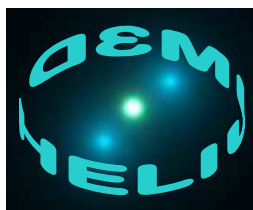


ICT-7-215280 : HELIUM3D
High Efficiency Laser-based Multi-user multi-modal 3D Display
Dissemination Report
V1.0
29-08-2011



PROJECT DELIVERABLE D8.4

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Sub-documents⁷

¹ Author: primary author(s) of the core document. Authors of changes are identified elsewhere.

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⁶ Distribution: This is a cumulative record showing all external recipients of all released non-public versions.

⁷ Sub-documents: separate files, each subject to its own approval cycle and version control that form an integral part of this document

Number	Version	Title	Relevance

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Introduction

This deliverable sums up all dissemination activities of the Helium3D project, consisting of three elements:

1. A detailed table of dissemination activities of various types
2. A list of published papers and their details
3. Miscellaneous activities

There are no explicit evaluations of effectiveness of said activities. However, the dissemination has the following qualities that indicate the dissemination has very likely resulted in a) exposure of the project and its content, b) networking and collaboration between universities and businesses, c) new applications of (parts of) Helium3D results, d) inspiration for, and expectation of, future research on the area of 3D displays and 3D interaction:

1. Wide variety of dissemination types: conference presentations, papers, articles, demos, tutorials, flyers, conference visits.
2. Wide variety of topics and findings: 3D display technology, 3D display evaluation, pupil tracking, gesture tracking, human factors, etc.
3. Wide variety of international public (see below)

