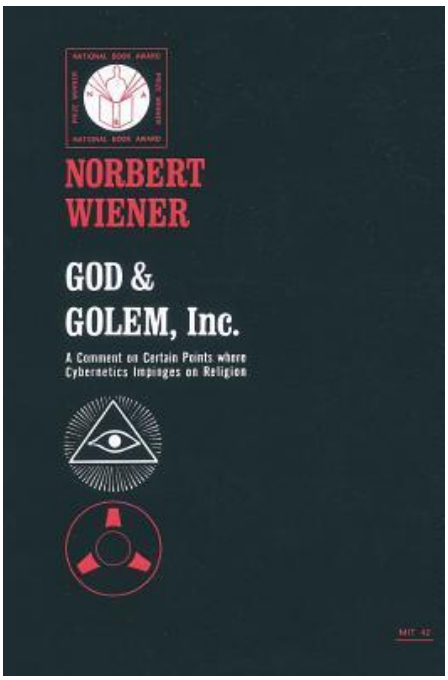

God & Golem, Inc.

Norbert Wiener

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God & Golem, Inc. Norbert Wiener
The new and rapidly growing field of communication sciences owes as much to Norbert Wiener as to any one man. He coined the word for it-- "cybernetics." In "God &; Golem, Inc.," the author concerned himself with major points in cybernetics which are relevant to religious issues. The first point he considers is that of the machine which learns. While learning is a property almost exclusively ascribed to the self-conscious living system, a computer now exists which not only can be programmed to play a game of checkers, but one which can "learn" from its past experience and improve on its own game. For a time, the machine was able to beat its inventor at checkers. "It did win, " writes the author, "and it did learn to win; "and the method of its learning was no different in principle from that of the human being who learns to play checkers."

A second point concerns machines which have the capacity to reproduce themselves. It is our commonly held belief that God made man in his own image. The propagation of the race may also be interpreted as a function in which one living being makes another in its own image. But the author demonstrates that man has made machines which are "very well able to make other machines in their own image, " and these machine images are not merely "pictorial" representations but "operative" images. Can we then say: God is to Golem as man is to Machines? in Jewish legend, "golem" is an embryo Adam, shapeless and not fully created, hence a monster, an automation.

The third point considered is that of the relation between man and machine. The concern here is ethical. "render unto man the things which are man's andunto the computer the things which are the computer's, " warns the author. In this section of the book, Dr. Wiener considers systems involving elements of man "and" machine.

The book is written for the intellectually alert public and does not involve any highly technical knowledge. It is based on lectures given at Yale, at the Socié té Philosophique de Royaumont, and elsewhere.

God & Golem, Inc. Details

Date	:	Published March 15th 1966 by Mit Press (first published January 1st 1964)
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From Reader Review God & Golem, Inc. for online ebook

Sandeep Mertia says

Book Review – God and Golem, Inc. by Norbert Wiener

“Knowledge is inextricably intertwined with communication, power with control and the evolution of human purposes with ethics and the whole normative side of religion.”

The above statement, to my mind, is founding Wiener’s quest for looking in to where and how cybernetics impinges on religion. He casts the book as a primer to the study of relationship or links between cybernetics and religion; acknowledging the violence he may cause by venturing into this field, he devotes considerable thought in laying down the method or approach of how it should be studied – in his view – with the spirit of an “operating room”.

Wiener thematises the discussion by constructing a comparative narrative between ‘God and Man’ and ‘Man and Machine’ – in other words, between ‘Creator’ and ‘Creature’, and identifies three concerns related to Cybernetics which he thinks are the most relevant to religious issues – 1. Machines which can learn; 2. Machines which can reproduce themselves; 3. Coordination of man and machine.

Firstly, the idea of machine learning is problematized by the notion that only ‘self-conscious’ systems can ‘learn’. Wiener states that by ‘machine’ he mean the systems which take certain input signal(s) and transform it to give output(s). So, if a machine can improvise its performance, it is said to learn – giving the example of chess playing machine, author skirts the man-machine duality by discussing that – the ‘intelligence’ displayed by the machine is essentially of the one who programmed it, at the same time, one can’t predict completely how this intelligence will play out. Although the author classifies the processes which a machine can learn and the dependence on the objective criterion of merit and invokes Nueman’s idea of bringing a machine to saturation state. However, such a conception is quite out-dated in the present scheme of technological development – as the author’s prediction of ultimately chess machines being saturated is not valid, in fact a chess playing computer—Deep Blue defeated the chess grandmaster Garry Kaparov in 1997, after Kasprov got better of the machine in 1996 . One important observation to make here is that of the historicity of the problematic of ‘Artificial Intelligence’ – Samuel’s checker-playing machine was able to attract largely similar concerns—of replicating, augmenting or replacing human intelligence with that of machine’s—as that of today’s smartphones.

