

CONFERENCE PROGRAM



The 14th IEEE International Symposium on
Mixed and Augmented Reality

ISMAR 2015

Augmentation Without Boundaries

SEP29 - OCT3 | FUKUOKA, JAPAN

 IEEE  vgtc IEEE  computer society

 SigmaR

 WSA
THE OFFICIAL HEADLINE SOCIETY OF JAPAN

Diamond



Gold



Silver



Bronze



NS Solutions



SME



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Program

September 29th						
Fukuoka City Museum		Fukuoka Sunpalace Hotel and Hall				
		Room1	Room2	Room3	Room5	Room6
9:00						
10:00			<u>WS2</u>		<u>T1</u>	
11:00			<u>9:00</u> = <u>13:00</u>		<u>9:00</u> = <u>12:50</u>	
12:00		<u>WS1</u>				
13:00		<u>9:00</u> = <u>17:00</u>		<u>WS4</u>		
14:00	<u>WSM1 Mixed Reality Food Art DNA</u> <u>14:00-17:00</u>			<u>10:55</u> = <u>16:30</u>		<u>T2</u>
15:00			<u>WS3</u>			<u>13:00</u> = <u>17:00</u>
16:00			<u>14:00</u> = <u>17:10</u>			
17:00						
18:00						
19:00	Reception 18:30-21:00 with MASH'D Art Performance "DATA BODY AS PERFORMANCE" 20:00-21:00					
20:00						
21:00						

WS: Workshop
 T: Tutorial
 WSM: MASH'D Workshop

September 30th				
	Fukuoka City Museum	<u>Fukuoka International Congress Center</u>		
		S&T	MASH'D	Tracking competition
9:00		Opening 9:00-9:30		
10:00		<u>Keynote 1 (Dr. Gudrun Klinker)</u> 9:30-10:30		
		Break		
11:00		<u>Oral 1. HMDs</u> 10:50-12:00	<u>Oral 1. Meaning</u> 10:50-12:30	
12:00		Lunch		
13:00	<u>Art Exhibition</u> <u>(Open to public)</u> 9:30-17:30	<u>Oral 2. Depth Cameras</u> 13:30-14:45	<u>Data Body as Artifact Artist</u> Panel 1. Bodies of Matter 13:30-15:30	
14:00		Break		
15:00		Sponsor's Talk 15:05-15:25		
16:00		<u>Poster and Demo Teaser</u> 15:25-16:25	Break	
17:00		<u>Poster</u> 16:25 <u>Demo</u> 16:25	<u>Data Body as Artifact Artist</u> Panel 2. Matters of Embodiment 15:50-17:50	
18:00		<u>-</u> 18:25 <u>-</u> 18:25		
19:00		Conference Reception 18:00-20:30 with MASH'D Art Performance <u>"ALGORAVE"</u> 19:00-21:00		<u>1st Challenge</u> 18:00-20:00
20:00				

October 1st			
Fukuoka City Museum	Fukuoka International Congress Center		
	S&T	MASH'D	Tracking competition
9:00	<u>Keynote 2 (Mr. Julian Olivar)</u> <u>9:00-10:00</u>		
10:00	Break		
11:00	<u>Oral 3.</u> <u>Tracking</u> <u>10:20-11:50</u>	<u>Oral 2.</u> <u>Materiality</u> <u>10:20-12:00</u>	
12:00	<u>Poster Teaser</u> <u>11:50-12:50</u>	<u>Poster & Demo</u> <u>Teaser</u> <u>12:00-12:45</u>	
13:00	<u>Art Exhibition</u> <u>(Open to public)</u> <u>9:30-17:30</u>		Lunch
14:00	<u>S&T</u> <u>Poster</u> <u>13:50</u>	<u>S&T and</u> <u>MASH'D</u> <u>Demo</u> <u>13:50</u>	<u>2nd Challenge</u> <u>13:30-15:30</u>
15:00	<u>15:50</u>	<u>15:50</u>	<u>15:50</u>
16:00	<u>Oral 4.</u> <u>Applications</u> <u>15:50-16:55</u>	<u>Panel 3. Con-</u> <u>textual Engi-</u> <u>neering</u> <u>15:50-17:50</u>	
17:00	<u>Oral 5. Closed-</u> <u>Loop Visual</u> <u>Computing</u> <u>16:55-18:05</u>		
18:00			
19:00	Banquet 19:00-21:00		
20:00			
21:00			

		October 2nd		
		Fukuoka City Museum	Fukuoka International Congress Center	
			S&T	
			MASH'D	
9:00	<u>Art Exhibition</u> <u>(Open to public)</u> <u>9:30-17:30</u>		<u>Oral 6. Medical AR</u> <u>9:00-10:00</u>	
			<u>Oral 3. Media</u> <u>9:00-10:15</u>	
10:00		Break		
11:00		<u>Oral 7. Perception</u> <u>10:20-11:30</u>	<u>Panel 4. Experiencing AR in Public Environments</u> <u>10:45-12:15</u>	
12:00		<u>Poster Teaser</u> <u>11:30-12:30</u>		
13:00		Lunch		
14:00		<u>Poster</u> <u>13:30-15:30</u>	<u>Demo</u> <u>13:30-15:30</u>	<u>Panel 5. 5th Anniversary MARart Aesthetics</u> <u>Panel: Bodies, Embodiment and Data Aesthetics</u> <u>13:30-15:30</u>
15:00		Break		
16:00		<u>Keynote 3 (Dr. Masahiko Inami)</u> <u>15:50-16:50</u>		
17:00		Closing <u>16:50-17:30</u>		
18:00				
19:00				

		October 3rd					
		Fukuoka City Museum	Fukuoka International Congress Center				
9:00			<u>Tracking competition</u>				
10:00	<u>Art Exhibition (Open to public) 9:30-13:00</u>		<u>Wrap-up meeting 9:00 - 12:00</u>	<u>Demos (Open to public) 9:00 - 14:00</u>	<u>Joint Workshop on WS5 and WS6 9:00 - 16:20</u>		
11:00							<u>T3 10:00 - 14:00</u>
12:00					<u>DC 9:00 - 16:00</u>		
13:00							<u>T4 9:00 - 17:00</u>
14:00		<u>SIG-MR Japanese session 13:30 - 16:30</u>					
15:00							
16:00							
17:00							
18:00							
19:00							

WS: Workshop
T: Tutorial
DC: Doctorial Consortium

	October 4th
	Fukuoka City Museum
9:00	
10:00	
11:00	
12:00	<u>Performance by Stelarc</u> <u>(Open to public)</u> <u>12:00-14:00</u>
13:00	
14:00	
15:00	
16:00	
17:00	
18:00	
19:00	
20:00	
21:00	

Keynote address 1

09:30 -10:30, 30 Sep.

Place: Main hall

Chair: Steven Feiner (Columbia University)

Gudrun Klinker**“Ubiquitous Augmented Reality”**

What is Augmented Reality? In this talk, we will embark from this question and discuss use case examples to envision the more general concept of Ubiquitous Augmented Reality. We will then describe some general requirements and architectural concepts towards conceptualizing and implementing systems establishing reusable Ubiquitous AR systems.

**Biography**

Prof. Gudrun Klinker, Ph.D. studied computer science (informatics) at the Friedrich-Alexander Universität Erlangen, Universität Hamburg (Diplom) and Carnegie-Mellon University (Ph.D.) in Pittsburgh, PA, USA, focusing on research topics in computer vision. In 1989, she joined the Cambridge Research laboratory of Digital Equipment Corporation in Boston, MA, working in the visualization group on the development of a reusable tele-collaborative data exploration environment to analyze and visualize 3D and higher-dimensional data in medical and industrial applications. Since 1995, she has been researching various aspects of the newly emerging concept of Augmented Reality, first at the European Computer-Industry Research Center, then at the Fraunhofer Institute for Computer Graphics, and since 2000 at the Technical University of Munich. Here, her research focus lies on developing approaches to ubiquitous augmented reality that lend themselves to realistic industrial applications.

Prof. Klinker is one of the co-founders of the International Symposium of Augmented Reality (ISMAR). She has served on numerous program committees such as VR, VRST, 3DUI, and UIST. She is author and co-author of more than 100 reviewed scientific publications.

<http://campar.in.tum.de/Main/GudrunKlinker>

Keynote address 2

09:00 -10:00, 1 Oct.

Place: Main Hall

Chair: Julian Stadon (Salzburg University of Applied Sciences)

Julian Oliver**“Art of the Exploit: An Introduction to Critical Engineering”**

Art has long been celebrated as an important frame for critical reflection upon contemporary life. In the post-industrial era however, complex tools, formal languages and hidden infrastructure increasingly influence how we communicate, move and remember; now an inextricable part of our Environment.

So it follows that to ignore the languages and ideas that comprise engineering - from Computer Networking and Programming to BioTechnology and Electronics - is to be unable to describe, and thus critically engage, the world we live in. While this presents a challenge for the traditional artist, it is one that an engineer not working in service to science and industry - a Critical Engineer - is able to meet.

In this lecture Julian will introduce projects and interventions made by himself and others that foreground engineering, rather than art, in the creative and critical frame, offering highly public insights into the hidden mechanisms and power struggles within our technical environment. In doing so, he will introduce the Critical Engineering Manifesto, while discussing his own personal shift away from 'media artist' to that of 'critical engineer'.

Projects such as the Transparency Grenade, PRISM, Packetbruecke and Newstweek will be covered in detail.

**Biography**

Julian Oliver is a New Zealander, Critical Engineer and artist based in Berlin. His work and lectures have been presented at many museums, galleries, international electronic-art events and conferences, including the Tate Modern, Transmediale, the Chaos Computer Congress, Ars Electronica, FILE and the Japan Media Arts Festival.

Julian has received several awards, most notably the distin-

guished Golden Nica at Prix Ars Electronica 2011 for the project Newstweek (with Daniil Vasiliev).

Julian has also given numerous workshops and master classes in software art, data forensics, creative hacking, computer networking, counter-surveillance, object-oriented programming for artists, augmented reality, virtual architecture, video-game development, information visualisation and UNIX/Linux worldwide. He is an advocate of Free and Open Source Software and is a supporter of, and contributor to, initiatives that promote and reinforce rights in the networked domain.

Articles about Julian's work, or work he's made with others, have appeared in many news channels. Among them are The BBC (UK), The Age (AU), Der Spiegel (DE), El Pais (ES), Liberation (FR), The New York Times (US), La Vanguardia (ES), The Guardian Online (UK), Cosmopolitan (US), Wired (DE, US, UK), Slashdot (US), Boing Boing (US), Computer World (World) and several television stations worldwide.

<http://julianoliver.com/>

Keynote address 3

15:50 -16:50, 2 Oct.

Place: Main Hall

Chair: Koichi Kise (Osaka Prefecture University)

Masahiko Inami**“Superhuman Sports: Beyond Human Limits”**

Superhuman Sports, a form of "Human-Computer Integration" to overcome somatic and spatial limitation of humanity by merging technology with the body. In Japan, official home of the 2020 Olympics and Paralympics, we hope to create a future of sports where everyone, strong or weak, young or old, abled or disabled, can play and enjoy playing without being disadvantaged. In order for us to realize to be equal athletes in the area of super-human sports, augmented human can be the technology that empowers us to overcome the biological barriers of individuals and of our specie. Our goal for Superhuman Sports is to push human performance into new peaks. This talk will show our vision and discuss a capability of Mixed and Augmented Reality for Superhuman Sports. Also, it includes our approaches with concrete steps such as Telexistence, Optical Camouflage, Stop-Motion Goggle and Galvanic Vestibular Stimulation.



<http://superhuman-sports.org/academy/eindex.html>

Biography

Masahiko Inami is a professor in the School of Media Design at the Keio University (KMD), Japan. His research interest is in human/I/O enhancement technologies including perception, HCI and robotics. He received BE and MS degrees in bioengineering from the Tokyo Institute of Technology and PhD in 1999 from the University of Tokyo. He is known as the inventor of Optical Camouflage system. He received Laval Virtual Technopole Mayenne Trophee, TIME Magazine Coolest Inventions 2003, IEEE Virtual Reality 2004 Best Paper Award, ICAT 2004 Best Paper Award and more. His installations have appeared at Ars Electronica Center. He recently proposed and organized the Superhuman Sports.

<http://www.kmd.keio.ac.jp/en/experience/faculty/inami.html>

S&T Oral Sessions

Place: Main Hall

OS1: HMDs

10:50 - 12:00, 30 Sep.

Chair: Feng Zheng (Magic Leap, Inc.)

1. **ModulAR: Eye-controlled Vision Augmentations for Head Mounted Displays** (full paper, demo)
Jason Orlosky, Takumi Toyama, Kiyoshi Kiyokawa, Daniel Sonntag
2. **Semi-Parametric Color Reproduction Method for Optical See-through Head-mounted Displays** (full paper, poster)
Yuta Itoh, Maksym Dzitsiuk, Toshiyuki Amano, Gudrun Klinker
3. **Simultaneous Direct and Augmented View Distortion Calibration of Optical See-through Head-mounted Displays** (short paper, poster)
Yuta Itoh, Gudrun Klinker

OS2: Depth Cameras

13:30 -14:45, 30 Sep.

Chair: Yoshinari Kameda (University of Tsukuba)

1. **Structural Modeling from Depth Images** (full paper, demo)
Thanh Nguyen, Gerhard Reitmayr, Dieter Schmalstieg
2. **Very High Frame Rate Volumetric Integration of Depth Images on Mobile Devices** (full paper, demo)
Olaf Kahler, Victor Adrian Prisacariu, Carl Yuheng Ren, Xin Sun, Philip Torr, David Murray
3. **MobileFusion: Real-time Volumetric Surface Reconstruction and Dense Tracking On Mobile Phones** (full paper, demo)
Peter Ondruska, Shahram Izadi, Pushmeet Kohli

OS3: Tracking

10:20 - 11:50, 1 Oct.

Chair: Georg Klein (Microsoft Corporation)

1. **Local Geometric Consensus: a general purpose point pattern-based tracking algorithm** (full paper, demo)
Liming YANG, Jean-marie Normand, Guillaume Moreau
2. **Augmented Reality during Cutting and Tearing of Deformable Objects** (short paper, poster)
Christoph Paulus, Nazim HAOUCHINE, David Cazier, Stephane Cotin
3. **Efficient Computation of Absolute Pose for Gravity-Aware Augmented Reality** (short paper, poster)
Chris Sweeney, John Flynn, Benjamin Nuernberger, Matthew Turk, Tobias Höllerer
4. **Instant Outdoor Localization and SLAM Initialization from 2.5D Maps** (full paper)
Clemens Arth, Christian Pirchheim, Jonathan Ventura, Dieter Schmalstieg, Vincent Lepetit

OS4: Applications

15:50 -16:55, 1 Oct.

