie Curie (1903 radioactivity, 1911 radium). Linus Pauling (1954 the chemical bond, 1962 activism against nuclear weapons), John Bardeen (1956 transistor, 1972 for the theory of superconductivity). Fred Sanger (structure of insulin, 1980 for DNA sequencing). Einstein only got one, but should have five (Photoelectric effect Mar-1905, Brownian motion May-1905, Special relativity Jun-1905, Molecular size Jul-1905,  $E=mc^2$  Sep-1905, General Relativity 1907-1915). Polymath-artists: Leonardo da Vinci, Benjamin Franklin, Hildegard of Bingen, Goethe.

Perhaps a key benefit of such an award is that it forces us to analyze the phenomena of genius, which could be of great value for IA, possibly even of existential value for our species (for example, getting some people stably off earth prior to supervolcano/asteroid/pandemic/globocide). We can measure the number of contributions, number of disciplines, distance between disciplines, how far in advance in years are the predictions/designs, to what degree reduced-to-practice (specified, not vague) and amount of (positive) impact on society. Going forward, it might be useful to recognize teams humans and machines (IA). One argument against a full hive mind (i.e. more individualism) is so that we can have diversification and competition, the hallmarks of successful evolution. We might also want to quantify how many joules needed per breakthrough to seek synergies beyond mere team size (as well as to recognize practical cost tradeoffs).

--George

George Church (Harvard, MIT, Broad, Wyss, PGP) [REDACTED]  
NRB room 238, 77 Avenue Louis Pasteur, Boston MA 02115  
All appointments via [REDACTED]

---

**From:** Joi Ito <[REDACTED]>  
**Date:** Monday, February 15, 2016 at 10:58 AM

Can we meet again?

I really enjoyed the last meeting and it also inspired me quite a bit and has lead to some further thinking and actions.

Rough agenda would be 1) yucks, 2) talking about the future of science and the role that Media Lab (and maybe +you if you're willing), 3) more thoughts on the journal, 4) thoughts on "Extended Intelligence" <http://pubpub.media.mit.edu/pub/extended-intelligence> , 5) the search for more people like you before you were visible, etc.

- Joi