Drawing the distinction between learning of an individual and phylogenetic learning, Wiener enters in to the complex terrain of reproduction of machines. Taking a Darwinian route to the question: ‘What is the image of a machine?’, Wiener gives the classification of a pictorial image and an operative image. While one can summarize the reproduction problem with the following aphorism from the text – “…a hen is merely an egg’s way of making another egg … the machine may generate the message, and the message may generate another machine.” The author frames the discussion lucidly by invoking the creationist and Darwinian notions in the context of the machine, however, one subtle theme which he does not stress much upon, is of identity of the machine. While he clearly states that machine’s reproduction is very different from biological reproduction, however, he still is tempted to draw similarities between the two – and in the process, it seems to my mind, that the real trouble making question is to how build a notion of identity of the machine.

The problem of identity of machine provides a perfect link to the third concern raised by Wiener – of that of coordination of man and machine. Author spends a lot of time exploring links with the Golem and black

magic, and technology, to arrive at the concluding characteristic between the two – that of ‘literal mindedness’. He gives a brilliant analogy with atomic warfare to highlight the point of our inability to see the consequences of automation. This inability, I think, gives rise to lot of speculation and apprehension as well, one of which Wiener puts as: “The gadget minded people often have the illusion that a highly automatized world will make smaller claims on human ingenuity than does the present one and will take over from us our need for difficult thinking, as Roman slave who was also a Greek philosopher might have done for his master.” He negates this argument by stating that – “A goal seeking mechanism will not necessarily seek our goals until we design it for that purpose, and in that designing we must foresee all steps of the process for which it is designed, instead of exercising a tentative foresight which goes up to a certain point, and can be continued from that point on as new difficulties arise…”. Wiener may sound convincing, but one can easily accuse him of being technologically deterministic – which brings me to the larger argument that I would like to make – that it is impossible to figure out the relationship between man and machine without co-constructivist or phenomenological approaches. To be fair to Wiener, he is not technologically deterministic all throughout, and does state that: “The world of future will be an ever demanding struggle against the limitations of our intelligence, not a comfortable hammock in which we can lie down to be waited upon by our robot slaves.”

In the last sections of the book, Wiener takes up the case of relation between man and machine more explicitly, and gives an overview of what he feels the math-centric inter-disciplinary nature of cybernetics would be like. While discussing the former, he develops interesting ideas of mechanic-human systems in relation to problems of prostheses and translation. And in the case of latter, he critiques the poor use of mathematics in social sciences. Even though he concedes the importance of ideas of cybernetics in sociology and economic, however, being a mathematician his slightly positivist stand on math and machine is evident. Overall, Wiener does succeed in his attempt to connect few dots between cybernetics and religion, and since this book was written before the theories of social construction of technology came into being, one must appreciate Wiener’s attempt to cross disciplinary boundaries and presenting ideas on machine in new light.

Ptakopishka says

This little essay compilation is a wonderful thought-provoking read, especially if you keep in mind that it was written 50 years ago - could easily be a Wired article from last week. It is a bit more hectic than, say "Cybernetics", and does not contain any mathematical proof (as a choice), thus fits to the less-knowledgeable reader as well.

Oron Propp says

In this essay, Norbert Wiener discusses the areas of cybernetics, his intellectual progeny, with capacity to impinge upon religion. While Wiener's development of the technical, cybernetics component of the topic is thorough and interesting, the moral and religious perspectives presented are severely lacking. Moreover, Wiener's pursuit of a three-pronged thesis results in relatively disparate sections and ideas, although some overarching themes are ultimately discernible, accompanied by remarkable prescience. Wiener concludes with an intriguing statement on the responsibilities of politics and religion with regards to the moral issues raised by technology—yet disappointingly does not expound upon or support it. Nonetheless, a lucidly written piece, making admirable use of literary, political, and philosophical allusion, which, despite its

shortcomings, has added Wiener's Cybernetics to my mental reading list.

H Gultiano says

In a little Thai Buddhist tract about the Kalama Sutta, how to deal with an overabundance of options, I read a line about computers. That is, though they are powerful, the mind of the designers of the gadgets/tools/programs is that which sets the intention of the device/program's interaction within and between the beings using and/or used by it. Since these minds aren't necessarily held to any standard of enlightenment or even humanistic morals, the tract advises: "computer's shouldn't be worshiped so much."

