Editorial: Historical notes and memories on digital computing and transformation over 50+ years by an interested observer

The year was 1958, I just returned from an industry job to graduate school. There were two types of computers competing for attention at that time. There was the analog computer type which uses high-gain feedback amplifier to perform integration. This makes simulating dynamic models obeying differential equations quite easy. On the other hand, digital computers, such as the IBM 650 or later the IBM 704, were still quite primitive with limited computer memory and had to carry out integration using difference equations and numerical analysis to do step-by-step propagation of the dynamic model. Job title such as IT technologist had not been established, but at Harvard where we had one PhD person full time maintaining and helping people using analog computers. Later on, the first word processor by Wang Laboratories (which carried a serial number 002) was purchased and used in our lab. Dr An Wang was one of the 400 richest person in the USA. Too bad he died early and his descendant did not carry on his entrepreneurships. Integrated circuits and chips were not invented until much later which greatly expanded the capabilities of digital computation. Soon analog devices and computation were replaced. Several of the courses I studied while completing my PhD were eliminated. However, educational technology in my view was slow in evolving and adapting. Blackboard and chalk are still in use but the pandemic and Zoom technology have hastened and made attending seminars more convenient and audiences more diverse. Chat-GPT also created problems in the administration of higher education. One can say an "intelligence revolution" was and is taking place in higher education.

The INTERNET did not exist at that time and communications among the masses were cumbersome. Wireless mobile phone, Wikipedia and Google were unheard of. Information entails costs. We needed libraries where Encyclopedia Britannica dominates (which has become totally on-line since 2010). I still remember a Bell Telephone scientist during the late 20th century telling me that I needed to watch this start-up named Google since it was doing something interesting. I owned 300 shares of apple stock, sold it tripling my money in the early 1990s and was quite pleased with myself. I am not complaining but by hindsight I'll be hundred times richer if I had the foresight to keep the stock.

Of course, more than half a century later since the late 1950s, the "World is FLAT" and completely DIGITAL. Journals such as the "*Digital Transformation and Society*" gave birth and claimed her rightful place in the publication world. AI is the rage all over the world and our civilization and has serious implication for the future of human civilization. The latest version of GPT, GPT-4, seems to have developed reasoning ability on its own without being designed with the ability https://blog.sciencenet.cn/home.php?mod=space&uid=1565&do=blog&id=1392884 What a half century! What will the next 50 years bring? You cannot imagine!

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