The Rise of Homo Roboticus

In a twenty-year study, Wharton Professor Philip Tetlock showed that the average expert was only slightly better at predicting the future than a layperson using random guesswork — the equivalent of a “dart-throwing chimpanzee” (Tetlock & Gardner, 2015). There are, however, some people with real, demonstrable foresight. They are the superforecasters.

This paper is the result of a superforecasting exercise: gathering evidence from a variety of sources, thinking probabilistically, keeping score, and being willing to admit error and change course — to predict how artificial intelligence will develop in 10 years and what kind of changes it will bring to the world. But first, how does one forecast the trajectories of Large Language Models (LLM) that have become the foundation of artificial intelligence?

Forecasting Technological Progress of LLMs

Several models have been proposed for predicting technological improvement. An early hypothesis in 1936 by Theodore Wright says that cost decreases as a power law of cumulative production. Moore’s law says that technologies improve exponentially with time. Using a new database on the cost and production of 62 different technologies, Nagy et al. (2013) tested the ability of different postulated laws to predict future costs. Wright’s law produces the best forecasts, but Moore’s law is not far behind.

We can already see technological improvement unfold in real time. For instance, the recently released DeepSeek R1 model LLM rivals the performance of OpenAI’s latest model, but at only 3% of the operating cost (Smith, 2025). DeepSeek is fully open source with a decentralized model that runs locally on iPhones and Raspberry Pi’s. DeepSeek offers a disruptive potential to increase production through scaling with the number of devices, following Wright’s law.

Meanwhile, the Stargate Project by Masason and Altman finds a different path to increase production. The underlying Nvidia chip technology at its massive data centers improves exponentially with time according to Moore’s law. The LLM competition is becoming a battle of David vs Goliath; as decentralized open LLM models running on a large number of small devices battle centralized closed LLM models maintained inside massive data centers.

An interesting question arises: which LLM model will likely dominate in 10 years?

Embodied AI: This Time is Different

Imagine a cluster of LLMs running on the latest Nvidia chips — whether distributed or centralized — embodied in the physical world as a wandering tribe of self-servicing humanoid robots, equipped with state-of-the-art sensors and actuators, all connected via direct satellite links, who can learn about our world as they roam across the land while sharing new knowledge with each other instantaneously.

Would such a powerful tribe of *homo roboticus* outcompete the *homo sapiens?* Can humans co-evolve with the robots — and adapt to survive and thrive? Would humans then become smarter or dumber? My guess is that producers who work with embodied AI become smarter, whereas AI-illiterate consumers become dumber.

In 10 years, humanoid robots will be everywhere: handling chores for us in our homes, serving us cappuccino or ramen in our neighborhood cafes, and of course, doing assembly work in factories alongside humans (Arthur, 2015). But what happens when humanoid robots created in factories become equipped with empathic AI technology that enables them to detect human emotions — better than even some humans — and are introduced into our society?

Curing Baumol's Cost Disease

The key to economic progress is this ability to do more with the same investment of capital and labor. The late economist William Baumol explained why labor-intensive services get more and more expensive as the economy grows: rising productivity in the manufacturing sector of the economy inevitably pushes up the cost of labor-intensive services like education or healthcare.

In other words, "at least until we invent robotic professors, teachers, doctors, and nurses, we should expect these low-productivity sectors of the economy to get more expensive" (Lee, 2017). So I offer this prediction: humanoid robots have the potential to finally cure Baumol's cost disease — one that has plagued our modern economy for the last two decades.

Why? Because by 2030, 1 in 6 people in the world will be aged 60 years or over. There will soon be a shortage of manpower for the service industry. The world is thus on the precipice of a great change when humanoid robots enter our service economy in ever greater numbers — and start bringing down prices for the next 10 years — just as the human population becomes older.

"If I have seen further it is by standing on the shoulders of Giants." — Sir Issac Newton (1675)

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