In this book, the only Norbert Wiener text I've read, I was a bit surprised to find a similar sentiment where he criticizes "gadget worshippers" (53) for not taking into account unforseen consequences of technological "magic." Reading it with a critical eye on motivation, as I watch the world be further transformed by tech development, including my home city of Seattle being completely remade into new temples of worship for The Code, its acolytes with their heads in the cloud. He seems to be aware of how AI will probably develop, and possibly is a bit weary of possibilities, but not altogether against them or for them. Instead he points out how the religious (and I'd say, nonsecular humanist) criticism and fear of AI and robotic development is founded, and explains in detail how machines can reproduce themselves.

The motive for the creation of machines and AI may not be on the evil side of the dualistic coin. The argument i read in this text is that doomsday weaponry is the real evil and mechanistic complication and development to the point of AI and self-organizing system is a step in evolutionary curiosity and natural human ingenuity. Reading this in the period of ubiquitous computing and Phillip K. Dick shaped robots making jokes about putting humans in zoos, I still think that creation of complex tools and even other beings isn't scary, it's strong vortexes of capital and power that encourages the direction of such development. The vectors of such development are still influenced by corporate agendas, and even though people like Wiener may have chose not to emphasize the control aspect of cybernetics as much as the systemic efficiency, I'm witnessing a magnetism to develop a future where the minds of the few directly affect the lives of the many, and all systems of the earth are put under concrete (for as long as you can keep them down: a biologist friend of mine saw an abandoned highway completely destroyed by trees growing through it because it was easier for them to grow there than in the thicket of roots). I would emphasize that through the other force I'm seeing arising, involving play, creation for curiosity and symbiogenesis of nonanthropocentric life systems, the tools and epistemology of cybernetics can be used to benefit, but if we keep our underlying metaphors of control and military-industrial complex phrasing like Wiener and many authors of programming manuals seem have as their psyhophysical OSes, we're going to fail and make the world even more damaged; I have a hard time seeing any other future within these conditions.

Anyways, I'm editorializing. I was actually expecting to read Norbert Wiener as being a way worse person, but besides the uncomfortable references to Hitler and Eichmann and the sketchy red black and white cover inciting paranoia about the fascist ties to futurism, I feel that Wiener was acting based on a type of passionate invention. It also made me wonder how the discussion of mechanical development vs religious/humanistic beliefs has developed in since the 60s when this was written. There seems to be a polarization still, with people mostly leaning towards either technological saviorism or total back-to-nature neopioneerism that I see in America at least, which could ironically destroy the forest just as bad, as Alaska's gentrification and development encouraged by TV shows like "Alaska: The Final Frontier" seem to encourage using the guise of naturalism. A magazine display painted this picture out very nicely to me: the cover of Wired showed Jerry Seinfeld (upper class celeb) wearing Google Glass, propped up on the rack next to American Pioneer

magazine with a drawing of the archetype of working class masculinity, a coon-skin hat wearing hunter perfectly capable of self-sustaining in the (hard to find) wilderness.

The title of this book implies this continuing conversation: what are the intersections between what may control us and/or influence us, human control and/or influence over other life, and the patterns we base these actions on such as industry and market capitalism or free market open source type development? There are many voices to listen to along these lines, and not one in particular I feel is worthy of worship.

Thomas says

this was sorta interesting i guess but it's pretty dated, there's not really anything novel here.

Ovidiu Neatu says

The author emphasizes more on the human-machine relationship and speaks about the posiblity of self-learning,self-reproducing machines and other cybernetic related stuff.

Some things are obsolate and what you can find in this book you can find in most of the new popular science books - those including Artificial Inteligence topics.

Brittany Tobiason says

I am a huge Norbert Wiener fan and even went through a period of carrying a book of his around as a safety blanket. The endeavor of this book and the sparks off it are reason enough to own it, as far as I'm concerned. That said, I find that the work feels truncated: it ends too soon and does not synthesize and solidify its conclusions in Weiner's usual very clear and characterful style. It's as though he just stopped writing it.

Charles Straney says

Definitely not worth picking up, despite its awesome title and neat cover design. Wiener is rambling, self-consciously florid and ultimately regurgitates some of the most facile musings on his theme of 'cybernetics + religion' one can possibly imagine.

Carlos says

Para darnos una idea de cómo avanza el mundo podemos tomar como ejemplo esta maravillosa obra "God & Golem Inc." del padre de la cibernética Norbert Wiener quien plantea tres problemas éticos que eran (y siguen siendo) fundamentales en el desarrollo de tecnología:
1. Las máquinas que son capaces de aprender.
2. Las máquinas que pueden reproducirse.

3. La sincronización entre máquina y persona.

La lectura aborda estos temas dentro de su contexto histórico (1963) y es interesante ver como lo que en ese momento fue enunciado como una [lejana] posibilidad es hoy en día una realidad.
Las técnicas modernas de aprendizaje de máquina, procesamiento de conjuntos gigantes de datos, aplicaciones como traducción automática o sistemas expertos para diagnóstico entre otros son mencionadas.