Dissemination activities

Title	Person Responsible	Proceedings/Publication Name	Authors	Media Type	Type of Audience	Size of Audience	Comments
IBC2010	Ian Sexton	http://www.ibc.org/page.cfm/link=219		Exhibition Stand	Research, Industry & Public	50000	Invited stand at New Technology Campus
Ditch the glasses for lifelike 3D	Sally Day	http://www.newscientist.com/article/mg20827805.800-ditch-the-glasses-for-lif%20elike-3d.html?full=true	Lewis Dartnell	Media Briefing	General Public		The interviewer did not allow review of the final article.
Micro-optics for a Laser Based Auto-stereoscopic Multi-Viewer Display	Hadi Baghsiahi	Society for Information Display International Symposium Digest of Technical Papers 2011 Paper 48.4	H. Baghsiahi, E. Willman, F. A. Fernández, David R. Selviah, S. E. Day, K. Akşit, S. Ölger, A. Mostafazadeh, E. Erden, VC Kishore, H. Urey, P. A. Surman	Conference Presentation	Research, Industry & Public	1000	http://dx.doi.org/10.1889/1.3621421 Invited lecture on 3D display technology with emphasis on MUTED and HELIUM3D
3D Display Technology	Phil Surman	Lecture at Tianjin University, China	Phil Surman	Other	Higher Education	50	Invited paper giving overview on 3D displays with emphasis on the HELIUM3D approach.
3D displays: past, present and future	Phil Surman	Workshop on Liquid Crystals for Phototronics, Hong Kong University of Science and Technology	Phil Surman	Conference Presentation	Research and Industry	150	
HELIUM3D, a Laser-based Display with '3D+' Capability	Phil Surman	CVMP2010, Proceedings of The 7th European Conference on Visual Media Production, ISBN 978-0-7695-4268-3	R. Brar, P. Surman, I. Sexton, K. Hopf	Publication	Research, Industry & Public	200	
The Optics of an Autostereoscopic Multiview Display	Eero Willman	The Society for Information Display, 2010 International Symposium, Seminar, and Exhibition Washington State Convention Center, Seattle, WA, USA	Eero Willman, H. Baghsiahi, F. A. Fernández, D. R. Selviah, S. E. Day, Kishore V. C., E. Erden, H. Urey, P. A. Surman	Conference Presentation	Research and Industry	1000	Dates: 23-28 May, 2010. Oral presentation. Session number 16.4
PROJECTION-BASED HEAD TRACKING 3D DISPLAYS	Phil Surman	Special edition of J SID - MEME and Projection Displays	Rajwinder Singh Brar, Phil Surman, Ian Sexton, Klaus Hopf	Publication	Research, Industry & Public	10000	Provisionally accepted (SID waiting for revision) To be published fourth quarter 2010
HELIUM3D	Phil Surman	3D Media Cluster Meeting, Antwerp	Phil Surman, Ian Sexton	Other	Research and Industry	250	DMU gave presentations to other Cluster members on HELIUM3D and MUTED
HELIUM3D	Phil Surman	3D Cluster KickOff Meeting, Vilamoura	Phil Surman, Ian Sexton	Publication	Research and Industry	250	DMU gave presentations representing HELIUM3D and MUTED to Cluster members
HELIUM3D Display Technology	Phil Surman	3D Display Conference	Phil Surman, Ian Sexton, Rajwinder Brar	Publication	Research and Industry	30	Conference at UCL on 21/4/10
MUTED - Multi User 3D Display	Phil Surman	Special edition of J SID	Rajwinder Singh Brar, Phil Surman, Ian Sexton, Klaus Hopf	Publication	Research and Industry	5000	Date of publication fourth quarter 2010 Provisionally accepted
MUTED AND HELIUM3D AUTOSTEREOSCOPIC DISPLAYS	Phil Surman	2010 International Workshop on Hot Topics in 3D Media - Hot 3D	Phil Surman, Rajwinder Singh Brar, Ian Sexton, Klaus Hopf	Conference Presentation	Research, Industry & Public	200	Workshop in conjunction with icme, Singapore, July 23, 2010
MULTI-USER GLASSES FREE 3D DISPLAY USING AN OPTICAL ARRAY	Phil Surman	3DTV -Con 2010- Capture, Transmission and Display of 3D Video	Rajwinder Singh Brar, Phil Surman, Ian Sexton, Richard Bates, Wing Kai Lee, Klaus Hopf, Frank Neumann	Conference Presentation	Research, Industry & Public	250	The 3DTV Conference will be held in Tampere, 7-9 June 2010
Laser-based Head-tracked 3D Display Research	Phil Surman	IEEE Special Issue in ther Journal of Display Technology	Rajwinder Singh Brar, Phil Surman, Ian Sexton, Richard Bates, Wing Kai Lee, Klaus Hopf, Frank Neumann, Sally Day, Eero Willman	Publication	Research and Industry	5000	Paper accepted To be published fourth quarter 2010
performance of a path tracing task using stereoscopic and motion based depth cues	Maurice van Beurden	IEEE QoMEX'10 Conference Proceedings	Maurice van Beurden, Andre Kuijsters and Wijnand IJsselsteijn	Conference Presentation	Research	50	
Range and variability in gesture-based interactions with medical images	Maurice van Beurden	no proceeding	Maurice van Beurden & Wijnand IJsselsteijn	Conference Presentation	Research	40	
CeBIT 2010 (2.03.2010 - 6.03.2010)	Klaus Hopf	HELIUM3D flyers have been distributed within FHG's presentations at the Fraunhofer booth		Flyers	Industry Sector	334000	
Novel user interaction technologies	Gert Van Hoey	14th Multimedia Community (MuMe) Work Meeting, 17 November 2009	Gert Van Hoey	Conference Presentation	Research and Industry	50	
Professional applications of 3D displays	Gert Van Hoey	SID UK & Ireland Chapter 3D Display Conference, London, 21 April 2010	Gert Van Hoey	Conference Presentation	Research and Industry	50	
HELIUM3D	Phil Surman	Presentation at 3D Media Cluster Meeting, Brussels, 4 February 2010	Phil Surman	Other	Research and Industry	250	Presentation to the 10 organisations of the 3D Media cluster for distribution to organisation members.
3D Media Workshop (15.10.09 - 16.10.09)	Klaus Hopf	MUTED and HELIUM3D: Two Approaches to Laser-Based Stereo'	Phil Surman	Conference Presentation	Research and Industry	150	

