I3Dpost - PROJECT FACTSHEET

i3DPost - intelligent 3D content extraction and manipulation for film and games

i3DPost will develop new methods and intelligent technologies for the extraction of structured 3D content models from video, at a level of quality suitable for use in digital cinema and interactive games. The research will enable the increasingly automatic manipulation and re-use of characters, with changes of viewpoint and lighting.
i3DPost will combine advances in 3D data capture, 3D motion estimation, post-production tools and media semantics. The result will be film quality 3D content in a structured form, with semantic tagging, which can be manipulated in a graphic production pipeline and reused across different media platforms.

There are five specific Objectives:

- *To capture and represent 3D data from still and moving objects as a basis for generating different kinds of content*
- *To generate high-quality representations of sets and actors from the captured data, for use in different scenes or contexts,*
- *To create software tools and plug-ins for the intelligent manipulation and repurposing of scenes, characters and faces*
- *To show the usefulness of the technologies in experimental production across different media and platforms*
- *To establish open standards for plug-ins for 3D content manipulation*

All of the work essentially involves the development and integration of radically new techniques and software components, although the integration will build on top of existing platforms (such as the Nuke compositor, the OpenFX plug-in toolset), so that the novel functionalities can be applied rapidly to industry practices.
The scientific and standards-related results are expected to be highly generic: all the proposed technological implementations are essentially platform independent

The planned outputs and by-products include:

- The definition of methods and workflows for 3D data capture and postproduction
- Test data sets of multiple view HD video for on-set studio production and prototype portable hardware for synchronised capture of multiple HD video streams for use in film and games
- New algorithms and software methods for 3D motion analysis; point cloud extraction; structured model extraction of sets, actors, performance and facial features; semantic feature identification and labelling; matting
- Software applications to control the import of the multiple capture streams created by 3D capture and the interactive extraction of metadata; multi-data-stream workflow applications to manage inputs for 3D compositing;

plug-ins incorporating the innovations in matting and optical flow; and a library that allows additional tools to exploit knowledge of inter-pair correspondences

- Experimental productions that test and demonstrate the use of the new knowledge in film, advertising and interactive games, proving the working methods in real industry workflows
- A 3D extension to the OpenFX standard for visual effects plug-ins, to encourage third-party development of cross-platform plug-ins for 3D compositing and other postproduction technologies.
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Beneficiaries

The Foundry Visionmongers Ltd (www.thefoundry.co.uk) is a leading developer of visual effects and image processing technologies that boost productivity and workflow in film and video postproduction. The foundry are the Project Co-ordinators for i3DPost.

Trinity College Dublin (TCD) is Ireland's premier University and is the leading research institute in Ireland in terms of income, output such as papers, patents (about 15 per year), spin-off companies (3-4 companies created each year) and company based projects

University of Surrey, UK Centre for Vision, Speech and Signal Processing (CVSSP), directed by Prof. Josef Kittler, forms part of the Department of Electronic Engineering which has the highest 5*A research rating. In i3DPost, it leads the work on 3D data capture and content structuring.

Centre of Research and Technology Hellas CERTH-ITI was founded in 1998 as a non-profit organisation (presidential decree 17/1998) under the auspices of the General Secretarial of Research and Technology of Greece (GSRT), with its head office located in Thessaloniki, Greece. In 2000 it became a founding member of the Centre of Research and Technology Hellas. In 2002 a committee of external European experts in Information and Telecommunications Technology evaluated the GSRT institutions and gave ITI the grade of 9.65/10 for excellence in research. The AIIA Group at CERTH-ITI, Thessaloniki, Greece has been researching digital media for more than a decade.

QUANTIC DREAM was founded in 1997 by David CAGE. Since its creation, France's largest independent video game studio has gained an international recognition for its contribution to interactive narration and its fresh thinking on emotion in games.

BUF Compagnie is based in Paris, France, with a production entity in Los Angeles, California, and was founded by Pierre Buffin in 1984. The company has been regarded as one of the most innovative visual effects companies in the world for feature films, commercials, music videos and special venue projects. BUF's pre- and postproduction services have been engaged for their unequalled and inventive artistry and technique.

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