Sin embargo, supongo que por el carácter posmoderno del hombre actual, los sistemas se han desarrollado sin gran conflicto ético.

Esperemos que la máquina que oprimiría el proverbial botón rojo que iniciará la tercera guerra mundial, aún no haya sido inventada.

Arthur Gershman says

In reviewing this book I feel a little like Icarus. I feel afraid to fly to close to the sun of Norbert Wiener's genius, herein exposed full force. For example, have you ever been asked the chicken and egg question? Norbert Wiener answers thusly, "a hen is merely an egg's way of making another egg.." Contrast this with "The Selfish Gene" which took Richard Dawkins a whole book to say. (See my review of this book elsewhere at Amazon.com.)
The subtitle sets forth, in brilliant compaction, the theme of this essentially extended essay: "A Comment on Certain Points Where Cybernetics Impinges on Relgion."

First, Wiener considers machines which learn.

Next, Wiener considers machines which reproduce themselves.

Wiener's work anticipates the entire modern field of bioethics. As Wiener says in his final chapter, "I have now run through a number of essays that are united by covering the entire theme of creative activity, from God to the machine, under one set of concepts. The machine, as I have already said is the modern counterpart of the Golem of the Rabbi of Prague." If you are concerned about cloning, or man playing God, I urge you to buy and study this book.

Josh says

I picked this book up from a used book sale several years ago in IF. I had finished Gleick's The Information not too shortly beforehand and was familiarized with Wiener through that read. It was slim and cheap and seemed like it could be a easy enough intro into some of Wiener's writings.

Overall this is not a book I will continue to bestow shelf-space to. Why? 1) (As others rightly point out) It's dated. After a few pages after discussing how a machine could learn to play a game like chess, Wiener remarks that preparing machines to play a complicated game like go would be a large challenge for games engineers. Last year Google's AlphaGo defeated the reigning world champion. This remark, among others, are no longer of interest given how far tech/cybernetics has developed. 2) Wiener's writings are scattered and

do not fit well under the heading "A Comment on Certain Points where Cybernetics Impinges on Religion". It may have been better titled as "A collection of comments on how computers can learn to play games, how the social sciences aren't as rigorous as the physical sciences and cybernetics should be tested first in the latter, and assorted derivative observations on the dual potential benefits and risks of technology, with a few asides regarding the current Cold War."

Honestly, I would be interested in reading a book on cybernetics and religion, but this is not that book. The remarks that do actually fit its jacket cover description are soon left by Wiener for another thread of writing, and the ideas are generally shallow and poorly developed. As I recall, in The Information, Gleick wrote on how Wiener was jealous of Shannon's development of a mathematically rigorous information theory, and tried to pose his creation of 'cybernetics' as being something equally as worthy of scholarly attention. That vision of Wiener may have biased my reading, but it wasn't hard to see how in this text Wiener would like us to see cybernetics as some novel, visionary theory that could have far-reaching effects on the human experience, including religion. It doesn't seem to be the case, and the creator himself fails to deliver. To borrow from one of Wiener's metaphors I'll just end by saying it appears Norbert's golem really was just a parlor trick.

Maxwell Foley says

I blindly picked this up because it was short and the cover was really provocative. It might have been more revelatory at the time it was written, but it's basically a fairly standard discussion of concepts surrounding AI and technological singularity, presented in a not-incredibly-compelling way.

Jordan says

It's very strange to read this book and remember it was written more than 50 years ago. It deals with exactly the same questions on the tip of the tongue of society right now. It's full of insightful, but somewhat ignorant ideas (from the perspective of the present day).

Apart from a pretty racist little nugget at the very end (I think? It's hard to tell), it's an important book to look back on what the past thought of the future.

Richard says

This book's primary conclusion, that humans must recognize the ethical responsibility of thinking through the possible impact upon humanity of any new technology _before_ implementing it, is one you could find in a dozen high-profile books of the past decade. What's notable about this book, aside from a prose style that's surprisingly engaging for a mathematician, is that Wiener easily identified most of today's vexing issues regarding the ethical use of technology over fifty years ago, before the IBM System/360 was even on the market.

Andy Oram says

This is a useful historical text to consider in debates about how far to entrust decisions to search engines, expert computer systems, unmanned aerial vehicles, and other automated agents. Wiener, succinctly and with persuasive examples, makes an argument similar to Joseph Weizenbaum's *Computer Power and Human Reason* about the necessity of drawing on the judgment of people. Short as it is, this book meanders somewhat. One could easily become derailed near the beginning with some highly speculative technical mumbo-jumbo (it almost seems that Wiener threw it in for that purpose), and he also digresses for commentary on the U.S.-Soviet ideological battles of the day. Furthermore, religious references are restricted to the very beginning.