Chair: Stephan Lukosch (Delft University of Technology)

1. **Live Texturing of Augmented Reality Characters from Colored Drawings** (full paper, demo)
Stephane Magnenat, Dat Tien Ngo, Fabio Zund, Mattia Ryffel, Gioacchino Noris, Gerhard Rothlin, Alessia Marra, Maurizio Nitti, Pascal Fua, Markus Gross, Robert W. Sumner
2. **Augmented Reality Scout: Joint Unaided-eye and Tele-scopic-zoom System for Immersive Team Training** (short paper)
Taragay Oskiper, Mikhail Sizintsev, Vlad Branzoi, Supun Samarasekera, Rakesh Kuma
3. **A Framework to Evaluate Omnidirectional Video Coding Schemes**
Matt Yu, Haricharan Lakshman, Bernd Girod

OS5: Closed-Loop Visual Computing

16:55 - 18:05, 1 Oct.

Chair: Dieter Schmalstieg (Graz University of Technology)

1. **On-site Semi-Automatic Calibration and Registration of a Projector-Camera System Using Arbitrary Objects With Known Geometry** (full paper)
Christoph Resch, Hemal Naik, Peter Keitler, Steven Benkhardt, Gudrun Klinker
2. **Radiometric Compensation for Cooperative Distributed Multi-Projection System Through 2-DOF Distributed Control** (full paper)
Jun Tsukamoto, Daisuke Iwai, Kenji Kashima
3. **Tiled Frustum Culling for Differential Rendering on Mobile Devices** (short paper)
Kai Rohmer, Thorsten Grosch

OS6: Medical AR

09:00 - 10:00, 2 Oct.

Chair: Greg Welch (The University of Central Florida)

1. **Introducing Augmented Reality to Optical Coherence Tomography in Ophthalmic Microsurgery**
(short paper, poster)
Hessam Roodaki, Konstantinos Filippatos, Abouzar Eslami, Nassir Navab
2. **Auditory and Visio-Temporal Distance Coding for 3-Dimensional Perception in Medical Augmented Reality**
(short paper)
Felix Bork, Bernhard Fuerst, Anja-Katharina Schneider, Nassir Navab
3. **RGBDX: First Design and Experimental Validation of a Mirror-based RGBD Xray Imaging System**
(short paper, poster)
Severine Habert, Jose Gardiazabal, Pascal Fallavollita, Nassir Navab

OS7: Perception

10:20 - 11:30, 2 Oct.

Chair: Stephen R. Ellis

1. **SoftAR: Visually Manipulating Haptic Softness Perception in Spatial Augmented Reality** (full paper, poster)
Parinya Punpongsanon, Daisuke Iwai, Kosuke Sato
2. **Matching and Reaching Depth Judgments with Real and Augmented Reality Targets** (full paper)
J. Edward Swan II, Gurjot Singh, Stephen Ellis
3. **The Ventriloquist Effect in Augmented Reality**
(short paper)
Mikko Kytö, Kenta Kusumoto, Pirkko Oittinen

Posters

13:50 - 15:50, 30 Sep.

Place: Room 401, 402, 403

1. **Overlaying Navigation Signs on a Road Surface using a Head-Up Display** (teaser)
Kaho Ueno, Takashi Komuro
2. **Deformation Estimation of Elastic Bodies Using Multiple Silhouette Images for Endoscopic Image Augmentation** (teaser)
Akira Saito, Megumi Nakao, Yuki Uranishi, Tetsuya Matsuda
3. **Hands-free AR Work Support System Monitoring Work Progress with Point-cloud Data Processing** (teaser)
Hirohiko Sagawa, Hiroto Nagayoshi, Harumi Kiyomizu, Tsuneya Kurihara
4. **Endoscopic Image Augmentation Reflecting Shape Changes During Cutting Procedures** (teaser)
Megumi Nakao, Shota Endo, Keiho Imanishi, Tetsuya Matsuda
5. **Toward Enhancing Robustness of DR System: Ranking Model for Background inpainting** (teaser)
Mariko Isogawa, Dan Mikami, Kosuke Takahashi, Akira Kojima
6. **Interactive Visualizations for Monoscopic Eyewear to Assist in Manually Orienting Objects in 3D** (teaser)
Carmine Elvezio, Mengu Sukan, Steve Feiner, Barbara Tversky
7. **Movable Spatial AR On-The-Go** (teaser)
Ahyun Lee, Joo-Haeng Lee, Jaehong Kim
8. **2D-3D Co-segmentation for AR-based Remote Collaboration** (teaser)
Kuo-Chin Lien, Benjamin Nuernberger, Matthew Turk, Tobias Höllerer
9. **Manipulating Haptic Shape Perception by Visual Surface Deformation and Finger Displacement in Spatial Augmented Reality** (teaser)
Toshio Kanamori, Daisuke Iwai, Kosuke Sato
10. **Mixed-Reality Store on the Other Side of a Tablet** (teaser)

Masaya Ohta, Shunsuke Nagano, Hotaka Niwa, Katsumi Yamashita

11. **Avatar-Mediated Contact Interaction between Remote Users for Social Telepresence** (teaser)
JIHYE OH, Yeonjoon Kim, Taeil Jin, Sukwon Lee, Youjin Lee, Sung-Hee Lee
12. **Towards Estimating Usability Ratings of Handheld Augmented Reality Using Accelerometer Data** (teaser)
Marc Ericson Santos, Takafumi Taketomi, Goshiro Yamamoto, Gudrun Klinker, Christian Sandor, Hirokazu Kato
13. **Abecedary tracking and mapping: a toolkit for tracking competition** (teaser)
Hideaki Uchiyama, Takafumi Taketomi, Sei Ikeda, João Lima
14. **Retrieving Lights Positions Using Plane Segmentation with Diffuse Illumination Reinforced with Specular Component** (teaser)
Paul-Émile Buteau, Hideo Saito
15. **Simultaneous Direct and Augmented View Distortion Calibration of Optical See-Through Head-Mounted Displays** (short paper)
Yuta Itoh, Gudrun Klinker
16. **Semi-Parametric Color Reproduction Method for Optical See-Through Head-Mounted Displays** (full paper)
Yuta Itoh, Maksym Dzitsiuk, Toshiyuki Amano, Gudrun Klinker

Extended Poster

13:50 - 15:50, 1 Oct.

Place: Room 401, 402, 403

1. **Augmented Reality for Radiation Awareness** (teaser)
Nicola Leucht, Severine Habert, Patrick Wucherer,
Simon Weidert, Nassir Navab, Pascal Fallavollita
2. **Remote Mixed Reality System Supporting Interactions
with Virtualized Objects** (teaser)
Peng Yang, Itaru Kitahara, Yuichi Ohta
3. **Fusion of Vision and Inertial Sensing for Accurate and
Efficient Pose Tracking on Smartphones** (teaser)
Xin Yang, Tim Cheng
4. **Augmenting mobile C-arm fluoroscopes via Stereo-
RGBD sensors for multimodal visualization** (teaser)
Severine Habert, Meng Ma, Wadim Kehl, Xiang Wang,
Federico Tombari, Pascal Fallavollita, Nassir Navab
5. **INCAST: Interactive Camera Streams for Surveillance
Cams AR** (teaser)
István Szentandrás, Michal Zachariáš, Rudolf Kajan,
Jan Tinka, Markéta Dubská, Jakub Sochor, Adam Herout
6. **Natural 3D Interaction using a See-through Mobile AR
System** (teaser)
Yuko Unuma, Takashi Komuro
7. **Augmented Wire Routing Navigation for Wire Assembly**
(teaser)
Mark Rice, Hong Huei Tay, Jamie Ng, Calvin Lim,
Senthil Selvaraj, Ellick Wu
8. **Marker Identification Using IR LEDs and RGB Color
Descriptors** (teaser)
Gou Koutaki, Shodai Hirata, Hiromu Sato, Keiichi Uchimura
9. **RGB-D/C-arm Calibration and Application in Medical
Augmented Reality** (teaser)
Xiang Wang, Severine Habert, Meng Ma, Chun-Hao Huang,
Pascal Fallavollita, Nassir Navab

10. **Transforming your website to an augmented reality view**
(teaser)
Dimitrios Ververidis, Spiros Nikolopoulos, Ioannis Kompatsiaris

Poster

13:50 - 15:50, 1 Oct.

Place: Room 401, 402, 403

1. **Improved SPAAM Robustness Through Stereo Calibration**
(teaser)
Kenneth Moser, J. Edward Swan II
2. **Road Maintenance MR System Using LRF and PDR**
ChingTzun Chang, Ryosuke Ichikari, Takashi Okuma,
Takeshi Kurata, Koji Makita (teaser)
3. **Geometric Mapping for Color Compensation using Scene Adaptive Patches**
(teaser)
Jong Hun Lee, Yong Hwi Kim, Yong Yi Lee,
Kwan Heng Lee
4. **Pseudo Printed Fabrics through Projection Mapping**
(teaser)
Yuichiro Fujimoto, Goshiro Yamamoto,
Takafumi Taketomi, Christian Sandor, Hirokazu Kato
5. **Augmented Reality during Cutting and Tearing of Deformable Objects**
(short paper)
Christoph Paulus, Nazim HAOUCHINE, David Cazier,
Stephane Cotin
6. **Efficient Computation of Absolute Pose for Gravity-Aware Augmented Reality**
(short paper)
Chris Sweeney, John Flynn, Benjamin Nuernberger,
Matthew Turk, Tobias Höllerer

Extended Posters

13:50 - 15:50, 2 Oct.

Place: Room 401, 402, 403

1. **A Step Closer To Reality: Closed Loop Dynamic Registration Correction in SAR** (teaser)
Hemal Naik, Federico Tombari, Christoph Resch, Peter Keitler, Nassir Navab
2. **Design Guidelines for Generating Augmented Reality Instructions** (teaser)
Cledja Karina Rolim da Silva, Dieter Schmalstieg, Denis Kalkofen, Veronica Teichrieb
3. **Haptic Ring Interface Enabling Air-Writing in Virtual Reality Environment** (teaser)
Kiwon Yeom, Jounghuem Kwon, Sang-Hun Nam, Bum-Jae You
4. **Remote Welding Robot Manipulation using Multi-view Images** (teaser)
Yuichi Hiroi, Kei Obata, Katsuhiko Suzuki, Naoto Ienaga, Maki Sugimoto, Hideo Saito, Tadashi Takamaru
5. **A Particle Filter Approach to Outdoor Localization using Image-based Rendering** (teaser)
Christian Poglitsch, Clemens Arth, Dieter Schmalstieg, Jonathan Ventura
6. **AR4AR: Using Augmented Reality for guidance in Augmented Reality Systems setup** (teaser)
Frieder Pankratz, Gudrun Klinker
7. **Exploiting Photogrammetric Targets for Industrial AR** (teaser)
Hemal Naik, Yuji Oyamada, Peter Keitler, Nassir Navab
8. **Rubix: Dynamic Spatial Augmented Reality by Extraction of Plane Regions with a RGB-D Camera** (teaser)
Masayuki Sano, Kazuki Matsumoto, Bruce Thomas, Hideo Saito
9. **Content Completion in Lower Dimensional Feature Space through Feature Reduction and Compensation** (teaser)
Mariko Isogawa, Dan Mikami, Kosuke Takahashi, Akira Kojima

10. **ARPLM: The Augmented Reality Process Modeling Language** (teaser)
Tobias Müller, Tim Rieger
11. **Authoring Tools in Augmented Reality: An Analysis and Classification of Content Design Tools** (teaser)
Roberta Cabral Mota, Rafael Roberto, Veronica Teichrieb
12. **Affording Visual Feedback for Natural Hand Interaction in AR to Assess Upper Extremity Motor Dysfunction** (teaser)
Marina A. Cidota, Rory M.S. Clifford, Paul Dezentje, Stephan G. Lukosch, Paulina J.M. Bank

Posters

13:50 - 15:50, 2 Oct.

Place: Room 401, 402, 403

1. **On-site AR Interface with Web-based 3D Archiving System for Archaeological Project** (teaser)
Ryosuke Matsushita, Tokihisa Higo, Hiroshi Suita, Yoshihiro Yasumuro
2. **Photo Billboarding: A Simple Method to Provide Clues that Relate Camera Views and a 2D Map for Mobile Pedestrian Navigation** (teaser)
Junta Watanabe, Shingo Kagami, Koichi Hashimoto
3. **Automatic Visual Feedback from Multiple Views for Motor Learning** (teaser)
Dan Mikami, Mariko Isogawa, Kosuke Takahashi, Akira Kojima
4. **RGBDX: First Design and Experimental Validation of a Mirror-based RGBD Xray Imaging System** (teaser)
Severine Habert, Jose Gardiazabal, Pascal Fallavollita, Nassir Navab
5. **Introducing Augmented Reality to Optical Coherence Tomography in Ophthalmic Microsurgery** (short paper)
Hessam Roodaki, Konstantinos Filippatos, Abouzar Eslami, Nassir Navab
6. **SoftAR: Visually Manipulating Haptic Softness Perception in Spatial Augmented Reality** (full paper)
Parinya Punpongsonon, Daisuke Iwai, Kosuke Sato

MASH'D Oral Sessions

Place: Room 411, 412

OS1: Meaning

10:50 - 12:30, 30 Sep.

Chair: Julian Staddon

1. **Using Augmented Reality to Promote Homogeneity in Learning Achievement** (paper, poster)
Jia Zhang, Tzu-Chien Liu, Yao-Ting Sung, Kuo-En Chang
2. **The effect of Tangible User Interfaces on Cognitive Load in the Creative Design Process** (paper, poster)
Tilanka Chandrasekera, So-Yeon Yoon
3. **CI-Spy: Designing A Mobile Augmented Reality System for Scaffolding Historical Inquiry Learning** (paper, demo)
Gurjot Singh, Doug Bowman, David Hicks, David Cline, Todd Ogle, Aaron Johnson, Rosemary Zlokas, Thomas Tucker, Eric Ragan
4. **IoT-enhanced and Bidirectionally Interactive Information Visualization for Context-aware Home Energy Savings** (paper)
Ching-Hu Lu

OS2: Materiality

10:20 - 12:00, 1 Oct.

