3DLife - Bringing the Media Internet to Life

Qianni Zhang[1], Noel E. O'Connor[2], and Ebroul Izquierdo[1]

[1] Queen Mary University of London, UK
[2] CLARITY: Centre for Sensor Web Technologies, Dublin City University, Ireland

Abstract. The 3DLife EU FP7 Network of Excellence focuses on stimulating joint research and integrating leading European research groups to create a long-term integration of critical mass for innovation of currently fragmented research addressing media Internet. It fosters the creation of sustainable and long-term relationships between existing national research groups and lay the foundations for a Virtual Centre of Excellence in 3D media Internet - EMC^2. This is a summary of 3DLife's missions as well as its achievements in the last three years.

1 Summary of Project Objectives and Achievements

3DLife: Bringing the Media Internet to Life [1], is an FP7 Network of Excellence (started 01 Jan 2010) that brings together leading European and Korean research groups across a variety of different technology areas in order to address important issues affecting the long-term development of the media Internet. The consortium is formed of seven members:

- Queen Mary University of London (UK)
- Dublin City University (Ireland)
- Groupe des Ecoles des Telecommunications (France)
- Heinrich Hertz Institute, Fraunhofer (Germany)
- University of Geneva (Switzerland)
- Informatics and Telematics Institute (Greece)
- Korean University (KU)

The research agenda underpinning 3DLife focuses on novel technologies for generating 3D information from a variety of content sources so that this information can be used to drive forward novel media Internet applications. The research domains covered by 3DLife include:

- **Media analysis for 3D data generation** i.e. tools that integrate image and audio processing techniques to robustly extract 3D data ranging from coarse-grained 3D information to fine-grained human motion analysis;
- **3D computer graphics** techniques for the generation of virtual worlds, objects and most importantly humans targeting new levels of realism;
- Tools for the creation of **distributed immersive virtual worlds**, including **media networking technologies**, targeting re-creation of existing locations from users' personal content and creation of new imaginary locations.

A. Galis and A. Gavras (Eds.): FIA 2013, LNCS 7858, pp. 339–341, 2013.

The 3DLife work programme is designed to support collaboration across these areas by providing a range of supports for integrating complementary expertise. Activities include short and long-term research fellowships, resource optimization and sharing and the collection and maintenance of freely accessible research resources. In the past three years of the project, a total of 19 PhD exchanges via short-term fellowships and 15 exchanges of senior researchers have been supported by 3DLife. 3DLife has designed and installed a technical infrastructure to enable and facilitate human and technical integration activities. It provides support to share and exchange research resources among partners, including equipment, teaching resources, tools, interfaces and test data. By the end of year 2012, the integration framework wiki lists 24 software tools from various areas of interest, as well as 14 datasets with more than 23.4 hours of recorded audio and video.

The long term sustainability of 3DLife has been addressed via the establishment of a dedicated centre of excellence. **EMC^2: Excellence in Media Computing and Communication** [2], has been established as a non-for-profit legal entity with offices in Queen Mary University of London. It is supported by the similarly named EMC^2 Coordination and Support Action. EMC^2's mission is to bring together partners' capabilities, knowledge and expertise to facilitate R&D through cooperative projects, joint research publication and technology transfer, including (i)Academia industry matchmaking to enable technology transfer, particularly to SMEs; (ii) Mentoring, coaching and training of the entrepreneurs of the future; (iii) Formation of PhD courses on the MC^2 field with entrepreneurial focus; and (iv) Shaping national and European research agendas.

The need to reach beyond the existing founding projects and associated consortium members was well recognised both by 3DLife and EMC^2. A key joint objective, originally initiated by 3DLife but with a view to being continued by EMC^2, was to reach out to the broader community in order to raise awareness and stimulate interaction between both academic and industrial players. The ACM Multimedia Grand Challenge series, then a new initiative in the community, was considered to be the ideal vehicle for this. The idea of the ACM Multimedia Grand Challenge series arose within ACM Multimedia, the premier conference in the field of multimedia. In the series, a set of forward-looking technical challenges for the future of multimedia (with a horizon of 3-5 years) are formulated and proposed to the research community.

3DLife has organised and co-sponsored three challenges in this series:

- 3DLife/Technicolor Grand Challenge 2009-2010 on Sports Activity Analysis in Camera Networks;
- 3DLife/Huawei Grand Challenge 2010-2012 on Realistic Interaction In Online Virtual Environments;
- 3DLife/Huawei Grand Challenge 2013 on 3D reconstruction of moving human bodies from multiple active and passive sensors.

3DLife project has been working closely with industry sponsors to jointly define challenges so that 3DLife project partners could then dedicate project resources towards creating the required data set. To facilitate the Grand Challenge, project

partners captured a comprehensive and unique data set consisting of multimodal recordings of participants, captured at different sites with different pieces of equipment.

As with any exercise of this nature, a key challenge is providing useful data sets that are sufficiently interesting to the community in terms of carrying out high-quality research. Creating such data sets can require a significant amount of effort that may surpass the ability of an industry sponsor to provide. For this reason, it was decided within the 3DLife project to work closely with industry sponsors to jointly define challenges so that 3DLife project partners could then dedicate project resources towards creating the required data set. This relieves the industry partner of this burden but ensures that representative data is available to enable research by the broader community. To facilitate the Grand Challenge, project partners captured a comprehensive and unique data set consisting of multimodal recordings of Salsa dancers, captured at different sites with different pieces of equipment. There have been 72 requests to download the various datasets, with 18 of these requests coming from outside the EU.

Numerous activities were conducted during the first three years of the project, aiming at spreading the Network's Excellence in integrative efforts, technology transfer, scientific results, and training. The dissemination actions are focused on the three groups of people, namely, academics, industry/business, and the non-specialist. 3DLife website and the overall 3DLife online community have been well maintained and gained significant visibility. 3DLife partners have participated in various exhibitions, EC activities and other events with venues spread over Europe, Asia, America and Africa and with audiences from both academic and industry.

References

1. 3DLife NoE, `http://www.3dlife-noe.eu` (accessed in 2013)
2. Excellence in Media Computing and Communication, `http://www.emc-square.org` (accessed in 2013)