Title	Person Responsible	Proceedings/Publication Name	Authors	Media Type	Type of Audience	Size of Audience	Comments
IFA 2009 (4.09.09 - 9.09.09)	Klaus Hopf	HELIUM3D flyers have been distributed within FhG's presentations at the Fraunhofer booth		Flyers	Research, Industry & Public	228600	
CeBIT 2009 (3.03.09 - 8.03.09)	Klaus Hopf	HELIUM3D flyers have been distributed within FhG's presentations at the Fraunhofer booth		Flyers	Industry Sector	400000	
Laser Scanning Based Autostereoscopic 3D Display with Pupil Tracking	Hakan Urey	Proceedings of the IEEE Photonics 2009, Antalya, Turkey, pp. 10-11, October 2009	Erden E., Chellappan Kishore. V., Ürey H., Baghsiahi H., Willman E., Day S. E., Selviah D. R., Fernandez F. A. Surman P.,	Conference Presentation	Research, Industry & Public	200	Oral presentation at IEEE Photonics 2009, Antalya, Turkey, October 2009
Laser Scanning 3D Display with Dynamic Exit Pupil	Hakan Urey	Proceedings of the 29th International Display Research Conference, Rome, Italy, 492-495, September 2009	Kishore V. C., Erdem Erden, Hakan Urey, Eero Willman, Hadi Baghsiahi, Sally E. Day, David R. Selviah, F. Anibal Fernández, and Phil Surman	Conference Presentation	Research, Industry & Public	200	Oral presentation at the 29th International Display Research Conference, Rome, Italy
Laser based displays: A Review (Invited)	Hakan Urey	Applied Optics	Kishore V. Chellappan, Erdem Erden, Hakan Urey	Publication	Research, Industry & Public	10000	A section about Helium3D has been included in this invited article for a special issue of Applied Optics on "Lasers: the first 50 years".
National ISO fair	Hakan Urey			Exhibition Stand	Research, Industry & Public	40	Poster presentation in industry and innovation fair in Istanbul during the dates Dec 15-16 2009.
HELIUM3D	Eero Willman	London Technology Network, Emerging Applications for 3D Technologies and Interactivity	Eero Willman, Hadi Baghsiahi, Phil Surman	Poster Display	Research and Industry	100	Event to be held on 24th June 2009
HELIUM3D poster	Eero Willman			Poster Display	Research and Industry	100	3rd April 2009: Poster presentation at a research Open Day at UCL, attracting a wide audience from the UK University and Industrial Research Base
Liquid crystals in Electro-optics	Sally Day			Conference Presentation	Higher Education	50	Research Seminar in the Physics Department at Southampton University (13th March). A short description of the project was given.
Interactive Multimodal 3D Visualisation Display	Phil Surman	Kinetica Arts Fair - meeting hosted in London by UKDL on 3/3/09	Phil Surman	Conference Presentation	Research, Industry & Public	50	Conference attached to art exhibition; intended to bring together artists and technologists.
3D Displays Employing Novel Projection Techniques	Phil Surman	UKDL Workshop 'Investigating 3D Technologies and Projection Displays', De Montfort University	Phil Surman	Conference Presentation	Research and Industry	100	
Solving the Problem -The History and Development of Viable Domestic 3DTV Displays	Phil Surman	Three-Dimensional Television, Capture, Transmission, Display (edited book). Springer 'Signals and Communication Technology series	P Surman, K Hopf, I Sexton, W K Lee, R Bates	Publication	Research	1000	
European Research into Head Tracked Autostereoscopic Displays	Phil Surman	3DTV Conference 2008 Proceedings, isbn:978-1-4244-1755, IEEE Catalog Number: CF0855, Library of Congress: 2007907164	Phil Surman, Ian Sexton, Klaus Hopf, Wing Kai Lee, Edward Buckley, Graham Jones, Richard Bates.	Publication	Research, Industry & Public	200	
D TV: which projects for the future?	Phil Surman	Dimension3 Expo, Chalon-sur-Saone, France	Phil Surman	Conference Presentation	Research, Industry & Public	200	
Laser-based multi-user 3-D display	Phil Surman	Journal of the Society for Information Display -- July 2008 --Vol. 16, Issue 7, pp 743 - 753	Phil Surman, Ian Sexton, Klaus Hopf, Wing Kai Lee, Frank Neumann, Edward Buckley, Graham Jones, Alex Corbett, Richard Bates and Sumanta Talukdar	Publication	Research, Industry & Public	10000	
MOEMS Display and Imaging Applications	Hakan Urey		Hakan Urey	Conference Presentation	Higher Education	80	Two research seminars on Feb 5-6, 2009 at EPFL Neuchatel and Lausanne. HELIUM3D was briefly reviewed.
Laser Illuminated Multi viewer 3D Displays	Ian Sexton	Proc. IMID 2008, pp1423-1426, Seoul, Oct 2008	Ian Sexton, Richard Bates, Wing Lee, Phil Surman, Klaus Hopf, Frank Neumann, Alex Corbett, Edward Buckley	Conference Presentation	Research, Industry & Public		
IFA 2008 (29.08.08 - 3.09.08 in Berlin, Germany)	Klaus Hopf			Flyers	Research, Industry & Public	220000	HELIUM3D flyers have been distributed within FhG's presentations at the Fraunhofer booth
HELIUM3D flyers permanently available for visitors at HHI's Media Lab	Klaus Hopf			Flyers	Research and Industry		

Published papers and articles

The following list denotes all published papers as a result of work done for the Helium3D project.

