

THE MIND VERSUS THE BODY

STRAIGHT TALKING BY

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EXECUTIVE SUMMARY

Ben Goertzel argues that by connecting various forms of Artificial Intelligence (AI) technologies (as they emerge and evolve) with the human mind and the human body in diverse ways, we can be delivering tremendous positive value to people in real-time. This value is both related to supporting people mentally and physically.

Of course, robots are not humans, but through machines and software, 'learning robots' can be developing a lot of the response patterns that humans have. They get their humaneness ingrained in their responses and behaviour through their inherent AI embedded learning systems.

Dr Ben Goertzel emphasises how it is important to have AI learning systems linked with human minds and bodies, so robots get human values and culture ingrained at a deeper level.

Dr Ben Goertzel also argues how there is no way we can really know for sure what an Artificial General Intelligence (AGI) - created to be 10 times smarter than us - will discover or do for humankind, so there's an irreducible uncertainty here.

When it comes to AI governance and regulation, Dr Ben Goertzel argues for democratic and decentralised control of the global fusion of biological and engineering computation, rather than this evolution being controlled by a small number of governmental elites, or a few corporations. Also, as stated by Dr Ben Goertzel, this will not slow down development processes, partly due to slow government systems or responses.

As an advocate for a self-organizing AI-regulating capacity of society, users and industry, Dr Ben Goertzel argues that governments' (including the international governments such as UN) role here is mainly to monitor risk, and should only do something if something dangerous is spotted.



THE MIND VERSUS THE BODY

On the rise of the machines and the fusion with human bodies

I've spent most of my career **focusing more on the mind part than the body part**, and I want to talk about that a little bit and then come back to the aspect of the fusion with human bodies, which is our core theme.

— Dr Ben Goertzel - Hong Kong & USA.

Product Designer, Inventor & Entrepreneur. CEO and founder of Singularity NET. Chief Scientist of Hanson Robotics, the company that created Sophia the Robot



THE MIND VERSUS THE BODY

1. Artificial Intelligence (AI) and Artificial General Intelligence (AGI)

I've been doing AI research and development, since the late 1980s, and during my career.

We've all seen AI go from a little corner of the academic world to being a major portion of the world economy with an extremely rapid growth trajectory.

We've seen the pursuit of strong Artificial General Intelligence (AGI), AI that can really think like people, but we're certainly not there yet.

We've seen the pursuit of this goal go from being the province of science fiction fans, transhumanism, and isolated maverick researchers, to being something that is pursued by research labs at top corporations.

AI has advanced a lot, and my feeling is we're still near the beginning. However, due to the exponential changes and the speed by which things are happening Artificial General Intelligence (AGI) may only be a few years to decades away in a calendar sense before they become mainstream. This is what makes all these developments so stunning.

I think there is a series of three revolutions:

- **Golden Arrow AI Revolution:** We are already in the way through this revolution.
- **Artificial General Intelligence (AGI) Revolution:** AI technologies begin to generalise and leap beyond the training of data and programming. This is necessary for AI to take over the other half of jobs done by people now.
- **Super Intelligence:** AGIs building new AGIs, building new AGIs, and getting better and better by their own explicit value criteria. This fuses with human nature and values in a way that has yet to evolve.

We're not there yet, we're in the early stages of getting AGI's to work, but I take this prospect very seriously, as do increasing numbers of people in this world.

THE MIND VERSUS THE BODY

2. Fusion with Humans

I want to talk about the fusion between AI and humans, and the roles that human-like bodies have to play in all of this. Suppose the vision I've alluded to is roughly correct, in some time in the future, creating Artificial General Intelligence (AGI) that is smarter than people, then can self-improve by launching an intelligence explosion.

It is obvious there is radical uncertainty in a situation like this, it is an unprecedented step, something that humanity has never done before.

Therefore, there's no way we can really know for sure what an Artificial General Intelligence (AGI) was created to be 10 times smarter than us, could discover or do, so there's an irreducible uncertainty here.

