Economics of Singularity

J Storrs Hall
Hedgehogs vs Foxes

- Tetlock: Expert Political Judgement
  - Taleb: Black Swan
  - Gardner: Future Babble
- Experts with an *idee fixe* (hedgehogs) were worse than random chance
- Regression and extrapolation typically outperformed experts
Memetics, not genius

- Kelly: What Technology Wants
- Johnson: Where Ideas Come From
- Ridley: The Rational Optimist
- Dyson: The Sun, the Genome, & the Internet
- Harford: Adapt!
Sir Isaac Newton:

“If I have seen further it is by standing on ye sholders of Giants.”
Gross world product
# Historical Growth Mode Doubling Times

<table>
<thead>
<tr>
<th>Mode</th>
<th>Doubling Time</th>
<th>When</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>1000</td>
<td>5000 BC</td>
<td>0.07%</td>
</tr>
<tr>
<td>Trade</td>
<td>60</td>
<td>1500</td>
<td>1%</td>
</tr>
<tr>
<td>Industry</td>
<td>15</td>
<td>1800</td>
<td>5%</td>
</tr>
<tr>
<td>Singularity?</td>
<td>1</td>
<td>20??</td>
<td>100%</td>
</tr>
</tbody>
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Moore's Law
The Printing Press Presaged the Industrial Revolution

- Complex mechanical capital
- Precision, interchangeable parts (type)
- Enabled mass production
- By ca. 1700, printed material had jumped to a 5% growth mode
- The general economy followed, using similar techniques
Moore's Law Presages the Nanotech Revolution

- Digital production and copying technology
- Indistinguishable parts (bits, atoms)
- Enables massive decentralization of production
- By ca. 2000, information had jumped to a 100% growth mode
- The physical economy will follow, using similar techniques
- I do not think growth will exceed O(100%) before 2100: there are too many bottlenecks
Cost of a human-level AI

![Graph showing the cost of a human-level AI over time. The x-axis represents years from 1900 to 2100, and the y-axis represents log10 of the cost in dollars divided by human equivalent processing power. The graph indicates that the cost is expected to decrease significantly by the years 2027 and 2037, with $1000 cost in 2027 and $1 cost in 2037.]

$1000 in 2027, $1 in 2037
AIs in a Malthusian Market?

- The economics says yes
- But most AIs will be owned anyway
- Consider your AIs:
  - Your imaginary friends
  - Workers at You, Inc
  - Your loyal subjects
- Why would anyone put an AI on the labor market?
- Independent AIs will be corporations, competing for customers.
Will AIs compete humans out of the labor market?

- Yes
- Collectively, this is what we want
  - The human race “retires”
  - The robots do all the work
  - Human activity consists in deciding what we want
  - Upper classes have lived this way throughout history
The Man With a Country

- By 2065, a billion AIs will cost $1
- We can simply give each person a nationful of productive intellects, at trivial cost
- Similarly, an autogenous nanofactory that can make approximately anything
- The interesting part will be getting there from here