Van Beurden, M.H.P.H., IJsselsteijn, W.A., Hopf, K 2011, 'User centered design of gesture-based interaction technology', *3DTV Conference: The True Vision - Capture, Transmission and Display of 3D Video (3DTV-CON)*, Antalya, pp.1-4

Fortuin, M.F., Lambooy, M.T., IJsselsteijn, W.A., Heynderickx, I., Edgar, D.F., & Evans, B.J.W., (2011). An exploration of the initial effects of stereoscopic displays on optometric parameters. *Ophthalmic and Physiological Optics*, 31, 33-44.

Van Beurden, M.H.P.H., IJsselsteijn, W.A., de Kort, Y.A.W 2011, 'User experience of gesture-based interfaces: A comparison with traditional interaction methods on pragmatic and hedonic qualities', *Workshop of Gesture in Embodied communication and Human-Computer Interaction* Athens, Greece, pp 121-124,

Van Beurden, M.H.P.H., IJsselsteijn, W.A., de Kort, Y.A.W 2011, 'Evaluating stereoscopic displays: both efficiency measures and perceived workload sensitive to manipulations in binocular disparity', *Proceedings of SPIE*, pp 78630- 786316

Van Beurden, M.H.P.H., & IJsselsteijn, W.A 2010, 'Range and variability in gesture-based interactions with medical images: Do non-stereo versus stereo visualization elicit different types of gestures?' Paper presented at IEEE VR workshop on medical virtual environments, Waltham, 20-24 March.

Van Beurden, M.H.P.H., & IJsselsteijn, W.A 2010, 'Performance of a path tracing task using stereo and motion based depth cues', *Quality of Multimedia Experience (QoMEX)*, 2010 Second International Workshop, Trondheim pp.176-181, 21-23 June

Vermeirsch, K., Van Hoey, G., van Beurden, M., Surman, P (2011) Measurement and evaluation of head tracked auto-stereoscopic displays. *3DTV Conference: The True Vision - Capture, Transmission and Display of 3D Video (3DTV-CON)*, Antalya, pp.1-4

H. Baghsiahi, E. Willman, F. A. Fernández, David R. Selviah, S. E. Day, K. Akşit, S. Ölçer, A. Mostafazadeh, E. Erden, VC Kishore, H. Urey, P. A. Surman, Micro-optics for a Laser Based Auto-stereoscopic Multi-Viewer Display, *Society for Information Display International Symposium Digest of Technical Papers 2011* Paper 48.4, <http://dx.doi.org/10.1889/1.3621421>

H. Urey, K. V. Chellephan, E. Erden, and P. Surman, "State of the Art in Stereoscopic and Autostereoscopic Displays," *Proc. IEEE*, 99 (4), 540-555 (2011). (*Invited paper*)

K. V. Chellephan, E. Erden, and **H. Ürey**, "Laser-based displays: a review," *Applied Optics* Vol. 49 (Feature issue on Lasers: The first fifty years), Issue 25, pp. F79-F98, 2010. (*Invited paper*)

K. Aksit, S. Olcer, H. Baghsiahi, E. Erden, VC Kishore, D.R. Selviah, P. Surman, H. Ürey "Laser scanning based light engine for auto-stereoscopic display system", in preparation for Optics Express.

K. V. Chellappan, E. Erden, H. Ürey, H. Baghsiahi, E. Willman, S. E. Day, D. R. Selviah, F. A. Fernandez, P. Surman, "Laser Scanning 3D Display with Dynamic Exit Pupil", Eurodisplay 2009, Rome, Italy, pp. 492-495, September 2009

E. Erden, K. V. Chellappan, H. Ürey, H. Baghsiahi, E. Willman, S. E. Day, D. R. Selviah, F. A. Fernandez, P. Surman, "Laser Scanning Based Autostereoscopic 3D Display with Pupil Tracking", IEEE LEOS Annual Meeting Proc. Vol. I and II, Antalya, Turkey, pp. 10-11, Oct 2009