Chair: Carl Smith

1. **[Invited]**
Play as a creative force in urban Mixed and Augmented Realities (paper)
Troy Innocent
2. **Augmented "Ouch!". How to create intersubjective augmented objects into which we can bump** (paper, poster)
Nicola Liberati
3. **The Paranoid Interface**
Hugh Davies
4. **Can reconstruction of the human body reveal a new transition phase for the human species into a yet to be known living form? Posthumanism and data art: future biomorphic transformations and sculptural reconstruction of the human body.** (paper, poster)
Anna Nazo

OS3: Media

9:00 - 10:15, 2 Oct.

Chair: Ian Gwilt

1. **WildAR: Creating a networked AR system for "in-the-wild" studies** (paper)
Weiquan Lu, Mandi Jieying Lee, Teong Leong Chuah,
Chun Kit Lee, Zheng Yi Lim, Ellen Yi-Luen Do
2. **Metadata Design for Location-based Film Experience in Augmented Places** (paper, poster)
Hyerim Park, Woontack Woo
3. **Handling, Addition and Snipping Human Interface: HASHI** (paper, demo)
Kazuya G. Kobayashi, Akira Moriwaki, Chiaki Shimada,
Katsutoshi Ootsubo

Posters

13:50 - 15:50, 1 Oct.

Place: Room 401, 402, 403

1. **A Novel Haptic Vibration Media and its application** (teaser)
Yasuhiro Suzuki, Rieko Suzuki
2. **The Use of Shadows on Real Floor as a Depth Correction of Stereoscopically Visualized Virtual Objects** (teaser)
Jounghuem Kwon, Sang-Hun Nam, Kiwon Yeom, Bum-Jae You
3. **Light Detecting 3D User Interface-equipped System for Mixed and Augmented Reality Games** (teaser)
Jinwoo Park, Sungeun An, Woontack Woo
4. **Designing for Engagement in Augmented Reality Games to Assess Upper Extremity Motor Dysfunctions** (teaser)
Paul Dezentje, Marina Cidota, Rory Clifford, Stephan Lukosch, Paulina J.M. Bank, Heide Lukosch
5. **Augmented Reality Tool for Markerless Virtual Try-on around Human Arm** (teaser)
San Gunes, Okan Sanli, Ovgu Ozturk Ergun
6. **Metadata Design for Location-based Film Experience in Augmented Places** (paper)
Hyerim Park, Woontack Woo
7. **Augmented "Ouch!". How to create intersubjective augmented objects into which we can bump** (paper)
Nicola Liberati
8. **Can reconstruction of the human body reveal a new transition phase for the human species into a yet to be known living form? Posthumanism and data art: future biomorphic transformations and sculptural reconstruction of the human body.** (paper)
Anna Nazo
9. **Using Augmented Reality to Promote Homogeneity in Learning Achievement** (paper)
Jia Zhang, Tzu-Chien Liu, Yao-Ting Sung, Kuo-En Chang
10. **The effect of Tangible User Interfaces on Cognitive Load in the Creative Design Process** (paper)
Tilanka Chandrasekera, So-Yeon Yoon

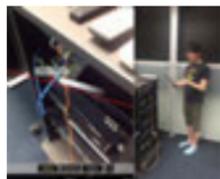
S&T Demos

Core time: 30 Sep. 16:25 - 18:25, 1-2 Oct. 13:30 - 15:30

Place: 404-406, 414, 413, 4A, 4B

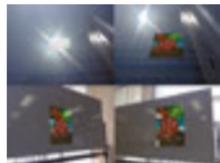
1. **SlidAR: A 3D Positioning Technique for Handheld Augmented Reality** (teaser)

Jarkko Polvi, Takefumi Taketomi,
Goshiro Yamamoto, Christian Sandor
and Hirokazu Kato



2. **Tablet system for visual overlay of rectangular virtual object onto real environment** (teaser)

Hiroyuki Yoshida, Takuya Okamoto and
Hideo Sait



3. **Accurate Passive Eye-Pose Estimation through Corneal Imaging** (teaser)

Alexander Plopski, Christian Nitschke,
Kiyoshi Kiyokawa, Dieter Schmalstieg
and Haruo Takemura



4. **EyeAR: Physically-Based Depth of Field through Eye Measurements** (teaser)

Damien Rompapas, Kohei Oshima, Sei
Ikeda, Goshiro Yamamoto, Takefumi
Taketomi, Christian Sandor and
Hirozoku Kato



5. **R-V Dynamics Illusion Experience System in Mixed Reality Space** (teaser)

Yuta Kataoka, Satoshi Hashiguchi, Taiki
Yamada, Fumihisa Shibata and Asako
Kimura



6. **Diminished Reality for Hiding a Pedestrian using Hand-held Camera**

(teaser)

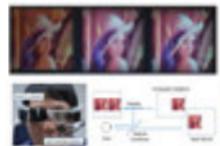
Kunihiro Hasegawa and Hideo Saito



7. **SharpView: Improved Legibility of Defocussed Content on Optical See-Through Head-Mounted Displays**

(teaser)

Kohei Oshima, Damien Rompapas, Kenneth Moser, Edward Swan, Sei Ikeda, Goshiro Yamamoto, Takafumi Taketomi, Christian Sandor and Hirokazu Kato



8. **DroneAR: Augmented Reality Supported Unmanned Aerial Vehicle (UAV) in Agriculture for Farmer Perspective**

(teaser)

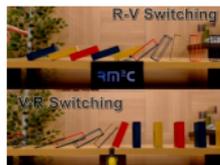
Yuan Wang, Henry Duh Been-Lim, Hirokazu Kato and Takafumi Taketomi



9. **DOMINO (Do Mixed-reality Non-stop) Toppling**

(teaser)

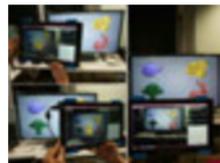
Ryotaro Hirata, Tomoka Ishibashi, Jianing Qie, Shohei Mori, Fumihisa Shibata, Asako Kimura and Hideyuki Tamura



10. **Imperceptible On-Screen Markers for Arbitrary Background Images**

(teaser)

Goshiro Yamamoto, Luiz Sampaio, Takafumi Taketomi, Christian Sandor and Hirokazu Kato



11. **Magical Mystery Room, 2nd Stage**

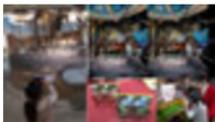
(teaser)

Daiki Sakauchi, Yuichi Matsumi, Shohei Mori, Fumihisa Shibata, Asako Kimura and Hideyuki Tamura

12. **Mobile Binocular Augmented Reality System for Museum**

(teaser)

Jae-In Hwang, Elisabeth Adelia Widjojo, Seungmin Roh, Youna Lee, Jinwoo Lee and Junho Kim

13. **Multiple Kinect for 3D Human Skeleton Posture Using Axis Replacement Method**

(teaser)

Nuth Otanasp and Poonpong Boonbrahm

14. **InstantReach: Virtual Hand Interaction using Smartphone**

(teaser)

Yuta Ueda, Daisuke Iwai and Kosuke Sato

15. **Improving Stability of Vision-based Camera Tracking by Smartphone Sensors**

(teaser)

Jaejun Lee, Kei Obata, Maki Sugimoto and Hideo Saito

16. **Study of the AR marker available on foldable surfaces**

(teaser)

Hajime Sasanuma, Yoshitsugu Manabe and Noriko Yata



17. **Immersive Virtual Tourism with Omnidirectional View Interpolation** (teaser)
Abdoulaye Maiga, Naoki Chiba, Tony Tung and Hideo Saito
- 
18. **Live Texturing of Augmented Reality Characters from Colored Drawings** (full paper, teaser)
Stephane Magnenat, Dat Tien Ngo, Fabio Zund, Mattia Ryffel, Gioacchino Noris, Gerhard Rothlin, Alessia Marra, Maurizio Nitti, Markus Gross, Robert W. Sumner
19. **Structural Modeling from Depth Images** (full paper)
Thanh Nguyen, Gerhard Reitmayr, Dieter Schmalstieg
20. **Very High Bandwidth Volumetric Integration of Depth Images on Mobile Devices** (full paper)
Olaf Kahler, Victor Adrian Prisacariu, Carl Yuheng Ren, Xin Sun, Philip Torr, David Murray
21. **MobileFusion: Real-time Volumetric Surface Reconstruction and Dense Tracking On Mobile Phones** (full paper)
Peter Ondruska, Shahram Izadi, Pushmeet Kohli
22. **ModuLAR: Eye-controlled Vision Augmentations for Head Mounted Displays** (ful paper)
Jason Orlosky, Takumi Toyama, Kiyoshi Kiyokawa, Daniel Sonntag
23. **Local Geometric Consensus: a general purpose point pattern-based tracking algorithm** (full paper, teaser)
Liming YANG, Jean-marie Normand, Guillaume Moreau
24. **Natural user interface for ambient objects** (extended poster)

- Meng Ma, Kevin Merckx, Pascal Fallavollita, Nassir Navab
25. **A Comprehensive Interaction Model for Augmented Reality Systems** (extended poster)
Mikel Salazar, Carlos Laorden, Pablo Bringas
 26. **Realtime Shape-from-Template: System and Applications** (extended poster)
Toby Collins, Adrien Bartoli
 27. **Tracking and Mapping with a Swarm of Heterogeneous Clients** (extended poster)
Philipp Fleck, Clemens Arth, Christian Pirchheim, Dieter Schmalstieg
 28. **An Adaptive Augmented Reality Interface for Hand based on Probabilistic Approach** (extended poster)
Jinki Jung, Hyeopwoo Lee, Hyun Seung Yang
 29. **Maintaining appropriate interpersonal distance using virtual body size** (poster)
Masaki Maeda, Nobuchika Sakata
 30. **Vergence-based AR X-ray Vision** (poster)
Yuki Kitajima, Sei Ikeda, Kosuke Sato

MASH'D Demos

Core time: 1 Oct. 13:30 - 15:30

Place: 404 - 406, 414, 413, 4A, 4B

- Augmented live coding: towards semantically enhanced musical performances** (teaser)
Alo Allik


- NarcissUs: machine learning from machine learning from machine learning from machine** (teaser)
Andrés Villa Torres and Eugen Danzinger


- Wanderl_st: Dartboard as an Agent of Map Navigation** (teaser)
Nathan Guo


- Development of Spatial Visualization Skills with Augmented Reality** (teaser)
Yoshikaz Fujita


- Handling, Addition and Snipping Human Interface: HASHI** (paper)
Kazuya G. Kobayashi, Akira Moriwaki, Chiaki Shimada, Katsutoshi Ootsubo
- CI-Spy: Designing A Mobile Augmented Reality System for Scaffolding Historical Inquiry Learning** (paper)
Gurjot Singh, Doug Bowman, David Hicks, David Cline, Todd Ogle, Aaron Johnson, Rosemary Zlokas, Thomas Tucker, Eric Ragan

S&T Teaser on 30 Sep.

15:25 - 16:25

Place: Main Hall

1. **Overlaying Navigation Signs on a Road Surface using a Head-Up Display** (poster)
Kaho Ueno, Takashi Komuro
2. **Deformation Estimation of Elastic Bodies Using Multiple Silhouette Images for Endoscopic Image Augmentation** (poster)
Akira Saito, Megumi Nakao, Yuki Uranishi,
Tetsuya Matsuda
3. **Hands-free AR Work Support System Monitoring Work Progress with Point-cloud Data Processing** (poster)
Hirohiko Sagawa, Hiroto Nagayoshi, Harumi Kiyomizu,
Tsuneya Kurihara
4. **Endoscopic Image Augmentation Reflecting Shape Changes During Cutting Procedures** (poster)
Megumi Nakao, Shota Endo, Keiho Imanishi,
Tetsuya Matsuda
5. **Toward Enhancing Robustness of DR System: Ranking Model for Background Inpainting** (poster)
Mariko Isogawa, Dan Mikami, Kosuke Takahashi,
Akira Kojima
6. **Interactive Visualizations for Monoscopic Eyewear to Assist in Manually Orienting Objects in 3D** (poster)
Carmine Elvezio, Mengu Sukan, Steve Feiner,
Barbara Tversky
7. **Movable Spatial AR On-The-Go** (poster)
Ahyun Lee, Joo-Haeng Lee, Jaehong Kim
8. **2D-3D Co-segmentation for AR-based Remote Collaboration** (poster)
Kuo-Chin Lien, Benjamin Nuernberger, Matthew Turk,
Tobias Höllerer
9. **Manipulating Haptic Shape Perception by Visual Surface Deformation and Finger Displacement in Spatial Augmented Reality** (poster)
Toshio Kanamori, Daisuke Iwai, Kosuke Sato

10. **Mixed-Reality Store on the Other Side of a Tablet** (poster)
Masaya Ohta, Shunsuke Nagano, Hotaka Niwa,
Katsumi Yamashita
11. **Avatar-Mediated Contact Interaction between Remote Users for Social Telepresence** (poster)
JIHYE OH, Yeonjoon Kim, Taeil Jin, Sukwon Lee,
Youjin Lee, Sung-Hee Lee
12. **Towards Estimating Usability Ratings of Handheld Augmented Reality Using Accelerometer Data** (poster)
Marc Ericson Santos, Takafumi Taketomi,
Goshiro Yamamoto, Gudrun Klinker, Christian Sandor,
Hirokazu Kato
13. **Abecedary tracking and mapping: a toolkit for tracking competition** (poster)
Hideaki Uchiyama, Takafumi Taketomi, Sei Ikeda,
João Lima
14. **Retrieving Lights Positions Using Plane Segmentation with Diffuse Illumination Reinforced with Specular Component** (poster)
Paul-Émile Buteau, Hideo Saito
15. **Maintaining appropriate interpersonal distance using virtual body size** (demo)
Masaki Maeda, Nobuchika Sakata
16. **Vergence-based AR X-ray Vision** (demo)
Yuki Kitajima, Sei Ikeda, Kosuke Sato
17. **Live Texturing of Augmented Reality Characters from Colored Drawings** (oral, demo)
Stephane Magnenat, Dat Tien Ngo, Fabio Zund, Mattia Ryffel, Chino Noris, Gerhard Rothlin, Alessia Marra,
Maurizio Nitti, Markus Gross, Robert W. Sumner
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Kunihiro Hasegawa and Hideo Saito
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- on Optical See-Through Head-Mounted Displays** (demo)
Kohei Oshima, Damien Rompapas, Kenneth Moser,
Edward Swan, Sei Ikeda, Goshiro Yamamoto,
Takafumi Taketomi, Christian Sandor and Hirokazu Kato
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Ryotaro Hirata, Tomoka Ishibashi, Jianing Qie,
Shohei Mori, Fumihisa Shibata, Asako Kimura and Hideyuki Tamura
33. **Imperceptible On-Screen Markers for Arbitrary Background Images** (demo)
Goshiro Yamamoto, Luiz Sampaio, Takafumi Taketomi,
Christian Sandor and Hirokazu Kato
34. **Magical Mystery Room, 2nd Stage** (demo)
Daiki Sakauchi, Yuichi Matsumi, Shohei Mori,
Fumihisa Shibata, Asako Kimura and Hideyuki Tamura
35. **Mobile Binocular Augmented Reality System for Museum** (demo)
Jae-In Hwang, Elisabeth Adelia Widjojo, Seungmin Roh,
Youna Lee, Jinwoo Lee and Junho Kim
36. **Multiple Kinect for 3D Human Skeleton Posture Using Axis Replacement Method** (demo)
Nuth Otanasap and Poonpong Boonbrahm
37. **InstantReach: Virtual Hand Interaction using Smartphone** (demo)
Yuta Ueda, Daisuke Iwai and Kosuke Sato
38. **Improving Stability of Vision-based Camera Tracking by Smartphone Sensors** (demo)
Jaejun Lee, Kei Obata, Maki Sugimoto and Saito Hideo
39. **Study of the AR marker available on foldable surfaces** (demo)
Hajime Sasanuma, Yoshitsugu Manabe and Noriko Yata
40. **Immersive Virtual Tourism with Omnidirectional View**

30 Sep.

S&T Teaser

Interpolation

(demo)

Abdoulaye Maiga, Naoki Chiba, Tony Tung and
Hideo Saito

S&T Teaser on 1 Oct.

