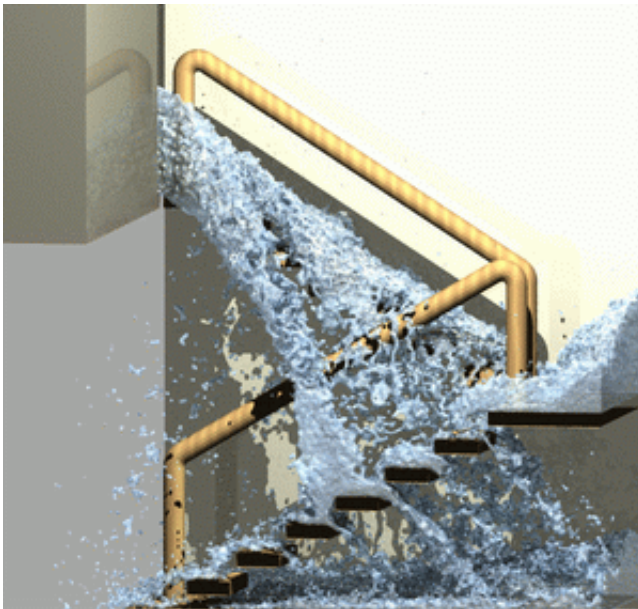


Mathematicians promise animation revolution

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CSIRO mathematicians are combining art and science to solve one of the last big challenges in animation – fluids.

They are aiming to develop techniques for fluid animations that are so realistic audiences will bring umbrellas to the movies.

Kevin Cryan of CSIRO Mathematical and Information Sciences says that current approaches to animating fluids like water, smoke, gases, lava and molten metals are based on relatively simplistic calculations and do

not deliver anything like realistic motion.

"Audiences are very good at assessing realism, so a poorly animated scene involving water or another fluid can reduce the overall impact of a production, causing the audience to be distracted from the story," says Mr Cryan.

"What we are doing is taking the mathematical equations used to model complex fluid interactions, such as the aerodynamics of aircraft or the behaviour of mined ores in crushing mills, and applying them to animating fluids for motion pictures and computer games."

When one or more fluids interact in a space, predicting flow behaviours like waves, bubbles, splashes, eddies and whirlpools requires extremely complex mathematical models. The science of Computational Fluid Dynamics (CFD) helps engineers understand how fluids behave so they can design better products and processes.

"In recent times it has become clear that the equations developed by CSIRO to model how fluids behave can be used to analyse other complex phenomena. For example, we have created a software product, Reditus, which uses CFD methods for pricing complex financial options," says Mr Cryan.

"Now CSIRO is working with the Korean Electronics and Telecommunications Research Institute (ETRI) to deliver new tools for animators working with fluids."

"Korea is a global leader in animation and ETRI has chosen to work with CSIRO because they understand that the leap forward in animating liquids can only come from advanced mathematics."

Prototype examples of CSIRO animations can be seen at

www.cmis.csiro.au/mediare/etrirelease.htm

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