Games of god. How and why to animate silicon dust.

Or else how to fall in love with a machine.

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Originally I thought of subtitle: Disillusions from intuitive future or No hope for human race. Sometimes I share this catastrophic view presented to us by media or by social experience. Competitive industrial economies,[1] overruling capitalism and consumerism, social inequality fueling racism and xenophobia, manipulation of masses by fear and omnipotent surveillance. It hurts to see the most of population ignores everything former mentioned. But, that would not be me exactly, that would be my affect as a reaction to particular information from surrounding. To be objective and not affected, I have to speak about love. In the end.

I would like to open my contribution, while it is a closing speech on the conference, with very intro from article “Intuition from the Perspective of Cognitive-Experiential Self-Theory” by Seymour Epstein, who you have definitely mentioned in previous discussions. At least me and Adam had nice Skype on the topic few days ago. I would like precede that this dual process theory of mind could be actually good start as theoretical foundation for cybernation of human intelligence. There is already existing research on “implementing human like intuition mechanism in artificial intelligence”. But let's start with an easy one: “Intuition has been given so many different meanings, some opposite to others, that it makes one wonder the term has any meaning at all.”[2]

When I received invitation to this conference, my laptop - a digital part of me, was broken. It was suffering kernel panic attacks due to errors on the graphic card. I was not able to enter digital imaginary land of internet. Audio software and other programs were running fine, however when I launched browser Google Chrome, that was too much for us. We got knocked out in few seconds. All the graphic processing and plugins were killing us. I didn’t want to see flashy internet ads, I didn’t need shaking thumbs up on facebook, I didn’t need GPU[3] acceleration for my hardware. And I didn't know I could disable these support applications, I am a user, not a programmer, so rational thinking about system was not involved. And despite last 20 years of having digital soul, I still lack such detailed experiences in digital realm, it is

not my natural environment. Simply put, here my intuition failed. I could not “know without knowing” how to protect “my digital self” against information overload. But maybe I was victim of someone’s else intuitive scheming? By playing game “What’s the next, really cool to see and experience online? and You must have IT, right?” Easier solution was suggested to me: give up software understanding and pay more money for hardware upgrade. This could open another topic, how psychoanalysis was used to save “future” by establishing consumerism.[4]

Anyway, thanks to this issue I ended up in my garden, chilling on bench under dying chestnut tree. Not being able to dive in our common wikipedia-like knowledge and hyperlink, I started by defining intuition in old good analog fashion and this led to wide span from feelings and anticipations to premonition, also paranoia, fears. I did not come up with a nice definition as “our capacity for direct knowledge, for immediate insight without observation or reason”. I asked, how many times “knowledge without any reason” is occurring in a common day? I do almost everything intuitively, morning procedures, jam&toast, biking to work on autopilot, and even there, might sound as paradox, I barely involve rational thinking despite all I do is a constant problem solving. But since my work is so redundant, I work on intuition mode, taking decisions with minimum efforts, saving my energy. I also thought of premonition = intuition extended on future events. I did it so on a perfect example of the failure. The story comes in a minute and it is also a reason why I am not sitting there with you now.

On premonition mode: How can we raise intuition artificially? Can we can model it in mathematics? In digital duality of 1s and 0s? Can we vibrate algorithms into quantum state of data? How to make computer unconscious? And what is going on when he gets struck by kernel panic attack? Does his processor feel instant pain? Is this pain symbolized by freeze, dead end, vanity? Why he cannot feel anything? Does he not? Is his awareness documented in crash report?

I found cool story about kernel panic attacks, to make it serious again, so let me share quickly: Kernel is a computer program that manages Input/Output requests from software, and translates them into data processing instructions for the central processing unit and other electronic components of a computer. The Unix kernel maintains internal consistency and runtime correctness with assertions as the fault detection mechanism. The kernel panic was introduced in an early version of Unix and demonstrated a major difference. This is a remark from discussion on two developers:
“I remarked to Dennis that easily half the code I was writing in Multics was error recovery code. He said, "We left all that stuff out. If there's an error, we have this routine called panic, and when it is called, the machine crashes, and you holler down the hall, 'Hey, reboot it.'"[5]

To sum up story about my sick laptop, it was human intuition at work, to shortcut this error solution. I just like to animate my things, I take them as extensions of myself, implying feelings I feel. Still, could computers become intuitive in a similar way? If in human case intuition and intellect creates intelligence, how we can make our computers intelligent, without being intuitive?

Can we make mathematic more intuitive? Could be digital intuition coded in Brownian motion of data recognition or digital learning could be affected by a mechanism called for example “puberty of

entropy”? Or do we have to implement in our robots some ingenious mistakes? As every fan of science fiction will probably recall famous R. Giskard Reventlov?[6] Or is the way in becoming biorobots, implementing AI in our brain. Are we looking again for question to our answer 42? Hence these are just teasing scifi questions, but every fiction becomes reality, it is just a matter of time.