11:50 - 12:50

Place: Main Hall

1. **Improved SPAAM Robustness Through Stereo Calibration** (poster)
Kenneth Moser, J. Edward Swan II
2. **Road Maintenance MR System Using LRF and PDR** (poster)
ChingTzun Chang, Ryosuke Ichikari, Takashi Okuma,
Takeshi Kurata, Koji Makita
3. **Geometric Mapping for Color Compensation using Scene Adaptive Patches** (poster)
Jong Hun Lee, Yong Hwi Kim, Yong Yi Lee, Kwan Heng Lee
4. **Pseudo Printed Fabrics through Projection Mapping** (poster)
Yuichiro Fujimoto, Goshiro Yamamoto, Takafumi Taketomi,
Christian Sandor, Hirokazu Kato
5. **Augmented Reality for Radiation Awareness** (poster)
Nicola Leucht, Severine Habert, Patrick Wucherer, Simon Weidert, Nassir Navab, Pascal Fallavollita
6. **Remote Mixed Reality System Supporting Interactions with Virtualized Objects** (poster)
Peng Yang, Itaru Kitahara, Yuichi Ohta
7. **Fusion of Vision and Inertial Sensing for Accurate and Efficient Pose Tracking on Smartphones** (poster)
Xin Yang, Tim Cheng
8. **Augmenting mobile C-arm fluoroscopes via Stereo-RGBD sensors for multimodal visualization** (poster)
Severine Habert, Meng Ma, Wadim Kehl, Xiang Wang,
Federico Tombari, Pascal Fallavollita, Nassir Navab
9. **INCAST: Interactive Camera Streams for Surveillance Cams AR** (poster)
István Szentandrási, Michal Zachariáš, Rudolf Kajan, Jan Tinka, Markéta Dubská, Jakub Sochor, Adam Herout

10. **Natural 3D Interaction using a See-through Mobile AR System** (poster)
Yuko Unuma, Takashi Komuro
11. **Augmented Wire Routing Navigation for Wire Assembly** (poster)
Mark Rice, Hong Huei Tay, Jamie Ng, Calvin Lim, Senthil Selvaraj, Ellick Wu
12. **Marker Identification Using IR LEDs and RGB Color Descriptors** (poster)
Gou Koutaki, Shodai Hirata, Hiromu Sato, Keiichi Uchi-mura
13. **RGB-D/C-arm Calibration and Application in Medical Augmented Reality** (poster)
Xiang Wang, Severine Habert, Meng Ma, Chun-Hao Huang, Pascal Fallavollita, Nassir Navab
14. **Transforming your website to an augmented reality view** (poster)
Dimitrios Ververidis, Spiros Nikolopoulos, Ioannis Kompatsiaris
15. **User Study on Augmented Reality User Interfaces for 3D Media Production** (doctoral consortium)
Max Krichenbauer
16. **SPAROGRAM: The Spatial Augmented Reality Holographic Display for 3D Interactive Visualization** (doctoral consortium)
Minju Kim
17. **Situated Analytics: Interactive Analytical Reasoning In Physical Space** (doctoral consortium)
Neven ElSayed
18. **AR Guided Capture and Modeling for Improved Virtual Navigation** (doctoral consortium)
Benjamin Nuernberger
19. **Free-Hand Gesture-based Interaction for Handheld Augmented Reality** (doctoral consortium)
Huidong Bai
20. **Supporting Asynchronous Collaboration within Spatial Augmented Reality** (doctoral consortium)
Andrew Irlitti

MASH'D Teaser on 1 Oct.

12:00 - 12:45

Place: Room 411, 412

1. **A Novel Haptic Vibration Media and its application** (poster)
Yasuhiro Suzuki, Rieko Suzuki
2. **The Use of Shadows on Real Floor as a Depth Correction of Stereoscopically Visualized Virtual Objects** (poster)
Jounghuem Kwon, Sang-Hun Nam, Kiwon Yeom, Bum-Jae You
3. **Light Detecting 3D User Interface-equipped System for Mixed and Augmented Reality Games** (poster)
Jinwoo Park, Sungeun An, Woontack Woo
4. **Designing for Engagement in Augmented Reality Games to Assess Upper Extremity Motor Dysfunctions** (poster)
Paul Dezentje, Marina Cidota, Rory Clifford, Stephan Lukosch, Paulina J.M. Bank, Heide Lukosch
5. **Augmented Reality Tool for Markerless Virtual Try-on around Human Arm** (poster)
San Gunes, Okan Sanli, Ovgu Ozturk Ergun
6. **Augmented live coding: towards semantically enhanced musical performances** (demo)
Alo Allik
7. **NarcissUs: machine learning from machine learning from machine learning from machine** (demo)
Andr_s Villa Torres and Eugen Danzinger
8. **Wanderl_st: Dartboard as an Agent of Map Navigation** (demo)
Nathan Guo
9. **Development of Spatial Visualization Skills with Augmented Reality** (demo)
Yoshikaz Fujita

S&T Teaser on 2 Oct.

11:30 - 12:30

Place: Main Hall

1. **On-site AR Interface with Web-based 3D Archiving System for Archaeological Project** (poster)
Ryosuke Matsushita, Tokihisa Higo, Hiroshi Suita, Yoshihiro Yasumuro
2. **Photo Billboarding: A Simple Method to Provide Clues that Relate Camera Views and a 2D Map for Mobile Pedestrian Navigation** (poster)
Junta Watanabe, Shingo Kagami, Koichi Hashimoto
3. **Automatic Visual Feedback from Multiple Views for Motor Learning** (poster)
Dan Mikami, Mariko Isogawa, Kosuke Takahashi, Akira Kojima
4. **A Step Closer To Reality: Closed Loop Dynamic Registration Correction in SAR** (poster)
Hemal Naik, Federico Tombari, Christoph Resch, Peter Keitler, Nassir Navab
5. **Design Guidelines for Generating Augmented Reality Instructions** (poster)
Cledja Karina Rolim da Silva, Dieter Schmalstieg, Denis Kalkofen, Veronica Teichrieb
6. **Haptic Ring Interface Enabling Air-Writing in Virtual Reality Environment** (poster)
Kiwon Yeom, Jounghuem Kwon, Sang-Hun Nam, Bum-Jae You
7. **Remote Welding Robot Manipulation using Multi-view Images** (poster)
Yuichi Hiroi, Kei Obata, Katsuhiro Suzuki, Naoto Ienaga, Maki Sugimoto, Hideo Saito, Tadashi Takamaru
8. **A Particle Filter Approach to Outdoor Localization using Image-based Rendering** (poster)
Christian Poglitsch, Clemens Arth, Dieter Schmalstieg, Jonathan Ventura

9. **AR4AR: Using Augmented Reality for guidance in Augmented Reality Systems setup** (poster)
Frieder Pankratz, Gudrun Klinker
10. **Exploiting Photogrammetric Targets for Industrial AR** (poster)
Hemal Naik, Yuji Oyamada, Peter Keitler, Nassir Navab
11. **Rubix: Dynamic Spatial Augmented Reality by Extraction of Plane Regions with a RGB-D Camera** (poster)
Masayuki Sano, Kazuki Matsumoto, Bruce Thomas, Hideo Saito
12. **Content Completion in Lower Dimensional Feature Space through Feature Reduction and Compensation** (poster)
Mariko Isogawa, Dan Mikami, Kosuke Takahashi, Akira Kojima
13. **ARPLM: The Augmented Reality Process Modeling Language** (poster)
Tobias Müller, Tim Rieger
14. **Authoring Tools in Augmented Reality: An Analysis and Classification of Content Design Tools** (poster)
Roberta Cabral Mota, Rafael Roberto, Veronica Teichrieb
15. **Affording Visual Feedback for Natural Hand Interaction in AR to Assess Upper Extremity Motor Dysfunction** (poster)
Marina A. Cidota, Rory M.S. Clifford, Paul Dezentje, Stephan G. Lukosch, Paulina J.M. Bank

MASH'D Panel Session

Place: Room 411, 412

- Data Body as Artifact Artist Panels
 - Panel 1. Bodies of Matter 30 Sep. 13:30 - 15:30
 - Panel 2. Matters of Embodiment 30 Sep. 15:50 - 17:50
 - Panel 3. Contextual Engineering 1 Oct. 15:50 - 17:50
 - Panel 4. Experiencing AR in Public Environments 2 Oct. 10:45 - 12:15
 - Panel 5. 5th Anniversary MARart Aesthetics Panel:
Bodies, Embodiment and Data Aesthetics 2 Oct. 13:30 - 15:30

Data Body as Artifact Artist Panels**Panel1. Bodies of Matter**

30 Sep. 13:30 - 15:30

Moderator: Julian Staddon and Jorge Ramirez**Participants:** Adam Zaretski, Stelarc, Heather Dewey-Hagborg, Chris Henshke, Joëlle Bitton, Marios Athanasiou**Panel2. Matters of Embodiment**

30 Sep. 15:50 - 17:50

Moderator: Julian Staddon and Jorge Ramirez**Participants:** Nick Briz, Brannon Dorsey, Julian Oliver, Cesar Escudero Andaluz

These two panels see the more discursive side to the Data Body as Artifact Exhibition at The Fukuoka City Museum for ISMAR2015. These panels seek to discuss the respective works in the exhibition through the voices of the artists themselves, along with several directed inquiries into the topics related to the exhibition. Such topics include embodiment, embodied data, data bodies, bodies of matter, object orientated ontologies, mixed reality art, sensory augmentation as medium, postbiological identity, biopolitics, trans-everything and so one.

The panels will consist of a combination of artistic overviews of individual works and curatorial responses to them, along with open dialogues and audience initiated discussions. In some case videos will be shown as catalysts for stimulating more in depth explora-

tions of the conceptual components to such a body of innovative and challenging investigations.

The works were selected according to a number of parameters, two of which being Bodies of Matter and Matters of Embodiment (within data augmentations in mixed reality artworks). The artists have been distributed along these paradigms in order to develop an artist panel program that is both focused yet productively expansive.

The first panel, Bodies of Matter, focuses on the works in the exhibition that explore the archiving of post-biological identity, and the data bodies that in particular connect directly with bodies of matter, be they human, non-human biological, inherently codified, expansively micro/macro based, trans-disciplinary/ real/ human/ augmented/ environmental/media/ topological/ everything. How do we negotiate such new novel spaces of society? How do we even define such spaces? This panel gathers experts from this method of inquiry together in order to answer such queries and speculations.

The second panel, Matters of Embodiment, explores the more subtle aspects to Data Body Archiving, Meta Data Creation and Meta Narratives, Surveillance, Signification of Arbitrary Signifiers, Cultural Remix, Obfuscation, Sous-veillance, Autonomy and Situational Cartography. This panel will adopt a post-digital approach to referencing bodies of matter in regards to the long history of self-representation, with particular focus on today's contemporary scope of understanding in this field.

Both Panels sit in-between the opening of the exhibition and the main MASH'D Program of ISMAR. This is an important conceptual positioning within the context of the program and these two panels seek to best utilise the content of the exhibition program and those who contributed to it's construction in as a productive fashion as possible.

Panel3. Contextual Engineering

15:50 - 17:50, 1 Oct.

Moderator: Carl H. Smith

Participants: Masahiko Inami, Adrian David Cheok (tbc), Jack King, Mark Farid, Daniel Pinchbeck, and Luke Robert Mason

This panel session on Contextual Engineering will investigate hybrid technologies and techniques that combine the affordances of the analogue with the digital to enable a new era of Hyper Function, Sensory Augmentation and Perceptual Adaptation. Context Engineering will give us new abilities, control over our senses and the ability to develop new forms of perception, providing us with a new type of self-control. HCI that relies predominantly on vision alone or the engagement of a limited range of senses can cause individual (and by implication - societal) dissonance creating a diminished rather than an augmented reality. To counteract this, making more of the context available for human centred augmentation is crucial.

Context engineering creates a new economy where we focus less on transforming content (as the primary activity), and more on how we can make our own perception the 'content'. This is made possible by new advances in various fields including biotech, neuro-electronics and mixed reality technologies meaning that the lenses through which we experience the world are becoming more adjustable than ever. Products are being developed to intentionally manipulate various components of our own physiology. For instance flux modifies the computer's display colour wavelength to shift with the natural external light, reducing potential circadian rhythm problems that can develop from using devices at night. These subtle shifts can produce real changes in our bodies. Other examples and applications of context engineering include:

New auditory systems: The 'Listen Carefully' project involves a technological intervention that considered the human condition as a central part of the design. Due to the repackaging of music in digital form one of the major results is the lack of focused listening. To counteract this the listener has to remain still to avoid the volume being automatically lowered by the headphones. The principle of conditioning is therefore employed to engineer the appropriate contextual behaviour from the listener. The experience of the content (music) is transformed by the context (our behaviour).

New visual systems: The 'FlyVIZ 360' headset transforms the real time visual system of users by compressing the 360-degree view into a 180 degree visor creating an entirely new way of see-

ing. The brain only takes 15 minutes to adjust and then this new way of seeing is 'accepted as normal' without nausea.

Combining senses: 'Aromafork' creates a cross-fertilization between taste and smell, re-engineering the two kinds of sense space. By releasing aromas as you eat the device augments the brain into perceiving aromas on top of the tastes which tricks us into experiencing enhanced flavours.

