

# DEVICE ART

## International Exhibition

Ars Electronica 4. September 2014 - 30. June 2015

### Talk schedule

**4.9 (Thu) 16:00 - 17:00**  
**Artist talk on the venue (AEC 1F)**

Jaehyuck Bae  
 Hideyuki Ando + Junji Watanabe  
 Masahiko Inami + Kentarou Yasu  
 Eric Siu Scott Hessels  
 Martina Mezak Anselmo Tumpić  
 Sašo Sedlaček Sanela Jahić  
 Olga Majcen Linn Sandra Sajovic

**5.9 (Fri) 15:00 - 16:00**  
**Artist talk on the venue (AEC -3F)**

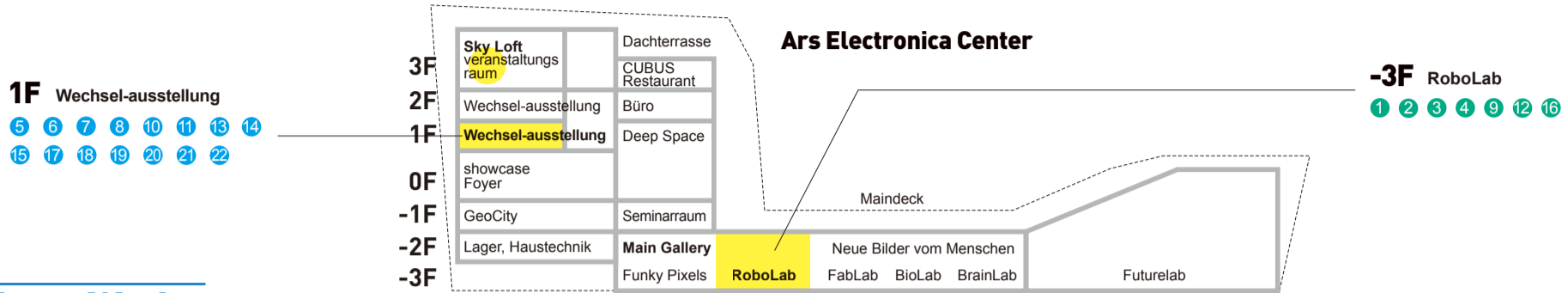
Hiroo Iwata  
 Novmichi Tosa  
 Ryota Kuwakubo  
 Kenji Suzuki + Dushyantha Jayatilake

**6.9 (Sat) 11:00 - 13:00**  
**Device Art symposium (AEC SkyLoft)**

Hiroo Iwata  
 Machiko Kushara  
 Erkki Huhtamo  
 Suncica Ostojic

Appointed discussant:  
 Olga Majcen Linn, Sandra Sajovic, Victoria Vesna

### Floor Plan



### Author & Works



**1 Robot Tile**  
 Hiroo Iwata

It has often been suggested that the best locomotion mechanism for virtual worlds would be walking. It is well known that the sense of distance or orientation while walking is much better than that while riding in a vehicle. However, the proprioceptive feedback of walking is not provided in most applications of virtual environments. Robot Tile is a locomotion interface using a group of movable tiles. The movable tiles employ holonomic mechanism that achieves omni-directional motion. Circulation of the tiles enables the user to walk in virtual environment while his/her position is maintained. The motion of the feet is measured by an image sensor. The tile moves opposite to the measured direction of the walker, so that motion of the step is canceled. Robot Tile has an ability to cancel the displacement of the walker in arbitrary direction. Thus, the walker can freely change direction while walking. It has potential to create uneven surface by mounting up-and-down mechanism on each tile.