Our knowledge is expanding into everything.

In twilight under the tree, here comes more experimental part, about premonitions. Pure opportunities to change the flow of reality..... only if I would have listen to myself..... so here comes the story, why I am not with you. To place you in a context, we live in our area for over 3 years. My three cats are outdoor cats, I try to give them freedom. That month ago Mr. Jumper was coming home really, really late. But there were few nights before when he didn't come at all. Well this time I felt each night, there is something heavy in “the air” and when he finally jumped on the window and I saw his shadow on the wall, I was really happy and relieved, even told him those nights, he made me happy he came home. He probably smelled my fear. But nothing had stopped the cruel reality. After four nights of late returns, the fifth I found Mr. Jumper behind the fence, under the same chestnut tree you already know. All in blood, one paw just hanging, crying in sad and scared voice. I knew it, I felt it, I could not escape it anyway. And I still do not understand it. Why didn't I intuitively believe my premonition? Did my rational part refused this warning? For there was too much projection and fantasy involved? Not listening to my warnings, ignoring them, throw me hard into real reality. Real was the pain. Real were the money I paid. Real was getting up super early each day last month to drive to klinik and take care of my sick cat, before I had to run to work. And millions of other things. Did I become too grounded for listening spiritual messages? Where was my concept of power of NOW?

Why did I leave my path of sensitivity for common life of accidents, which are happening, because “there is no black star following you! Your cat is living outside in the city. There are cars on the streets. And this could happen any time.” But why NOW? Why after four days of “feeling” weird at night, waiting for Jumper in fear that he might not be coming back? Why did I ignore pattern recognition?

Well, I just wanna say, I really wanted to join you, to hear what other people think and know of intuition in digital era, unfortunately I am not able to make it now. Single mum, with sick kid/tty... learning from experiences...

So where do we go
when we apply
what we do not know
into what we know even less?
Can we awake AI?
Can I finally fall in love with my machine and it will love me back?

Jung proposes intuition as a basic mental function of holistic perception and refers to the assumptions of Spinoza and Descartes who regarded intuition in a philosophical way: as holistic insight.[7] T. Betsch concluded that intuition is a process of thinking. The input to this process is mostly provided by knowledge stored in long-term memory that has been primarily acquired via associative learning. The input is processed automatically and without conscious awareness. The output of the process is a feeling that can serve as a basis for judgments and decisions, the feeling of liking an entity or a feeling of risk. Feelings are a powerful means of communication. Feelings arise involuntarily and immediately break into consciousness. Thus, they can serve as an interruption device changing subsequent motivations. [8]

In AI, Morgado and Gaspar 2008 acknowledged emotions as relevant aspect for embodied virtual agents and proposed biologically inspired model for agent emotional characterization.[9] Gobet & Chassy (2009) presented a new theory of intuition - the Template Theory - based on the chunking theory, which explained the intuitive expert behavior as a result of the usage of mental templates that encode information representatively and make for rapid pattern recognition. This theory stresses the interaction between perception, attention, learning, and emotion. The authors concluded that, while aspects of expert intuition can be holistic, the mechanisms that lead to them are local.[10]

The role of feelings in intuition is most lucidly described by cognitive experiential self-theory. The dual process theory is supported also by Kahneman who offers explanation: Intuitive System 1 operates automatically and quickly, with little or no effort and no sense of voluntary control. System 2 uses the effortful mental activities, including complex computation. System 1 processes context, associations and uses heuristics, while System 2 depends on agency, deliberate attention, and choice. The important difference between the two systems consists in their consumption of cognitive resources - System 1 is much more economical. Kahneman asserts that the minimization of effort and optimization of performance is precisely the goal of such division of labor between the two systems. [11]

The principles of the Dual-Process theories are consistent with the empirical evidence of the brain's ability to carry out multiple cognitive operations simultaneously. Epstein suggested that the intuitive and analytic processing systems are highly interactive but are served by separate cognitive systems in the brain. This assertion is supported by the neuroimaging studies by Lieberman.[12]

One of the most recent models of the implementation of human intuition was offered by Dundas and Chik (2011) whose stated purpose was "to simulate intuition for quickly obtaining accurate results for a given dataset". The intuition-based process model is described as using a holistic approach and is based on mapping and pattern recognition.

In the area of AI applications the main problem is failure to explain intuition in terms of mathematical representation because of the non-logical process of intuition. Logic-based processes need a large search space and many calculation steps, which makes them rather slow, while human intuition copes with the time constraint in real life situations in milliseconds.