Adjustable senses: 'Wristify' developed by MIT is a thermoelectric bracelet that regulates the temperature of the person wearing it by subjecting their skin to alternating pulses of hot or cold, depending on what's needed.

This is an example of a perceptual technology, which works on how locally heating and cooling different parts of the body effects how hot or cold we are. This is an example of the virtual inscribing the physical where the inclusion of air conditioning within architectural design may no longer be required.

Wearable experience: The newly funded Horizon 2020 project: '[WEKIT] Wearable Experience for Knowledge Intensive Training' will use the latest in wearable and motion tracking technology to create 'wearable experience' - an entirely new form of media. This will be achieved by building a system for exploring, preserving and retrieving tacit knowledge that resides in collaborative activities conducted in mixed reality settings. Such a system represents the next step in mixed reality-based working and learning, giving access to the knowledge that is usually hidden and too fluid for being captured and re-experienced.

Dissolving identity: 'Seeing I' examines the identity of the individual and whether it is possible to subvert it. The project seeks answers to whether who we are is a cultural identity, or whether there is an inherent self. To do this a subject will wear a virtual reality headset seeing, hearing and replicating the experiences of the other from first person point of view for 24 hours a day, for 28 days.

Crucially to immerse himself further into the context where identity may be subverted the subject will simultaneously do whatever 'the other' does.

Questions to be addressed: How adaptable is our perception? How neuroplastic is the brain? What are the biological risks? How can hybrid technological devices, of often-prosthetic alienation, help us to reconnect to ourselves and to the surrounding environment? How can we find an appropriate balance in this hybrid environment? How can we draw a structure, ethics and sustainability of interdisciplinary hybrid unification?

Panel4. Experiencing AR in Public Environments

10:45 - 12:15, 2 Oct.

Moderator: Ian Gwilt

Participants: Mark Billinghamurst, Julian Oliver, BC Bierman (via skype), Shannon Novak, Lu Weiquan, Ian Gwilt

Abstract: Moving AR into a shared public domain we reveal a set of theoretical, philosophical and practical considerations that come into play when people are invited to interact with AR content on hand-held mobile devices. In this panel we will discuss the cultural experience of AR; how do we signal the presence of AR content in a public space? What are the responsibilities for AR artists and producers, public authorities and cultural institutions, in respect to how we make, access, and consume creative AR content? Are there ethical, ownership or operational issues and tensions between the desires of the AR author/producer, commissioners and public bodies, and the expectations of the general public? The panel members will discuss AR in museums, street art, and outdoor social/ cultural contexts and will examine how the creative use of AR might enliven physical locations, add interest or intrigue, and play with notions of time, place and space.

Panel 5. 5th Anniversary MARart Aesthetics Panel: Bodies, Embodiment and Data Aesthetics

30 Sep. 10:45 - 12:15

Moderator: Julian Staddon and Jorge Ramirez

Participants: Nick Briz, Heather Dewey Hagborg, Chris Henshke, Adam Zaretski, Joelle Bitton, Cesar Escudero Andaluz, Carl Smith

This panel sees the 5th installment of of the Mixed and Reality Art Aesthetics Session. Since the first panel discussion @ISMAR 2010 in Seoul, this ongoing series of discussions have sought to explore the new aesthetic properties that mixed reality art, as a medium can and has produced. The panel sees the convergence of artists, theorists and academics under a framework of representation methods and their affects.

Previous panels explored codification, mixed reality art as a medium, remediation through such mediums, ontologies beyond paradigms, innovation and avant-garde, surface and reality, along with an infinite number of expansive nodes relating to such a discourse.

How, in this age of image expansion, meaning flattening, delivery acceleration and environmental destruction do we, as humans, negotiate handling aftermaths of such phenomena as post-digital culture, the Anthropocene and new wave identity construction, participation and proliferation? In culture this can come with hierarchal intervention, or it can be purely social, as is the inherent quality of articulation through artistic endeavour. Mixed reality Artists Offer a unique insight to matters relating to how we develop audiovisual response to our ever-evolving spatio-cultural spaces in which we colonise and inhabitant?

Through a series of impulse points and pragmatic moderator initiated comments on certain prevalent topics, panelists will offer unique insights into particular topics, from a range of subjective inquiries into this field.

This panel aims to build on previous years, with the purpose of continually expanding perceptions of mixed reality aesthetics in regards to certain frameworks.

MASH'D Art Exhibition

Data Body as Artifact

- MASH'D Art Performance "DATA BODY AS PERFORMANCE"
Fukuoka City Museum, 29 Sep. 20:00 - 21:00
- Art Exhibition
Fukuoka City Museum, 30 Sep. 9:30 - 17:30
- MASH'D Art Performance "ALGORAVE"
Fukuoka International Congress Center, 30 Sep. 19:00 - 21:00
- Art Exhibition
Fukuoka City Museum, 1 Oct. 9:30 - 17:30
2 Oct. 9:30 - 13:00
- Performance by Stelarc
Fukuoka City Museum, 3 Oct. 12:00 - 14:00



The ISMAR 2015 Exhibition Special Website:
<http://marart.org/#/databodyasartifact>

Introduction

This exhibition presents a range of artists that explore disruptive or alternative strategies for representing the relationship between body as material organism, embodied data/interaction and body as artifact (data body). The exhibition explores what reality is in relation to we humans as organisms and how digital technologies, particularly networked interactive systems have shifted our understandings of what it means to be human in an age of post-biological, post-digital existence.

The artworks range from traditional augmented reality marker based sound compositions, to bio-art interventions, identity obfuscations, network jammers and data miners, to autonomous robotic identity thieves, to augmentations of the body, such as bodily

augmentation, dream documentation, cellular and nano-scale interventions or examinations of how we negotiate these new spaces, quantum time and identity.

The exhibition this year will be held at the Fukuoka City Museum, a place famous for historical Japanese artifacts. In response to this history, this exhibition questions what artifacts we leave behind from embodied mixed reality interaction. Recent developments in hardware and software input/output systems along with the evolution of digital fabrication methods have revolutionised the ways in which artists work with technology, particularly in relation to the body. Such approaches have shifted the ways in which we perceive ourselves, in relation to our online identities (data bodies) and their positioning within the various socio/political/ economic networks that they traverse. As our online presence consolidates, what happens to our material presence? What traces, shadows, echoes and footprints from digital presence become materialised and how do we develop an object-orientated ontology for such phenomena?

The Data Body as Artifact Exhibition seeks to investigate these questions, along with challenging popular notions of what mixed and augmented reality art is, how we frame such an openly diverse field and most importantly, what contribution can creative discourse offer towards a broader understanding of how we humans situate ourselves within these constantly evolving multiple realities and finally what effect/affect this has on our bodies.

Exhibition Artists

1. **César Escudero Andaluz**

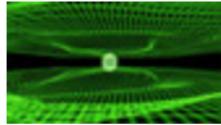
César Escudero Andaluz (LIC, MA, MFA) studied Fine Arts and Architecture & Design at the University of Salamanca, Visual Arts and Multimedia at the Polytechnic University of Valencia. Since 2011 he is researching at the Kunstuniversität Linz in Interface Culture LAB. Working in the field between users and interfaces. <http://escuderoandaluz.com/>



2. **Marios Athanasiou**

Marios' work explores the effects of real-time processing

technologies and communications on human perception of reality and the role these technologies play in the convergence of physical and virtual reality into a new, hybrid reality. In his work he uses



software, sensors, projections and networked systems in conjunction with abstract sculptural forms to build immersive, physical or virtual audiovisual environments that aim to induce different states of consciousness and generate new modes of thinking and perceiving. Drawing inspiration from scientific concepts concerning quantum physics, the nature of consciousness and cybernetics, Marios creates physical, virtual or hybrid reality installations where energy flow is in a constant flux of transformation from one state to another. He is the curator at www.channelnormal.com, an online exhibition space that predominantly focuses on presenting time-based and web-based works. Recent exhibitions include Purestate.space online at La Scatola Gallery; Superposition at Arebyte Gallery in London; .GIF (4th EDITION) group show in Vancouver, Blue Omega at I Thought You Were The Real Thing group show at Romantzo in Athens and Omega Point at MKII in London which was also shortlisted for the Lumen Prize in August 2015 and will be part of the Lumen Prize Global Tour Exhibition 2015 / 2016.

3. **Joëlle Bitton**

Joëlle Bitton is an artist and a human-computer interaction researcher. In 2000, she co-founded an experimental art and design collective in Vienna, "Superficiel" in support of works that explore the ideas of surface, screen, and body movement



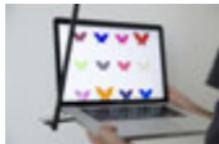
as interfaces. She's currently enrolled as a doctor of design candidate at Harvard Graduate School of Design. Her thesis addresses interactive processes in digital fabrication with the implication of personal data. Previously, she researched the creative uses of technology at Culture Lab, Newcastle University. And at MIT Media Lab Europe, in the group 'Human Connectedness' she explored the richness of everyday life and intimacy at distance with the projects "RAW"

and "Passages". Her work has been featured among others at ISEA, CHI, EXIT, Centre Pompidou, and Gallery éf.

<http://joelle.superficiel.org/>

4. **Branger Briz & Brannon Dorsey**

Branger Briz is a group of artists, educators && programmers bent on articulating our digital landscape, creating memorable interactive projects for ourselves && our clients. Brannon Dorsey is an artist who uses computational technology and reproducible electronic media to explicitly challenge digital consumption.



5. **Heather Dewey-Hagborg**

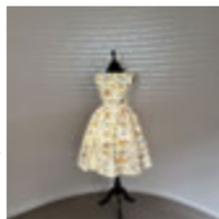
Heather Dewey-Hagborg is a transdisciplinary artist and educator who is interested in art as research and critical practice. Heather has shown work internationally at events and venues including the Poland Mediations Biennale, Norway Article Biennale, Ars Electronica, Transmediale, Centre de Cultura Contemporània de Barcelona, the Science Gallery Dublin, PS1 MOMA, the New Museum, and Eyebeam Art and Technology Center in New York City. Her work has been widely discussed in the media, from the New York Times and the BBC to TED and Wired. She is an Assistant Professor of Art and Technology Studies at the School of the Art Institute of Chicago.



<http://ahprojects.com/projects/dna-spoofing/>

6. **Anna Dumitriu & Alex May**

Anna Dumitriu (1969) is a British artist whose work fuses craft, technology and bioscience to explore our relationship to the microbial world. She is artist in residence on the Modernising Medical Microbiology Project at the University of Oxford, a visiting research fellow: artist in residence in the Department of Computer Science at The University of Hertfordshire, and an honorary research fellow in the Wellcome Trust Brighton and Sussex Centre for Global Health at Brighton and Sussex



Medical School. She has an international exhibition profile, having exhibited at venues such as Waag Society, Amsterdam, Art Laboratory Berlin, V & A Museum, London and The Picasso Museum, Barcelona

<http://www.normalflora.co.uk>

Alex May (1972) is a British artist exploring a wide range of digital technologies, most notably video projection onto physical objects (building on the technique known as video mapping or projection mapping using his own bespoke software), also interactive installations, generative works, full-size humanoid robots, performance and video art. He is a visiting research fellow: artist in residence in the Department of Computer Science at The University of Hertfordshire.

<http://www.alexmayarts.co.uk>

7. **Chris Henschke**

Chris Henschke is a self-taught artist whose areas of practice and research are in sound and visual relationships, and collaborative art / science experiments. He has exhibited artworks around Australia and internationally, including the



Australian Centre for Contemporary Art (2001), the National Gallery of Australia (2004) and the University of Southampton John Hansard Gallery (2014). He has undertaken various art residencies, including two at the Australian Synchrotron, supported by an Arts Victoria Arts Innovation grant (2008), and the Australia Council for the Arts Synapse program (2010). He has developed and lectured courses in timebased and interactive media at Monash University, RMIT University, and the 'Art vs Science' seminar series at the Victorian College of the Arts Centre For Ideas. Currently, he is undertaking a Doctorate of Philosophy at Monash University, which includes on-site research at the European Organisation for Nuclear Research (CERN), Switzerland / France, as part of the 'art@CMS' collaborative artist residency program.

8. **Rafael Lozano Hemmer**

Rafael Lozano-Hemmer was born in Mexico City in 1967. In 1989 he received a B.Sc. in Physical Chemistry from Concordia University in Montréal, Canada. He is a faculty associate of the Graduate School of Design at Harvard Uni-

versity. Electronic artist, develops interactive installations that are at the intersection of architecture and performance art. His main interest is in creating platforms for public participation, by perverting technologies such as robotics, computerized surveillance or telematic networks. Inspired by phantasmagoria, carnival and animatronics, his light and shadow works are "antimonuments for alien agency".



9. **Shannon Novak**

New Zealand artist Shannon Novak, a synesthete, posits that 'music is in everything.' He creates compositions for objects, locations, and people much as musicians might compose for/about places, persons or experiences with emotional resonance for them. Trained initially as a pianist, his practice encompasses painting, sculpture, and installation, with a focus on using geometric forms to explore and render his understanding of the interrelationships between sound, colour, form, time, space, and social context.



10. **Julian Oliver**

Julian Oliver is a New Zealander, Critical Engineer and artist based in Berlin. His work and lectures have been presented at many museums, galleries, international electronic-art events and conferences, including the Tate Modern, Transmediale, the Chaos Computer Congress, Ars Electronica, FILE and the Japan Media Arts Festival. Julian has received several awards, most notably the distinguished Golden Nica at Prix Ars Electronica 2011 for the project Newstweek (with Daniil Vasiliev).



11. **Christa Sommerer & Laurent Mignonneau**

Christa Sommerer and Laurent Mignonneau are internationally renowned media artists working in the field of interactive computer installation. They are Professors at the University of Art and Design in Linz Austria where they head the Department for Interface Culture at the Institute for Media. Sommerer and Mignonneau previously held positions as

Professors at the IAMAS International Academy of Media Arts and Sciences in Gifu, Japan and as Researchers and Artistic Directors at the ATR Media Integration and Communications Research Lab in Kyoto Japan. They also were Visiting Researchers at the MIT CAVS in Cambridge US, the Beckmann Institute in Champaign Urbana, IL, USA and the NTT-InterCommunication Center in Tokyo.