E. Willman, H. Baghsiahi, F. A. Fernández, D. R. Selviah, S. E. Day, V. C. Kishore, E. Erden, H. Ürey, and P. A. Surman, "The Optics of an Autostereoscopic Multiview Display," Digest of SID Annual Meeting, Paper: 16.4, pp. 222-225, Seattle, USA, May 2010

K. Aksit, S. Olcer, E. Erden, VC Kishore, H. Ürey, E. Willman, H. Baghsiahi, S.E. Day, D.R. Selviah, F. Anibal Fernandez, "Light engine and optics for helium3d auto-stereoscopic laser scanning display". In 3DTV Conference: The True Vision-Capture, Transmission and Display of 3D Video (3DTV-CON), 2011, pages 1–4. IEEE.

K. Aksit, S. Olcer, E. Erden, VC Kishore, H. Ürey, H. Baghsiahi, D.R. Selviah, P. Surman "Laser scanning based light engine for auto-stereoscopic display system", to be published in Optics Express.

K. Hopf, F. Neumann, D. Przewozny, "Multi-User Eye Tracking Suitable for 3D Display Applications", CD-ROM Proceedings IEEE Catalog Number: CFP1155B-CDR, ISBN: 978-1-61284-160-1, 2011

M. Visser, K. Hopf, "Near and Far Distance Gesture Tracking for 3D Applications", CD-ROM Proceedings IEEE Catalog Number: CFP1155B-CDR, ISBN: 978-1-61284-160-1, 2011

Surman P, Hopf K, Sexton I, Lee WK, Bates R, "Solving the Problem -The History and Development of Viable Domestic 3DTV Displays", in Three-Dimensional Television, Capture, Transmission, Display, eds. Ozaktas, Onural, ISBN:978-3-540-72531-2, Springer, 2008

R Brar, P Surman, I Sexton, "Projection-based head-tracking 3-D displays", Journal of the SID, Volume 18, Issue 10, pp 844-854, Oct 2010

R Brar, P Surman, I Sexton, R Bates, WK Lee, K Hopf, F Neumann, SE Day, E Willman, "Laser-Based Head-Trackable 3D Display Research" J. Display Technol. 6, pp 531-543, 2010

R Brar, P Surman, I Sexton, K Hopf, "A Laser-scannig Head-Trackable Autostereoscopic Display", Journal of Information Display, Vol 11, Sep 2010

R Brar, P Surman, I Sexton, K Hopf, "A Time-multiplexed 3D Display Using Steered Exit Pupils", Journal of Information Display, Vol 11, No. 2, June 2010

I Sexton, R Bates, WK Lee, P Surman, K Hopf, F Neumann, A Corbett, E Buckley, "Laser Illuminated Multi Viewer 3D Displays", Proc. IMID 2008, pp1423-1426, Seoul, Oct 2008

Other dissemination activities

H. Urey and K. Aksit, Invited presentation at 3DMR Conference, Jeju, Korea, June 2011

IFA in Berlin, 2010 2nd September – 7th September

HELIUM3D flyers have been distributed within FhG's presentations at the Fraunhofer booth

CeBIT in Hanover, 1st March – 5th March

HELIUM3D flyers have been distributed within FhG's presentations at the Fraunhofer booth

IBC2010 - invited stand in New Technology Campus

Mentioned in an article in New Scientist

<http://www.newscientist.com/article/mg20827805.800-ditch-the-glasses-for-lifelike-3d.html?full=true>

HELIUM3D Poster at London Technology Network, Emerging Applications for 3D Technologies and Interactivity Authors: Eero Willman, Hadi Baghsiahi, Phil Surman

HELIUM3D poster 3rd April 2009: Poster presentation at a research Open Day at UCL

Liquid crystals in Electro-optics, Sally Day Research Seminar in the Physics Department at Southampton University (13th March).

From 3D-CON tutorial sessions:

Title: 3D natural interaction and/or visual comfort in 3D.

Authors: Maurice van Beurden, Wijnand Ijsselsteijn and Yvonne de Kort

Title: [Tutorial] The Construction and Evaluation of the HELIUM3D Prototype Display

Authors: Phil Surman, Ian Sexton

Title: Measurement and Evaluation of Head Tracked Autostereoscopic Displays

Authors: Maurice van Beurden, Koenraad Vermeirsch, Gert Van Hoey, Philip Surman