CSD@100

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Amazing transformations in computing in the next 50 years

1. **Invisible computing** where computers in the wall talk to computers on your body providing access to unlimited computation, memory, and bandwidth.
2. **Automatic Programming**, aka DWIM(do what I mean) and/or what to how programming, requiring no more effort than telling a human staff member
3. **Computers that can see hear talk and walk** as well as humans

Scientific and Engineering Challenges We Will Face in the Next 50 Years

1.	Portable Clean Water	Desalinize Oceans One Liter for a Penny
2.	Portable Energy	Unlimited Energy - Photosynthesis
3.	Education	Education on Demand: Just in Time Training and Learning
4.	Health	Personal Predictive Healthcare
5.	Agriculture	Aqua Ponics Unlimited Food
6.	Personal Green Transportation	1000 miles gallon
7.	Communication	Gigabit per second for everyone on the Planet

What Old Problems and What New Ones Will We Be Wrestling With in 2065?

1. Human Level AI
2. Energy management for computers
3. Virus, Worms and Trojan Horses
4. Copyright problem will continue to hold back access to music, movies, newspapers, and books

What Would I Spend $10M of Unrestricted Funding

$10M is too small. Given $1000M over 10 years, I would attempt to create a Human-Level AI by teaching a “Child Machine” as Turing and McCarthy have suggested, except that the baseline for Human-Level AI would be tasks that even illiterate people on the planet could do, not just the educated people.

We start by creating a CM0 with the capabilities of a newborn, which every human in the world can be expected to possess at birth. It appears that, largely through unsupervised learning, a newborn is able to evolve into a seeing and moving child in six to twelve months after birth. Instead of being programmed, a CM1, a one year old Child machine would learn to see and walk by building on the basic capabilities of CM0 by learning from examples and learning by doing, but would have no speech or language capabilities. A CM4, a 4 year-old Child Machine would be able see, hear, walk and talk, but not yet read or write. The question is what mechanisms exist in the form of pre-wiring of the brain at birth that would permit such learning?