12. **Julian Stadon**

Julian Stadon is a mixed reality artist, curator, academic and researcher. Stadon's transdisciplinary research has included time @ Interface Cultures, Salford University, HITLabNZ, The Australian Centre for Virtual Art, The Fogscreen Centre, The Banff New Media Institute, CIA Studios, Curtin University, Murdoch University, Technical University Graz, Fachhochschule Salzburg, Furtherfield, Ars Electronica and Technical University Munich. Stadon has taken part in exhibitions, research presentations, and workshops including @ Ars Electronica, ISEA, Media Art Histories, Transdisciplinary Imaging, Decode:Recode, Translife and The Perth Festival. Stadon founder Dorkbot Perth (2006-2012) and has been involved with ISMAR for 7 years, including curating the last 3 exhibitions: Transreal Topologies, Beyond the Interface and Data Body as Artifact, while also acting as a conference chair.



13. **Stelarc**

Stelarc explores alternate anatomical architectures. He has performed with a THIRD HAND, a STOMACH SCULPTURE and EXOSKELETON, a 6-legged robot. FRACTAL FLESH remotely actuates the body with electrical stimulation.



PING BODY and PARASITE are internet muscle actuation systems. PROSTHETIC HEAD is an embodied conversational agent that speaks to the person who interrogates it.

EAR ON ARM is a surgical and cell-grown construct that will be internet-enabled for people in other places. Publications include STELARC: THE MONOGRAPH, Edited by Marqand Smith, Forward by William Gibson (MIT Press). In 1996 he was made an Honorary Professor of Art and Robotics at Carnegie Mellon University, Pittsburgh and in 2002 was awarded an Honorary Doctorate of Laws by Monash University, Melbourne. In 2010 was awarded the Ars Electronica Hybrid Arts Prize. In 2015 he received the Australia Council's Emerging and Experimental Arts Award. Stelarc is currently a Distinguished Research Fellow and Director of the Alternate Anatomies Lab, School of Design and Art (SODA) at Curtin University. His artwork is represented by the Scott Livesey Galleries, Melbourne.
<http://www.stelarc.org/>

14. **Adam Zaretsky**

Adam Zaretsky, Ph.D. is a Wet-Lab Art Practitioner mixing Ecology, Biotechnology, Non-human Relations, Body Performance and Gastronomy. Zaretsky stages lively, hands-on bioart production labs based on topics such as: foreign species



invasion (pure/impure), radical food science (edible/inedible), jazz bioinformatics (code/flesh), tissue culture (undead/semi-alive), transgenic design issues (traits/desires), interactive ethology (person/machine/non-human) and physiology (performance/stress). A former researcher at the MIT department of biology, for the past decade Zaretsky has been teaching an experimental bioart class called VivoArts at: San Francisco State University (SFSU), SymbioticA (UWA), Rensselaer Polytechnic Institute (RPI), University of Leiden's The Arts and Genomic Centre (TAGC) and with the Waag Society. He has also taught DIY-IGM (Do-It-Yourself Inherited Genetic Modification of the Human Genome) at New York University (NYU) and Carnegie Melon University (CMU). He also runs a public life arts school: VASTAL (The Vivoarts School for Transgenic Aesthetics Ltd.) His art practice focuses on an array of legal, ethical, social and libidinal implications of biotechnological materials and methods with a focus on transgenic humans. Adam is currently Media

Arts Faculty in the School of Communication and the Arts at Marist College.

<http://www.diysect.com/fearoftheunknown/>

15. **[heavy] - Special Featured Artist at Fukuoka City Congress Center**

[heavy] is an educational technologist, academic, and digital artist living in Southern California. With a PhD in Humanities [Intermedia Analysis] from the Universiteit van Amsterdam, BC derives his alias from his love for philosophical discussion. With an interdisciplinary background that comprises technology, philosophy, and the arts, Heavy has worked as both a university professor and a tech developer in Anaheim, Prague, and Saint Louis. Since 2007, he has internationally presented his academic work, which explores the intersection of emerging technologies and semiotics in public space. As a kind of synthesis between scholarly inquiry and emerging technologies, he founded The Heavy Projects to investigate how the fusion of creativity and technology can uncover new modes of relaying ideas. Building upon existing technological and theoretical frameworks, Heavy creates innovative interfaces between digital design and physical worlds in ways that provoke the imagination and problematize existing modes of communication and current styles of art, design, and interaction. Heavy is currently serving as IEEE AR Industry Connections Vice-Chair and has presented his tech and artistic work at such events as SXSW Interactive, ISMAR and TEDx Salon and his projects have appeared in such publications as Fast Company, The Atlantic, Creator's Project, CNet, Juxtapoz, and IEEE Spectrum.



Tracking Competition

On-site Competition 1st Challenge: Room 410, 18:00-20:00, 30 Sep.
On-site Competition Second Challenge: Room 410, 13:30-15:30, 1 Oct.
Wrap-up Meeting: 9:00-12:00, 3 Oct.

On-site Competition Challengers

- **Center for Embedded Software Technology**
Sang-Eun Lee, Jae Seok Jang, Eun-Ju Yang, Soon Ki Jung,
Dae-Wha Seo



- **Fraunhofer IGD**
Harald Wuest, Folker Wientapper, Martin Buchner,
Matthieu Fraissinet-Tachet



- **Voxar Labs**
Ermano Ardiles Arruda, Francisco Paulo Magalhães Simões,
João Marcelo Xavier Natário Teixeira, João Paulo Silva do
Monte Lima, Lucas Silva Figueiredo, Mozart William Santos
Almeida, Rafael Alves Roberto, Veronica Teichrieb



Tracking Competition Wrap-up Meeting

9:00-12:00, 3 Oct.

Place: Room 411, 412

Organizer:

Fumihisa Shibata (Ritsumeikan University),
Itaru Kitahara (University of Tsukuba),
Manuel Huber (Technische Universität München),
Atsushi Shimada (Kyushu University)

Chair: Sei Ikeda (Ritsumeikan University)

Agenda:

1. Opening
2. Overview of the past tracking competitions
by Manuel Huber (Technische Universität München)
3. Overview of the ISMAR 2015 tracking competition
 - Off-site Competition
by Fumihisa Shibata (Ritsumeikan University),
Atsushi Shimada (Kyushu University)
 - On-site Competition
by Hideaki Uchiyama (Kyushu University)
4. Talks by competitors
 - Off-site Competition
 - Level 1 Winner Ryo Akiyama (NAIST)
 - Level 1 Winner Kai Akiyama (NAIST)
 - Level 2 Winner Ryuhei Kawaguchi (Mie University)
 - Level 3 Winner Voxar Labs (UFPE)
 - On-site Competition
 - Center for Embedded Software Technology Team
 - Fraunhofer IGD Team
 - Voxar Labs Team
5. Closing

WS1: Collaboration in Mediated and Augmented Reality (CiMAR)

9:00 - 17:00, 29 Sep.

Place: Room 6

Organizer:

Stephan Lukosch (Delft University),

Mark Billingham (University of Canterbury),

Kiyoshi Kiyokawa (Osaka University),

Steven Feiner (Columbia University),

Leila Alem (University of Technology Sydney, Australia)

Website: <https://cimar15.wordpress.com/>

Abstract: The world is becoming more complex everyday, so problem solving often requires global teams of experts to work together. To do this effectively there is a need for collaborative tools and a variety of teleconferencing and telepresence technologies have been developed. However most of them involve some variation of traditional video conferencing, which has limitations, such as not being able to effectively convey spatial cues. This workshop will focus on how Augmented Reality (AR) and Mediated Reality (MR) technology can overcome these limitations and develop radically new types of collaborative experiences.

With Augmented Reality, virtual data is spatially overlaid on top of the real world, allowing the flexibility of virtual reality to be used for collaboration while being grounded in physical reality. In contrast, Mediated Reality refers to the ability to add to, subtract information from, or otherwise manipulate one's perception of reality. In combination, AR and MR technologies could be used to merge the shared perceived realities of different users, as well as enriching each user's own individual experience in a collaborative task.

This workshop addresses the above vision. The goal is to bring together researchers who are interested in developing collaborative systems using AR and MR technologies. They will build a picture of current and prior research on collaboration in AR and MR as well as set up a common research agenda for work going forward. This, in turn, can be used to grow the research community.

WS2: Human Perception and Psychology in Augmented Reality (HPPAR)

9:00 - 13:00, 29 Sep.

Place: Room 5

Organizer:

Bruce H. Thomas (The University of South Australia Mawson Lakes),

Gregory F. Welch (The University of Central Florida),

James Baumeister (University of South Australia)

Website: <http://hpparworkshop2015.com/>

Abstract: The main thrust of this workshop is the development of the research agenda for human perception and psychology in augmented reality. The domain of Virtual Reality has successfully applied and extended concepts from the sciences of human perception and psychology. The research domain of Augmented Reality requires a different research agenda to solve our own unique research issues. This workshop provides a forum to continue the setting of our agenda.

Example topics in the context of AR include:

- Cognitive, Behavioral, and Social psychology;
- Human perception;
- Neuroscience; and
- Technological relationships to the above.

WS3: Measuring Perception of Realism in Mixed and Augmented Reality

14:00 - 17:10, 29 Sep.

Place: Room 5

Organizer:

Ian Williams, Cham Athwal, Alan Dolhasz, Gregory Hough,
Muadh Al-Kalbani (Birmingham City University)

Website: <http://dmtlab.bcu.ac.uk/ismar2015/>

Abstract: Increasingly mixed and augmented systems are becoming distributed and therefore now facilitate people over distance in co-creation and collaboration remotely. For example, applications of telehealth, remote training and distance learning often require people to form teams who simultaneously interact remotely with the same objects, while perceiving the same mixed reality. Where this is the case often different users will be interacting at different times with the proposed systems, while other users are passive observers and vice versa and will therefore have a different QoE of the interaction. The common measures for performance evaluation in mixed reality often focus on task performance and are therefore usually gauged by the result, or the first person observing the interaction; rarely by the third person viewing the interaction. This workshop will explore the emerging methods of capturing accuracy for both the first person interacting with the system and also the third person observing the system.

The workshop will address, measures of visual realism, interaction quality and perception, mixed reality QoE, observer QoE and the general problems associated with quantifying perceptual quality from a first person to third person. This workshop will therefore appeal to researchers and developers wishing to analyse and develop mixed reality and augmented reality systems. It will act as a platform for discussion, advancement and interdisciplinary investigation of the tools and measures for ensuring the optimal perceptual experience.

WS4. International Workshop on Diminished Reality as Challenging Issue in Mixed and Augmented Reality (IWDR2015)

10:55 - 16:30, 29 Sep.

Place: Room 3

Organizer:

Hideyuki Tamura (Ritsumeikan University),

Hideo Saito (Keio University),

Fumihisa Shibata (Ritsumeikan University)

Website: <http://www.rm.is.ritsumei.ac.jp/IWDR2015/index.html>

Abstract: Diminished Reality (DR) has been considered as a sub-technology of Mixed and Augmented Reality (MR/AR). While MR/AR means technologies that add and/or overlay visual information onto images of real scene for providing users to enhance their visual experiences with the added/overlaid information, DR aims the similar enhanced visual experiences by deleting visual information from the images of real scene. Adding and deleting visual information might be considered as same technical issues, but they are actually totally different. In DR, visual information that is hidden by the deleted object should be recovered for filling into the deleted area. This recovery of the hidden area is not required for general adding/overlaying based MR/AR, but should be one of the typical issue for achieving DR. Camera pose estimation and tracking is a typical issue in MR/AR, but the condition of the scene and required performance for DR are not always the same as MR/AR. For example, the object to be diminished/removed should be detected and tracked while the camera is freely moving for DR.

In this workshop, IWDR, the topics of interest are technical issues for DR, such as recovery of hidden area, detecting and tracking the object to be removed/diminished, tracking camera poses, illumination matching and re-lighting, etc. In addition to those technical issues for DR, examples of applications of DR, expected futures with DR, and human factors of DR are also included in the topics of interest of this workshop.

WSM1. Mixed Reality Food Art DNA: Hybrid DNA Isolation and Augmentation Bioart Lab

14:00 - 17:00, 29 Sep.

Place: Fukuoka City Museum

Organizer:

Adam Zaretsky (VivoArts School for Transgenic Aesthetics Ltd.)

Abstract: Come join a hands-on art and biology Do It Yourself DNA Isolation Lab!

The Hybrid DNA Isolation Skill-Share Lab will show you How to Extract DNA from Anything Living. Our lab is a communal performance ritual that can easily be repeated at home. Participants are asked to bring living non-animal samples for DNA Isolation. First, you need to find something that contains DNA. Since DNA is the blueprint for life, everything living contains DNA. That is simple, right? For this experiment, we want as many varieties of non-animal samples as possible. Participants have been requested to bring one or more samples of living, growing, raw or recently alive materials for Isolation and Purification of an admixture of these samples. We will take a portion of everything that is provided.

Feel free to bring samples of living life with DNA in them... These samples will be mixed together during the isolation. Through a series of simple protocols, using household items, the hybrid DNA is extracted and collected by the group. We then use artistic techniques to work with this New and Very Old Media to make monoprints, sculpture and conceptual art.

For adult conceptualization: The goal of this course is to create an open ended interface between life and the arts. To keep all expressive options dilated, the focus of the class is not on the logic of the biologic. Instead, our cultural relationships to the world of life are exposed in their contradictory and slippery illogics. The interfaces between human society and the ecosphere are identified, rethought and collaged together to form signs of definitional breakdown. Some initial categories for treating to artistic xenophilia:

Food, Nature, Laboratory, Our Bodies and other non-humans. By defining where and how we interface with all lifeforms and by mixing these logics into art media instead of fact production, we arrive at unusual conceptual re-evaluations... towards a kinship with biodiversity and general life as complex for appreciation.

Link to video: <http://vimeo.com/60815858>

Metroland Article: http://metroland.net/back_issues/vol29_no37/arts_feature.html

Optional: <https://itp.nyu.edu/classes/germline-spring2013/>

WS5. 1st International Workshop on Visual Recognition and Retrieval for Mixed and Augmented Reality

09:00 - 16:00, 3 Oct.

Place: Room 409

Organizer:

Koichi Kise (Osaka Prefecture University),

Takumi Toyama (German Research Center for Artificial Intelligence),

Atsushi Shimada (Kyushu University),

Walterio Mayol-Cuevas (University of Bristol)

Website: <https://sites.google.com/site/vrrmar2015/>

Abstract: The technology of AR has evolved to a point where there are well established methods to annotate the world using known markers, and more recently, the spatial 3D information on the environment itself. This has resulted in AR been nowadays widely experienced by a large number of people in a variety of situations. However, in order to take AR to the next level, it is essential to consider methods that allow the automated detection of objects, materials, shapes and in general, go beyond traditional spatial-only techniques. One way to fulfill this goal is to develop AR that incorporates the recognition of visual object detection or wearable sensor signals, and use these to enhance the places and situations where current AR methods have not explored. Of interest are methods that include large-scale object recognition to distinguish and locate objects or materials and the detection of activities or user's alertness monitoring.