There's tremendous potential benefit from AGI:

- Being able to build stuff out of molecules as a child can do with Lego.
- A potential system that can crunch advanced math theorems in the same way that the calculator adds large numbers.
- Systems that can fix what goes wrong inside the human body as it ages in a similar way to how we keep an antique car going.

The potential good is tremendous, the potential on the other side is also very clear - but this is the downside:

"The AI does not love you; it does not hate you, but he can use your atoms for something else".

— Eliezer Yudkowsky, American decision theorist and artificial intelligence (AI) theorist

We're down to the question of how we bias things in the more beneficial direction, where beneficial is of course a complex and evolving set of human values that none of us call fully pin down and understand. I think this is where embodiment becomes quite important, because human culture and values are not enumerated on a list, and they are not a precise and fixed thing, they are themselves an evolving organism within human brains and collective among multiple human beings.

By connecting AI technologies as they emerge and evolve with the human mind and the human body in diverse ways, we can be delivering tremendous positive value to people in real time.

We're also infusing the emerging Artificial General Intelligence and Super Intelligence with human culture and values, in a richer way than any pre-programming list of ethical values is going to provide.

THE MIND VERSUS THE BODY

The robots that we are rolling out at Singularity (<https://singularitynet.io>), in a joint venture with Hanson Robotics, are putting eyes inside bodies that smile like humans, walk around like humans, interact with humans, do face tracking and emotional response. This doesn't mean these robots are humans, but it means that the robots are getting a lot of the response patterns that humans get - they're getting a bunch of humaneness ingrained in their learning systems.

Brain computer interfacing gives a whole other visibility into how human minds and hearts are working, and it gives AI a complimentary ability to fill itself with human values and culture and understanding in a real time way - we have a lot of potential for AI-human synergy.

The final point I want to make is that it's important not only that we have AI linked with human minds and bodies as they grow and learn, so they get human values and culture on a deeper level, but...

it is important that there's democratic and decentralised control of this global fusion of biological and engineer computation, rather than being controlled by a small number of governmental elites, or a few corporations.

If we managed to pull this off, I think we can see singularity that's more on the beneficial side within our lifetimes which is incredible to think.

3. Why do we need to humanise robots? What is so stimulating about having a full robot that is like a human?

I think the 'interactive by design' of humanoid robots is a subtle pursuit unto itself, distinct from the AI behind them.

There is an additional psychological impact that comes from having your robot in the same physical space. We've used the Sophia robot as a meditation guide, and we've had Sophia's little sister, Grace, doing some consciousness expansion leadership where she leads people through telling stories and deep listening visualisation.

With many people you find having the robot there in the same physical space, it just has a different impact in quantifying the journey itself. I don't think we fully understand the robot side yet, but we can work with it from a sort of artistic, product development and human standpoint, which is important to understand and just build an experiment with.

THE MIND VERSUS THE BODY

4. Can we anticipate and propose governance solutions for the potential consequence of these emerging technologies?

How far are the producers of Artificial General Intelligence (AGI) prepared to submit public judgements on ethical and social desirability?

I think the right ethical framework is going to emerge in a sort of self-organising way from a large number of humans feeling out the utilisation of these new technologies. I'm pessimistic about the United Nations or ethics boards of large companies, or a bunch of deep-thinking pundits like ourselves, laying out what is the right ethical framework. So, to me, it's much more useful to focus on what is the process by which these technologies are rolled out and then utilised by people.

We need to make sure that there is a democratic, decentralised, and transparent sort of process there, so what people are doing can be shared and understood. The ethics will then self-organise into a better state in a free and open way, so that lots of things are done with good intentions and with positive ethics in mind.

I mean as a broad general principle, of course, governments will assess risk and of course, if something is dangerous, something must be done to mitigate it.

But I also think there's a lot of diversity in Europe which may not be getting represented in the governmental processes that are assessing risk and proposing mitigations.

As singularity approaches, we are going to see more and more rapid development and deployment of different technologies and governmental processes are going to be slower than the advance of new technologies. I think the government are not going to stop these advantages, rather we are going to see more of the sort of self-organizing regulating capacity of society, users and industry.





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