



---

# ALIEN LIFE: TRANSITION TO SILICON LIFE – “HEY, WHY NOT? WHAT COULD POSSIBLY GO WRONG?!”

---

Richard Nolthenius – Cabrillo College



---

# CARBON BASED LIFE HAS LIMITATIONS...

- It dies
- It's subject to colonization by parasites
- Radiation, DNA damage possible

But there's a much more serious one...

---

---

# CARBON BASED LIFE HAS LIMITATIONS...

- It dies
- It's subject to colonization by parasites
- Radiation, DNA damage possible

But there's a much more serious one...

---

---

# IT EVOLVES SLOWLY... VERY SLOWLY

- What if the conditions in which it must survive and confront, change radically and quickly?
- Example: Climate change is happening due to us, on a time scale of just 2 or 3 generations – much too fast for genetic Natural Selection to evolve a better Homo Sapiens
- Silicon life, programmed properly (yeah... ) could perhaps evolve its firmware much more rapidly and deal successfully
- But.....



---

# THE HUGE QUESTION: WHAT IS “SUCCESSFULLY”??

- Successfully... for whom? For what?
- Human civilization has evolved a very efficient form of value creation and motivation: Capitalism.
- But what is the GOAL??
- (let's let that be open to conversation here!)

---

# MY ANSWER, AND MY READ OF HISTORY SAYS...

- Those who get to answer “what for?” are those with the most POWER
  - The Maximum Power Principle in action
  - Economic Power rules the transfer of “value”, and political power rules the making of brute enforced laws, in any civilization, probably for Alien Planets as well.
-



---

GOOD – FOR WHOM,  
AND FOR HOW LONG?

TIME SCALES MATTER.

IF YOUR VIEW OF THE  
FUTURE IS GRIM, YOU  
MAY APPLY A STEEP  
DISCOUNT RATE TO  
FUTURE UTILITY.

---





---

# THAT INCLUDES, THE TRANSITION TO SILICON BASED DECISION-MAKING

- Experts say we're getting much closer, much faster, to "Artificial General Intelligence" than had been thought even a couple of years ago.
- What will be the purpose in the design of AI in the form of AGI?
- For humans, and perhaps for other Aliens who get to this stage as well, it is....

## • **Maximizing Short Term Profits**

---



---

# IT DOES NOT APPEAR TO BE, TO INSURE A LONG TERM HAPPY FUTURE FOR ALL LIFE ON THE PLANET

- It appears to be to maximize a narrow financially profitable and hence high-influence, high power “return on investment” to the inventors and programmers of this new AGI.
- In one sense, understandable. It’s extremely costly and needs intense \$investment to get to this point. They need to pay off the investment in a reasonably short time in order to justify the in-the-now expense.
- But it sets up a perhaps fatal Faustian Bargain.
- $\text{Profits} = \text{Energy Consumption} + \text{Materials Consumption}$
- ~~On a finite planet with limited energy and materials, this can be ultimately fatal.~~

---

# IS THE BEST COMPROMISE STRATEGY TO GO AHEAD AND MAKE THAT FAUSTIAN BARGAIN, BUT TRY TO...

- Program your AI to make the best decisions for a more morally justifiable future?
  - What if we had AGI perfected today, and had become complacent enough in its power to solve problems of a more limited nature, that we simply turned over the power systems, the defense armories, computer systems, and gave it the command...
  - “Your new problem to solve: Make a world with a long term future, of a hundred million years, in which all life can flourish and have stable environment to minimize e.g. climate dangers.”
- 
- What would be the solution it would produce?





---

# ACTUALLY.... PROBABLY NOT

- **Individual “Terminators” would require far too much power.**
  - **Human brains run on only 20 watts (!)**
  - **Boston Dynamics killer robots run on 100 – 1000x more power.**  
**And to run a brain like those that do AI on your desktop, takes tremendous energy and cooling systems.**
  - **No, it would happen a little less anthropomorphically...**
- 
- **SkyNet! Perhaps.**



---

# THE FOUNDER OF A.I. AND RECENT WINNER OF THE NOBEL PRIZE HAS INSIGHTS TO SHARE, TODAY...

- Geoffrey Hinton, has a Conversation on the Podcast “Theories of Everything” which is sobering...
  - [Let's Watch and Listen](#)
-