Our workshop on "recognition based augmented reality" is planned to give an opportunity to researchers in Computer Vision and Pattern Recognition to consider applications for Augmented Reality.

WS6. Challenges and Applications of Urban Augmented Reality

09:00 - 16:00, 3 Oct.

Place: Room 409

Organizer:

Guillaume Moreau (Ecole Centrale Nantes),

Takafumi Taketomi (Nara Institute of Science and Technology)

Website: <https://sites.google.com/site/urbanarworkshop/>

Abstract: Cities have started collecting tons of information about themselves using vast sensors arrays and stored in Geographical Information Systems. All this mass of information can already be enriched by citizens through user-generated content. Beyond collecting, abstracting and storing this information raises the problem of its representation. A reasonable assumption is that onsite presentation of the adequate information would provide a good solution. A analogy can be made with the GPS-based navigation systems that merely render a directed arrow depending on location and itinerary. Such a system can be seen as the basis of an augmented reality system. Many projects involving augmented reality in urban environments have emerged in the last 15 years. Yet there remains challenges both on the applications and technological points of views.

The goal of this workshop is to review the challenges of urban augmented reality and the available methods that aim at solving some of those challenges and to give the audience of the variety of the existing and yet to invent applications. Beyond the classical presentations and discussions of a workshop, a particular goal of this workshop is the production of a collective document (in a publishable form?) about remaining challenges of augmented reality. The second output will be a website including challenges, solutions to this challenges and applications pages. Part of this workshop can be seen as a followup to the ISMAR 2009. Let's go out workshop dedicated to outdoor AR held in Orlando.

T1. Global-scale Localization in Outdoor Environments for AR

9:00 - 12:50, 29 Sep.

Place: Room 2

**Organizer:**

Clemens Arth (Graz University of Technology),

Jonathan Ventura (University of Colorado),

Dieter Schmalstieg (Graz University of Technology)

Abstract: In this tutorial we aim for a review of existing technologies to perform outdoor localization in urban environments at a global level in 6DOF using visual sensors primarily. The goal is to provide a clear overview about the current state-of-the-art in global positioning and orientation estimation, which includes a wide range of methods and algorithms from both the Computer Vision and the Augmented Reality community. We propose the application of a taxonomy, to separate approaches along the continuum of accuracy and the provided number of DOF, which makes the suitability of classes of approaches for a certain application in AR immediately visible and accessible.

In detail we will put a main focus on methods that are real-time capable, or can at least be applied through a server-client infrastructure to provide a full and accurate 6DOF pose in large-scale environments instantly. In this way, we will discuss algorithms that are based on single images, panoramic images, as well as SLAM maps and sparse point cloud reconstructions from SfM. We will also put an emphasis on those approaches that allow for localization in 6DOF with a minimum of prior information given, i.e. Using 2D city map only, which is promising to enable global-scale application of AR, giving new experience levels way beyond the current state-of-the-art.

T2. Computational Imaging and Projection

13:00 - 17:00, 29 Sep.

Place: Room 1

**Organizer:**

Shinsaku Hiura (Hiroshima City University),

Hajime Nagahara (Kyushu University),

Daisuke Iwai (Osaka University),

Toshiyuki Amano (Wakayama University)

Abstract: In this tutorial, we introduce emerging technologies on computational imaging and light field projection to AR/MR researchers. Specifically, this tutorial provides basic knowledge as well as application perspectives on (but not limited to) the following topics: light field cameras and displays, unconventional depth sensing methods, extension of depth of focus for imaging and projection, modification of the appearance of real objects via light field projection, geometric and radiometric calibration and compensation of projection-based display, optimization in multi-projector environments.

T3. Intelligent User Interfaces

10:00 - 14:00, 3 Oct.

Place: Room 401



Organizer:

Daniel Sonntag (DFKI)

Abstract: The tutorial will introduce you to the design and implementation of Intelligent User Interfaces (IUIs). IUIs aim to incorporate intelligent automated capabilities in human computer interaction, where the net impact is a human-computer interaction that improves performance or usability in critical ways. It also involves designing and implementing an artificial intelligence (AI) component that effectively leverages human skills and capabilities, so that human performance with an application excels. IUIs embody capabilities that have traditionally been associated more strongly with humans than with computers: how to perceive, interpret, learn, use language, reason, plan, and decide.

Web: <http://www.dfki.de/~sonntag/ISMAR2015-IUI.htm>

T4. AR Implementations in Informal Learning

9:00 - 17:00, 3 Oct.

Place: Room 410



Organizer:

Eric Hawkinson (Seibi University),

Martin Stack (University of Shiga Prefecture),

Jay Klaphake, J.D. (TEDxKyoto Founder/Executive Producer and TEDx Ambassador in Japan)

Abstract: A variety of cases uses of AR in informal learning environments. The cases uses are drawn from a variety of different contexts. There will be examples of AR use in education, tourism, event organizing, and others. This is mainly geared to people creating learning environments in any industry a foundation to start implementation AR. The featured case use will be how AR was used at TEDxKyoto to engage participants. There will also be several student projects that use AR presented and available for demo.

This tutorial will include the following topics and demos:

- Case use of AR at TEDxKyoto
- Barriers to adoption and implementation strategies targeting first time users
- Cultural and social issues related to AR
- AR based TED Talks showcase
- Case uses at university open campuses
- Lessons from AR based student projects
- Student acceptance of AR implementation
- Student Project Showcase
- Case use demos

Featured Case Use - TEDxKyoto

This year at TEDxKyoto, a new interactive team was assembled and geared to get participants more engaged with speakers, vendors, and volunteers. We wanted to encourage more interaction between all stakeholders both in-person and virtually on-line. Looking to approach the idea on several fronts and link them all together we put together a series of activities that have never been seen at TEDx events ever before. The result was an interesting mix that got great reaction from participants. The TEDx Program is designed to help communities, organizations and individuals to spark conversation and connection through local TED-like experiences. The focus is on curating an interesting program of speakers and performers to engage audiences. Our team's focus was creating activities for participants that encouraged interaction. One of these activities revolved around the use of augmented reality and mobile technology. We created a smartphone application that allowed participants to explore the venue in a fun and interesting way. This app overlaid digital information on physical things all over the event such as signs, artwork, volunteer T-shirts and the distributed speaker program. User analytics and participant observations were used to analyze activities. The experiment results point to several opportunities for the use of this technology to bring people together in international social settings. Future challenges surrounding technology acceptance and privacy also became apparent. We will explain how these technologies can be used and how it might impact how people of different cultures and backgrounds interact at larger events.

This will be a good introduction to how event organizers can use AR to engage audiences and it may be interesting to AR developers to gain understanding of barriers to adoption for first time users and issues of implementation for non-programmers.

Project videos found at: <https://medium.com/@erichawkinson/high-and-low-tech-interactive-tedxkyoto-2398fc329f3e>

Doctoral Consortium

9:00-16:00, 1 Oct.

Place: Room 402, 403

Doctoral Consortium Chairs:

Mark Billingham (University of South Australia)

Winyu Chinthammit (HIT Lab AU, University of Tasmania)

Yoshinari Kameda (University of Tsukuba)

1. **User Study on Augmented Reality User Interfaces for 3D Media Production** (poster and teaser on 1 Oct)
Max Krichenbauer (Nara Institute of Science and Technology)
Advisors: Goshiro Yamamoto, Takafumi Taketomi, Christian Sandor, and Hirokazu Kato
2. **SPAROGRAM: The Spatial Augmented Reality Holographic Display for 3D Interactive Visualization** (poster and teaser on 1 Oct)
Minju Kim (KAIST)
Advisor: Kwangyun Wohn
3. **Situated Analytics: Interactive Analytical Reasoning In Physical Space** (poster and teaser on 1 Oct)
Neven ElSayed (University of South Australia)
Advisors: Bruce H. Thomas and Ross T. Smith
4. **AR Guided Capture and Modeling for Improved Virtual Navigation** (poster and teaser on 1 Oct)
Benjamin Nuemberger (University of California, Santa Barbara)
Advisors: Tobias Höllerer and Matthew Turk
5. **Free-Hand Gesture-based Interaction for Handheld Augmented Reality** (poster and teaser on 1 Oct)
Huidong Bai (University of Canterbury)
Advisors: Mukundan Ramakrishnan, and Mark Billingham
6. **Supporting Asynchronous Collaboration within Spatial Augmented Reality** (poster and teaser on 1 Oct)
Andrew Irlitti (University of South Australia)
Advisors: Bruce H. Thomas, Stewart Von Itzstein

SIG-MR Japanese Session

13:00 - 16:30, 3 Oct.

Place: Room 411, 412

ISMAR2015特別一般公開イベント 「ISMARが拓くAR/MRの未来」

1. ISMAR2015に見る重要技術の最前線(口頭発表から)

13:30 - 14:45

講師: 岩井大輔 (大阪大),
伊藤勇太(ミュンヘン工科大)
藤本雄一郎(東京農工大)

概要: ISMARの口頭発表の中から注目すべき発表をピックアップし、そのどこが凄いのか、今後どのように展開するのかを、本会議での2名の口頭発表者を含む将来有望な若手研究者が解説します。

2. ISMAR2015に見る重要技術の最前線(ポスター, デモ発表から)

14:45 - 15:15

講師: 酒田信親(大阪大)
杉本麻樹(慶應大)

概要: ISMARのポスター, デモ発表の中から特に注目をあつめた発表について、その技術的な本質や将来性を採択審査の責任者自らが解説する。

(休憩10分)

3. ISMARに見るAR/MRの技術トレンド

14:45 - 15:15

講師: 加藤博一 (奈良先端大・SIG-MR前委員長)

概要: ISMARの前身であるIWARが1998年に開催されて以来17年間、AR/MR技術がどのように進化してきたか、どのような応用が考えられてきたかをARToolKitの開発者である前委員長がわかりやすく解説します。

4. トラッキング技術の歴史と最新動向 15:40 - 15:55

講師: 斎藤英雄 (慶應大・SIG-MR現委員長)

概要: AR/MRの要であるトラッキング技術は、ここ数年で目覚ましい進化を遂げています。自由視点映像技術などでコンピュータビジョン研究を牽引してきた現委員長が、ARToolKitなどのマーカ型技術から、PTAM, DTAM, Kinect Fusionなど最先端のトラッキング技術まで、それらの技術的ポイントを端的に解説します。

5. 多様化するAR/MR:スマホ, HMD, プロジェクションマッピング 15:55 - 16:10

講師: 清川清 (大阪大・SIG-MR次期委員長)

概要: AR/MR技術の進化に伴い、その形態も多様化してきました。スマートフォンやタブレットを用いた方式が実用される一方で、HMD研究も非常に熱を帯びてきました。また、プロジェクションマッピングにも新たな技術が次々と登場しています。斬新なHMDを開発してきた次期委員長が、AR/MRデバイスの未来を占います。

6. ISMAR2015の総括と今後の展望 16:10-16:30

概要: AR/MR技術が登場してから約20年。そのコンセプト通りの完璧な技術の実現までにはまだ道半ばですが、実際のサービスとして利用可能なレベルにまで技術は育ってきました。

ISMAR2015を総括し、次の10年、技術開発はどのような方向に向かうのか、その延長にAR/MRのさらなる普及、マーケットの拡大はあるのか、AR/MRの今後を講師への質問も交えながら、フリートーク形式で展望します。

※ **日本バーチャルリアリティ学会複合現実感研究委員会 (VRSJ・SIG-MR)**

複合現実感研究委員会は、1997年7月に設置されて以来、「複合現実感」という魅力ある概念の浸透と先端研究の推進を目的に活発な活動を行ってきた。46回の研究会開催をはじめ、論文誌特集号の企画・編集、セミナーや国際シンポジウムの主催等、多くの活動を行うことで、AR・MRの学術研究において、日本が世界をリードする状況を維持してきた。特に2007年には、本研究委員会が主催してきたISMARと欧米のISARを発展的に合併し、当該学術分野において世界で最も権威ある国際学術会議としての地位を確立したISMARの第6回会議を奈良で開催し、今回は再びこの福岡で第14回を主催することとなった。

本研究委員会は、ISMARの常設運営委員会に代表委員を派遣する推進母体であり、論文査読や地域開催を主催する重要な役目も担っている。毎年開催のISMARは3年周期で世界を巡回し、3年に一度アジア・太平洋地区で開催されている(実は今年がアメリカの順番であったが、実施体制が整わず、日本がピンチヒッターとして急遽開催を引き受けることとなった)。2010年には韓国においてアジア・太平洋地区としては初めて日本以外での開催となったが、本研究委員会のメンバーが中心になって協力を行った。この活動から日韓の複合現実感研究者の交流の場としてKJMRを2008年に韓国で開催し、以降毎年日韓で交互に開催してきた。このような活動を通じて、本研究委員会は、意欲ある若手研究者の活躍の場となり、多くの優秀な研究者を輩出している。

講師紹介

1. 加藤博一(奈良先端科学技術大学院大学・教授, 前SIG-MR委員長)

1986年大阪大学卒業。1988年同大大学院修士課程修了。1989年同大学助手。1996年講師。1999年広島市立大学助教授。2003年大阪大学助教授。2007年より奈良先端科学技術大学院大学教授。博士(工学)。拡張現実感、ヒューマンインタフェースの研究に従事。1998年にワシントン大学ヒューマンインタフェース技術研究所に客員研究員として赴任中にARの研究を始める。翌年ARToolKitを開発し公開。その後世界中で広く使われることとなり、ARの普及に大きく貢献。2009年日経BP技術賞、IEEE VGTC Virtual Reality Technical Achievement Award受賞、2012年ISMAR Lasting Impact Award受賞。

HP: <http://imd.naist.jp/>



2. 斎藤英雄(慶應義塾大学・教授, 現SIG-MR委員長)

1992年慶應義塾大学大学院博士課程修了。博士(工学)。同年同大助手、その後専任講師、助教授を経て、2006年より教授。この間、2000年～2003年科学技術振興事業団さきがけ研究21「情報と知」領域研究員兼務。1997年～1999年まで、米国カーネギーメロン大学ロボティクス研究所に滞在し、主にVirtualized Realityの研究に従事。多視点画像を利用した対象形状の3次元復元や自由視点映像生成手法に関する多くの業績を上げ、Structure from MotionやSLAMなどの近年のコンピュータビジョン技術の基礎を築く。日本バーチャルリアリティ学会理事。ISMAR Steering Committee Member。ICAT, ACCVな



どバーチャルリアリティやコンピュータビジョン分野の多くの国際会議で General ChairやProgram Chairを歴任.

