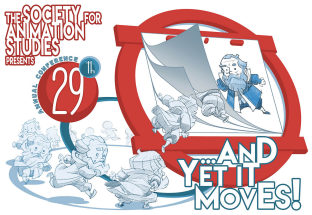
Panel H1

Auditorium

Animation, the Double and the Uncanny



Steve Weymouth

Good Robot, Bad Robot: Animation and Anthropomorphism in Human-Robot Interaction

Human-Robot Interaction (HRI) has moved rapidly from science fiction fantasy to a modern reality. As HRI moves closer to public and socially functional realities (in the home, the office, or theatre) consideration for how a robot looks and moves becomes paramount.

Techniques for movement generation explored in HRI research include motion capture, puppeteering, animation and procedural software techniques that blend movements. However, if a complex and meaningful interaction between machines and humans is to be achieved, genuinely independent movement generated through autonomous Artificial Intelligence (AI) has to be part of this picture. While I do not profess to be an expert in AI (my background is in animation) I acknowledge that the prospect of truly autonomous robots can be unsettling. My intention here will instead be on the processes of thinking for creating meaningful movement design in HRI experiments based on animation thinking. I believe that a focus on movement informed design in HRI can overcome a fear of the other by engaging social signals triggered through movement and appearance. The pioneering work of Hiroshi Ishiguro, David Hanson, Guy Hoffman, Thomas Freundlich, Huang Yi and other examples will be discussed to tease out different approaches and thinking.

Creating effective movement design for interaction has to contend with the robotic movement generated through efficient machine design processes that start with raw functionality and end with movement limitations. Motion capture can also translate poorly from fluid human movement to the jerky, machine-like actions in human-like robots, while human-like designs can create disappointing expectations or evoke feelings other otherness. Animators who worked on Pixar's Wall-E illustrated that robot design with machine-like limitations for all moving parts was no limitation to expressive movement. The animators were able to achieve extremely convincing emotional movement by adding certain principles of animation such as anticipation, overlapping action, and follow through. HRI research can help to inform and design movement from the top down by utilising design and pipeline procedures established in the animation industries. Making movement and motion gestures that imply sentience should be paramount to robot deign. This approach starts with movement experiments that have little concern with final appearances and shifts the main focus to socially engaging movements.

Taking the theme of the 29th Annual International Society for Animation Studies conference, "…and Yet It Moves" this paper will focus on the expanding field of animation and the adaptation of animation to the area of HRI.

Biography

University of New South Wales Australia, Faculty of Art & Design
s.weymouth@unsw.edu.au

Steve Weymouth is a lecturer in Animation & VFX within Media Arts at the Faculty of Art & Design at the University of New South Wales Australia in Sydney.

Steve's interests combine research into learning and teaching, cross-disciplinary research in the neurological perception of motion and performance through the animated character, and animation as a practice. Steve's current research focus in Human-Robot Interaction (HRI) brings together his research in the human perception of movement and animation thinking to inform movement generated design in HRI.

Steve builds on his previous industry experience as a member of the Special Projects unit at Sony Computer Entertainment Europe in London and as a freelance and commercial 3D CGI artist. He holds a Masters of 3D Computer Aided Graphical Technology Applications (CAGTA) gained at Teesside University in the UK.