Creating your own animated 3-D characters and scenes for the web

February 28 2013

Computer scientists from Saarland University enable web developers to shape the Internet in its third dimension in an easier way.

To show spatial animations on websites, developers so far have had only two options: to use special software or to implement it from scratch. Computer scientists at Saarland University have developed a declarative markup language which facilitates the creation of distinct spatial animations and ensures their smooth replay in the web browser. The researchers will show their results at the trade fair Cebit in Hannover starting on March 5, 2013.

It could be a grotto. Light is glowing up from below and gives the moving waves a glance of an opal under the sunlight. "This computer graphic was written with our new description language by a schoolboy in not more than two hours after a briefly reading of the instructions", explains Felix Klein, doctoral candidate at the chair of Computer Graphics at Saarland University. As Klein is moving three slide switches with the mouse which are placed under the wave graphic on the display, the water is transforming. Now, the waves are spreading circularly from the center point, as if someone had thrown a pebble into the middle of the water.

"Xflow" is the name of the new description language developed by Klein and his colleagues. It makes it not only possible to describe such three-dimensional appearing animations more easily but also manages it that the required data is efficiently processed by the central processing unit and the graphics processor. Hence, the animation is running in the browser fluidly. "Up till now, this has not been that easy", explains Philipp Slusallek, professor for Computer Graphics at Saarland University. "Meanwhile, even a mobile phone has enough computing power to play spatial data content from the internet. But the web technologies, necessary for using 3D content on the web, and the machine-orientated programming of graphic hardware have not found a common ground yet", so Slusallek, who also works as Scientific Director of the German Research Center for Artificial Intelligence and as Director of Research of the Intel Visual Computing Institute in Saarbrücken.

Xflow shall help to fill this gap. It's declarative. What means in this case, that the developers rather describe which pattern synthesis effects shall get constructed, than to wrack their brains about how these can be computed in detail. In its appearance, Xflow resembles to the languages HTML and Javascript. With Javascript, it is indeed possible to describe three-dimensional data contents; however the data, which is needed for

that, cannot be computed offhand in a parallel and thus efficient way. Xflow allows the so-called parallelization automatically due to its structure. Neither, the programmers need to worry about this, nor about the allocation of disk space. Other software systems can also accomplish this, but with them only a limited number of shifts, textures and pattern effects can be described.

Xflow offers an alternative by defining a multiplicity of small components, so-called operators, of which complex animations can be created easily. In doing so, it uses the service of the HTML-upgrading XML3D, which allows the easy embedding of spatial data contents on websites. It was also developed by Philipp Slusallek and his team. He is confident: "After XML3D we took the next step forward to present three-dimensional contents on the internet in such an easy way as it's already the case with embedded Youtube videos." The development of Xflow has been supported by the Intel Visual Computing Institute (IVCI) of Saarland University and by the German Research Center for Artificial Intelligence (DFKI).

   More information: graphics.cg.uni-saarland.de/20 … cessing-for-the-web/

Provided by Saarland University

Citation: Creating your own animated 3-D characters and scenes for the web (2013, February 28) retrieved 17 April 2024 from
https://phys.org/news/2013-02-animated-d-characters-scenes-web.html