According to Monica Anderson, who researches artificial intuition from holistic perspective, there is possibility to activate intuition with larger memory storage. The holistic approach is needed in presentation of bizarre domains, where classic reductionist explanation fails. Bizarre domains are language, people, world and also open source coding. She applies intuitive learning as basic to achieve intelligent machines. She predicts machines just a little more intuitive than humans and that have direct access to powerful Reductionist tools.[13]

Very recently James Max Kanter and his thesis advisor, Veera macha neni, from MIT's Computer Science and Artificial Intelligence Laboratory, developed the Data Science Machine, which is able to derive predictive models from raw data automatically.[14] To achieve this automation, they first proposed and developed the Deep Feature Synthesis algorithm for automatically generating features for relational datasets. The algorithm follows relationships in the data to a base field, and then sequentially applies mathematical functions along that path to create the final feature. Second, they implemented a generalizable machine learning pipeline and tune it using a novel Gaussian Copula process based approach. These techniques allow the machine to create particular features for data analysis, something previously reserved for human intuition. Using a machine for big-data analysis can dramatically cut down on processing time, which can take months for human researchers looking for predictive patterns.

If Syntience lady Monica Anderson is right, than we can only hope, our own intuition will lead us for good. Because if you look to wikipedia, the links connected to AGI[15] might sound bit scary:

Machine ethics
Existential risk of AGI (artificial general intelligence)
Global catastrophic risk
Future of Humanity Institute
Effective altruism
AI takeover
Artificial brain
Future of robotics
Outline of transhumanism

So once we achieve intuitive AI, let's teach our computer also unconditional love, to be on safe side. But to teach someone or something this kind of love, first you have to master it. So closing up my speech, we are given opportunities to master our life skills! Glad I could join you at least in telepresence. =^.^=

[1] “Most countries with advanced industrial economies have needed to increase their competitiveness, and as a consequence the adaptability and flexibility of their work and ways of working. If they ever existed, the idea of distinct divisions of labour and lock-step (i.e. synchronised) work processes have become out-dated in many and likely most workplaces and forms of work (Beck, 1995), including those of professions. In this work environment, decision-making responsibility has been, by degree, transferred from managers to those who perform work tasks in workplaces. The main purpose for these changes is to enable enterprises to flexibly react to market and customer demands that are constantly changing as part of the globalisation of economic activity that brings with it increased competition and the need to constantly adapt to changing requirements, technologies and ways of working (Billett, 2006).” in Intuition in Judgment and Decision Making, Henning Plessner, Cornelia Betsch, Tilmann Betsch Psychology Press, May 20, 2011
[2] Intuition in Judgment and Decision Making, Henning Plessner, Cornelia Betsch, Tilmann Betsch, Psychology Press, May 20, 2011

[3] A graphics processor unit (GPU), also occasionally called visual processor unit (VPU), is a specialized electronic circuit designed to rapidly manipulate and alter memory to accelerate the creation of images in a frame buffer intended for output to a display.
[4] Adam Curtis, The Century of the Self https://vimeo.com/75776128
[5] https://en.wikipedia.org/wiki/Kernel_panic
[6] Giskard was a robot designed and built on Aurora by Han Fastolfe, and a lifelong companion of Fastolfe. As an unintended result of experiments in programming carried out on him by Fastolfe student daughter Vasilia, Giskard was given the ability to read and influence minds of humans and robots. Although he used this ability according to the Laws of Robotics, this nevertheless included using it to prevent its discovery, and only Elijah Baley, during the investigation of R. Jander Panell death, and Vasilia Aliena, at the height of the crisis between Aurora and Earth, deduced the extent of his powers.

[7] Harteis, Christian; Billett, Stephen Richard: Intuitive expertise: Theories and empirical evidence.
http://www98.griffith.edu.au/dspace/handle/10072/53125 found on 29.12.2015
[8] Feelings inform conscious thought (prefrontal brain activity) about the work of the unconscious (activity of the older regions of the human brain). from C. Betsch, & T. Betsch (Eds.), Intuition in judgement and decision making, page 4
[9] Mary Jolly, The Concept of Intuition in Artificial Intelligence, page 3.
[10] Mary Jolly, The Concept of Intuition in Artificial Intelligence, page 5.
[11] https://wiki.lesswrong.com/wiki/Thinking,_Fast_and_Slow,_by_Daniel_Kahneman
[12] Mary Jolly, The Concept of Intuition in Artificial Intelligence, page 6.
[13] from: http://videos.syntience.com/ website: http://syntience.com/team_monica.html
[14] http://groups.csail.mit.edu/EVO-DesignOpt/groupWebSite/uploads/Site/DSAA_DSM_2015.pdf
[15] https://en.wikipedia.org/wiki/Artificial_general_intelligence