HP: <http://www.hvrl.ics.keio.ac.jp/>

3. 清川清(大阪大学・准教授, 次期SIG-MR委員長)

1994年大阪大学三年次中途退学. 1996年奈良先端科学技術大学院大学前期課程修了. 1998年同大博士後期課程修了. 1998年日本学術振興会特別研究員. 1999年郵政省通信総合研究所(現・情報通信研究機構)研究官. 2001年ワシントン大学ヒューマンインタフェース技術研究所客員研究員. 2002年大阪大学サイバーメディアセンター助教授. 2007年同准教授. 博士(工学). 拡張現実感, 複合現実感, 3次元ユーザインタフェース, ウェアラブルコンピュータ, コンピュータビジョン, 協調作業などの研究に従事. 2002年Elsevier Computer & Graphics Best Paper Award, 2002年情報化月間推進会議議長表彰, 2006年本学会貢献賞, 2011年ICAT 2011 Best Paper Award等受賞. ISMAR Steering Committee Member. IEEE 3DUI Symposium Co-Chair (2008-2010), ACM VRST Program Co-Chair (2009), IEEE ISMAR Program Co-Chair (2012, 2013), IEEE VR Program Co-Chair (2012)等を務める.



HP: <http://www.lab.ime.cmc.osaka-u.ac.jp/~kiyo/pukiwiki/index.php>

4. 岩井大輔(大阪大学・准教授)

すべての照明がプロジェクタに置き換わり, 身の回りのあらゆる面がピクセルで覆われる時代の到来を見越し, プロジェクションマッピングに関わる様々な基盤・応用技術の研究開発を行っている.

2003/2005/2007年, 大阪大学にて学部/修士/博士課程を修了し, 博士(工学)を取得. 2013年より同大学基礎工学研究科の准教授を務めている. この間, 2007-2008年ドイツ・バウハウス大学客員博士研究員, 2011年スイス・ETH客員准教授を兼務. 3次元ユーザインタフェースに関する国際会議IEEE 3DUI 2015やバーチャルリアリティに関する国際会議IEEE Virtual Reality 2015にて最優秀論文賞を受賞するなど多数の賞を受賞. 今, 最も勢いのある若手研究者.

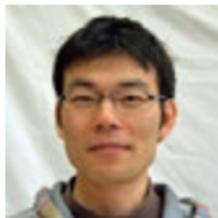


HP: <http://www-sens.sys.es.osaka-u.ac.jp/users/iwai/jp/>

5. 伊藤勇太(ミュンヘン工科大学・博士課程)

SF映画のような、「現実と見分けの付かない」映像重畳と「人の知覚機能」拡張を目指し、光学シースルー頭部搭載型ディスプレイ(OST-HMD)を用いた研究に取り組んでいる。2008/2011年東京工業大学学部/修士課程修了後、2011年～2013年まで(株)東芝研究開発センターにて3D計測の研究に従事、2013年からはミュンヘン工科大学にて博士課程研究員兼欧州連合マリーキュリーフェローとして勤務している。Augmented Human '15最優秀論文賞およびIEEE 3DUI'14優秀論文賞を受賞した。

HP: <http://campar.in.tum.de/Main/YutaItoh>



6. 藤本雄一郎(東京農工大・助教)

オフィス環境における日常業務を支援する拡張現実感の新たな可能性を模索し、拡張現実感技術、プロジェクション技術に関する研究に取り組んでいる。2010年大阪大学工学部卒業、2012年/2015年奈良先端科学技術大学院大学情報科学研究科修士/博士修了し、博士(工学)を取得。その間、2014年7-9月 Disney Research Zurich インターン、2015年4月より東京農工大工学部先端情報科学部門の助教を務めている。形状の変化する物体へのプロジェクションマッピングに関する研究は難関論文誌IEEE Transactions on Visualization and Computer Graphics (TVCG)に採択されている。

HP: http://www.tuat.ac.jp/~y_fuji/index_jp.html



7. 酒田信親(大阪大学・助教)

装着型プロジェクション端末を用いたARインタフェースの研究に従事。2002年筑波大学工学システム学類卒業。2007年筑波大学大学院システム情報工学研究科知能機能システム専攻博士課程修了。2012-2013年 HITLAB NZ University of Canterbury 客員研究員。2007年4月より大阪大学大学院基礎工学研究科助教、現職。博士(工学)。Virtual Realityの最も古い国際会議の一つであるICAT2010にてBest Paper Award受賞。ISMAR 2015 Poster Chair。



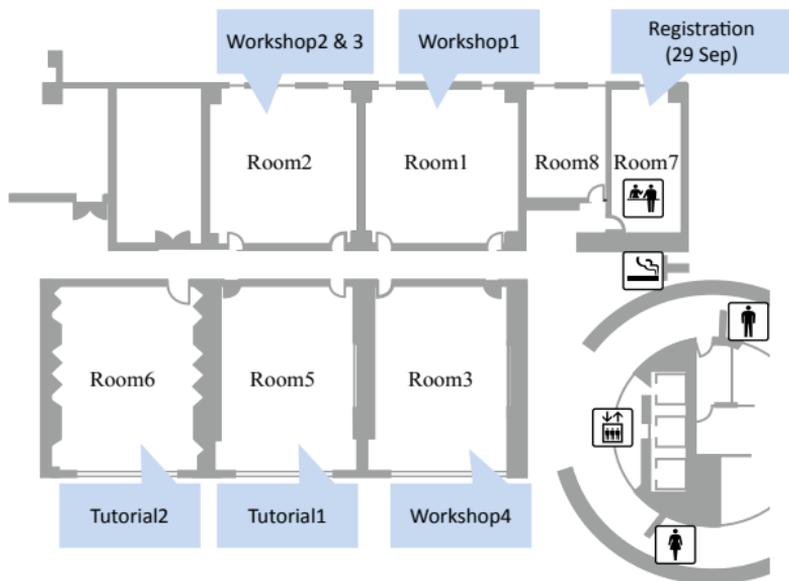
8. 杉本麻樹(慶應義塾大学・准教授)

2006年電気通信大学大学院電気通信学研究科博士後期課程機械制御工学専攻修了. 博士(工学). 電気通信大学電気通通信学部知能機械工学科特任助教などを経て, 現在, 慶應義塾大学大学院メディアデザイン研究科准教授. 画像提示装置を用いた計測と制御の研究に従事. ISMAR 2015 Demo Chair.

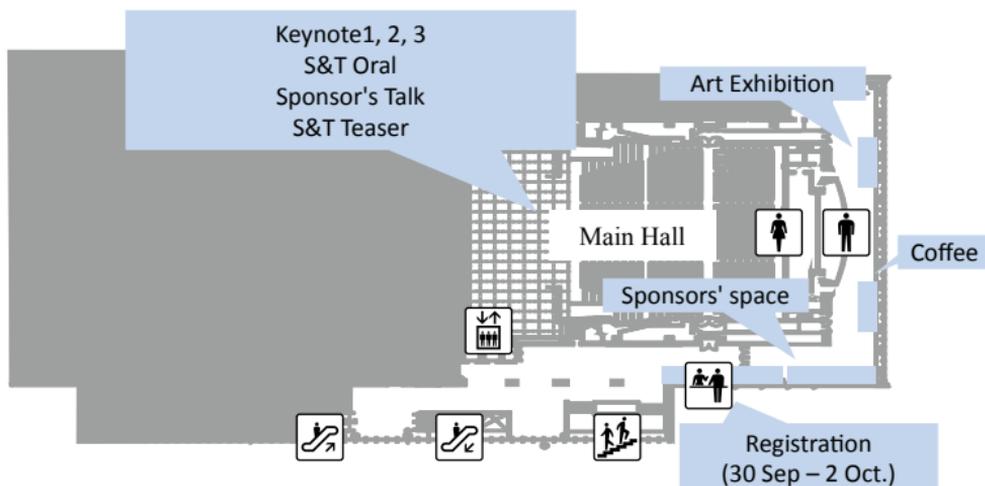
HP: <http://im-lab.net/ja/>



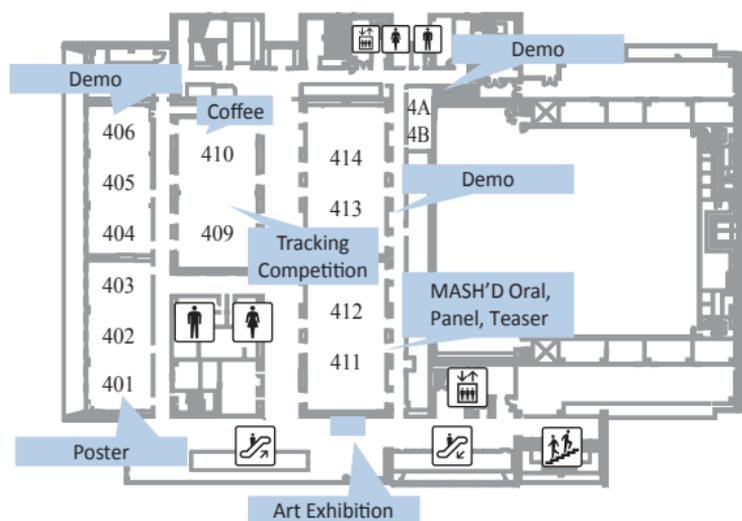
Fukuoka Sunpalace Hotel and Hall 4F



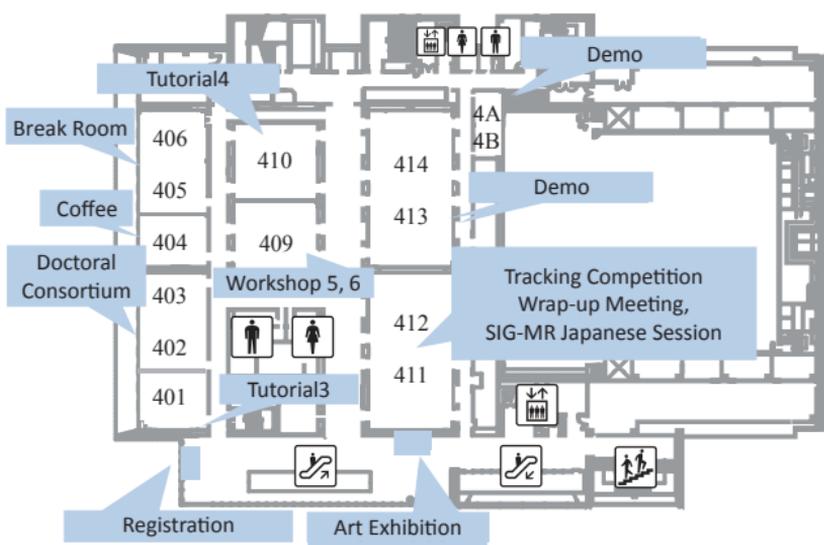
Fukuoka International Congress Center 3F

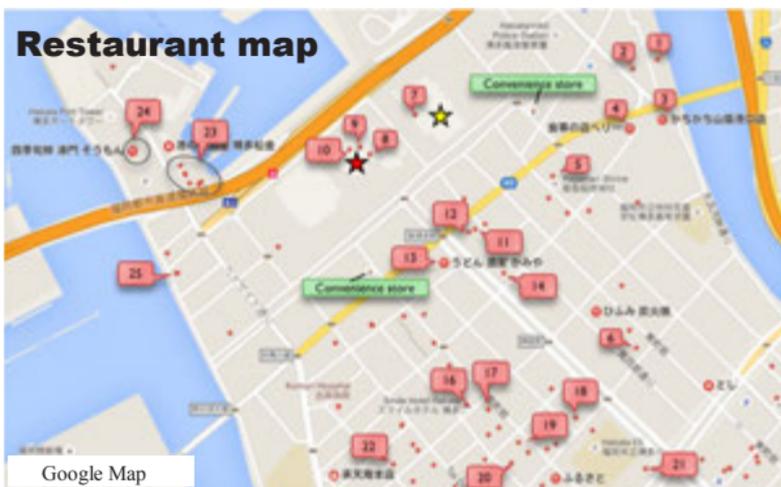


Fukuoka International Congress Center 4F (30 September - 2 October)



(3 October)





	restaurants	category	hours	estimated cost
1	Shinmiura	Japanese	12:00-15:00 close:Sun	¥3,000 - ¥4,000
2	Yakiniku Huminoie	Korean	11:30-14:00,17:00-25:00	¥2,000 - ¥3,000
3	Kachikachiyama	Japanese	11:00-17:00	¥1,000
4	Berry	Chinese	11:00-22:00 close:Sun	¥1,000
5	Daikichi	Japanese	11:00-14:00,18:00-23:00	¥1,000
6	Genkiippai	Ramen	12:00-17:00 close:Sun	¥1,000
7	Raconter	Western/Japanese	9:00-18:00	¥1,000
8	Lagoon	Western/Japanese	7:00-18:00	¥1,000 - ¥2,000
9	Laputa	French	11:30-14:30,17:00-21:30	¥2,000 - ¥3,000
10	Ginga	Japanese	11:30-14:30,17:00-21:30	¥2,000 - ¥3,000
11	Gankomon	Noodle	24h	¥1,000
12	Kachikachiyama	Japanese	11:00-23:00	¥1,000
13	Kamiya	Japanese Udon	11:30-14:30,17:00-23:00	¥1,000
14	Koganeiro	Japanese	11:00-17:00,17:30-22:00	¥1,000
15	Yoshinoya	Japanese Fast	24h	¥1,000
16	Taaku	Japanese	11:30-14:30 close:Sun	¥1,000
17	PIECE	Café/Bar	12:00-26:00 close:Sun	¥1,000 - ¥2,000
18	Kajiki	Sushi	12:00-13:30,17:00-23:00	¥2,000 - ¥3,000
23	Garden of Rita	Italian Buffet	11:30-16:00,18:00-22:00	¥1,000 - ¥2,000
	Big Umbrella	Western/Japanese	11:30-23:00	¥1,000 - ¥2,000
	Hakata Toyoichi	Japanese	10:00-20:00	¥1,000
	Hakatagincho	Sushi	11:00-22:30	¥1,000 - ¥2,000
	Koisurusakana	Western	11:00-22:30	¥1,000 - ¥2,000
	Kaiou	Japanese/Korean	11:00-22:30	¥2,000 - ¥3,000
24	Soumon	Japanese	11:00-23:30	¥1,000
	Cocotomo	Western/Japanese	11:00-24:00	¥1,000
25	Yachiyotei	Ramen	11:00-20:00 close:Sun	¥1,000



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CONFERENCE PROGRAM



The 14th IEEE International Symposium on Mixed and Augmented Reality (ISMAR2015)
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