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by Axel Blonski

A Small Step for Hardware --- A Large Step for Software !

A basic problem of the input devices has been solved: to provide equilibrium of a mouse handle in three dimensions. Until now the ordinary mouse has done this in 2 Dimensions.

The 3rd dimension resisted because of gravity, which cannot be switched off.

Reduce this annoying fact for a moment into the ordinary mouse, into 2 dimensions as a thought experiment, with gravity going from left to right:
would you like a mouse, which crashes each time against the side of the mousepad, if you not hold it very tight? And is even destroyed, if you release it at the wrong place? It tires the hand, and makes precise clicks more difficult, that is to click exactly at a calm moment.

Altogether: very annoying! The success of the mouse would probably not have taken place.

On the other hand, the equilibrium, which is an infinite static situation, sets the user in a command position without pressing for change. Slow thinking and fine tune skills can happen.

Now, when the hovering mouse, (or directspacecontrol, „DSC"), is built up together with a graphics workstation for the first time, we conclude, that no or few structures exist, to make the instrument useful, while providing an extended bundle of properties.
It is, ---for a comparison --- like shortly after construction of the first useful piano. Only some converted older music could be played, but the fantasy of creative people was initiated, to fill this gap, and the work of Bach, Beethoven, Chopin, Liszt, and many others started, and some later we had wonderful musical structures and a beautiful high rise of culture.

The software evolution tends to implant the existing capabilities of the humans in the style to control and manipulate and administrate real and virtual objects. The human being has, which is important, the main channel of diversity via the hand, which is tightly connected with the brain in both directions.

Two directions are seen:

----> the intuitive revolution in 3D, which completes the process, which is ready in 2D, and will fill the gaps in 3D, which are open because of not handling coordinate triplets (x,y.z), but doubles + extra coordinate. Then, drag and drop in 3D will intuitively be possible, and the intuitive 3D control loop process with eyes, DSC, virtual (true)3d-display will be fulfilled. (The intuitive power of the joystick/spacemouse principle is reduced, which is discussed in another paper.)

----> the abstract navigation and tasks, where the parameter choice diversity increases , when the system comes along with one more dimension. The depth dimension use is, compared for instance with the scroll wheel use showing a scroll bar, a real, a true, a perceived dimension, not an abstract, relative dimension. The 3 intuitive dimensions we might call superdimensions of the intuitive control loop.
Each intuitive dimension needs the intuitive linear input, and the truely displayed dimension,

true 3D stereo display depth for example, with the DSC. If display or input device, one of them, is compromized, the intuitive control loop quality vanishes.

The incredible variety increase is seen only at the second glance, since for one arbitrary newly introduced parameter, you only must give up one former parameter, but 2 dims you retain, and may handle much more tricky control situations simultaneously, because they are transferred into the intuitive control loop. And even more complicated handling may switch over between multiple 3d control modes, each of them being much more variously instructed. This would not be possible with abstract, not displayed extra dimensions. Nor would it be possible with a displayed, but reduced accsessible dimension, , f.i. with scroll wheel.

I guess, that everything handled inside the intuitive control loop, can be done quite skilledly nearly at once, but without considerable exercises, while other kinds of control and navigation need considerable amounts of training.

Another example shows even, that a parameter class may be substituted by the dimension:
The new dimension may substitute for example mouse clicks in selection tasks and enhance the whole task with a lot of additional comfort in the field of 2D navigation:
You might have an one click encyclopedia. The added dimension may overcome former clicks, by moving perpendicular in respect to the 2d display plane at the place of the object under selection. A combined selection trajectory can eliminate a sucessive number of clicks by the new dimension, as one of many choices. Avoided clicks reduce the click strain of the hand, giving relief for handicapped users. And this is only one of many examples.
Another enhancement is the force feedback extendability of the DSC concept, which allows in the simplest case to set accurate thresholds of definite force for precise actions during performing trajectories.

Maybe, presently a large variety of new software ideas are tried to convert into intellectual property. If very simple and basic ideas are patented, I consider this to be shabby, because many things are very trivial and obvious facing new hardware.
If principal software patents are possible, this might lock many developments for a considerable time, because everything is forbidden. (might be preferredly in the United States.)

It depends on the fact, what is protectable or not, who knows?

For my fantasy, I got many ideas of new games and skills training games. A new basic concept area of games has opened since now.

Have your eyes been opened by these thoughts?