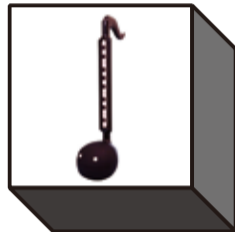
**2 Food Simulator**  
 Hiroo Iwata

Taste is the last frontier of virtual reality. Taste is very difficult to display because it is a multi-modal sensation composed of chemical substance, haptics and sound. Taste perceived by the tongue can be measured using a biological membrane sensor. It can be easily synthesized from five basic tastes. Olfactory display is not popular but flavor can be easily displayed using a vaporizer. The unsolved problem in taste display is in the area of haptics. We developed a novel interface to display biting force. It is designed to fit the user's mouth. The haptic device is composed of a 1DOF (degree-of-freedom) mechanism, employing four linkages. The shape of the linkage enables the application of force to the back teeth. Food Simulator generates force according to the captured force of real food. A film-like force sensor is used to measure the force with which real food is bitten. A force sensor is installed in the Food Simulator and the device is actuated using the force control method. The profile of the biting force of the real food is realized by force control of the device.



**3 Otamatone Jumbo**  
 Novmichi Tosa

Otamatone Jumbo is a large-scale otamatone developed for live stages. Tune changes by pushing membrane switch on the tale. Its mouth opens by grasping the handle at the bottom and timber changes by formant effect.



**4 Otamatone Digital**  
 Novmichi Tosa

Digital version of Otamatone. Exact pitch out on the keyboard switches. Switchable normal mode, the power code mode, and drum mode.



**5 Mr. Knoky**  
 Novmichi Tosa

Remote control by wire, Knocky can play percussion. Without the use of electricity, you attached the cans as an option.



**6 Thanks Tails**  
 Kazuhiko Hachiya

Thanks Tails are tails made for cars. They are "organs" that express appreciation, in a way which is easy to understand: not verbally but by the gesture that is the wag of a dog's tail. I will consider this piece an artwork only when it has been manufactured. The project is progressing with the cooperation of car-related companies. The photograph shows a model that was added to a Smart car, in order to check the drivers' response.



**7 nicodama**  
 Ryota Kuwakubo

Nikodama consists of 2 separated devices communicating each other by infra-red signal. If both of them are put closer they start to blink synchronized. Basically it was designed to put on some object such as furniture or daily object so that it looks as if it's alive. At this exhibition Nikodama is put on a kettle for the tea ceremony. This idea is related to Tsukumogami. (<http://en.wikipedia.org/wiki/Tsukumogami>)



**8 Videobulb**  
 Ryota Kuwakubo

Video Bulb: Simply plug this lipstick size device directly into the video input-jack on your TV and it will play endless black and white pixel animation of Bitman on your TV screen. The animation is made using Bit-hike (pronounced Bit-Haiku) software developed by the artist himself. Bit-hike is an animation tool to create 8 x 8 dot pattern and is open to public through a website that has both an animation editor and the archive ([www.vector-scan.com/index.html](http://www.vector-scan.com/index.html)). Video Bulb is made commercially available, distributed by Yoshimoto Kogyo.



**9 SIRIFULIN**  
 Ryota Kuwakubo

Siri means hip, fulin means swing—and their combination suggests what Ryota Kuwakubo is up to here. Robotics engineers are often inspired by how people behave and move or by the human physique, but Ryota Kuwakubo takes the opposite approach. He asks: what if we had a tail? Would we communicate differently or move in different ways?



**10 Parallel Lives**  
 Hideyuki Ando

This work is composed of two touch monitors. Shadows of human beings are walking in a monitor, and real figures of human beings are walking in the other monitor. When the user touch the shadow, it disappears while giving tactile feedback to the user, and appear as a real figure in the other monitor. When the user touch the real figure, it disappears, while giving tactile feedback, and appears in the other monitor. The human beings in the monitors go back and forth between the two monitors by being touched. The piezo actuator is put under the touch panel, and it stimulate to user's finger on touch panel. The timing and magnitude of the vibration are controlled based on the position of the finger measured with the touch sensor of an LCD panel. When the user rubs an image, tactile feedbacks is presented. With this interface technology, any kind of visual image can be displayed with real-time tactile feedback. We used it to produce an artwork on the subject of how humans perceive the real and digital worlds through the sense of touch. Invisible Lilliputians are muddling on the computer monitor. When the user's finger encounters the invisible Lilliputians, vibrations are presented to the nail, and tactile information indicating an encounter is generated.



**11 POPAPY**  
 Masahiko Inami, Kentarou Yasu

POPAPY is an instant paper craft that can be folded up in a microwave oven. With a piece of ordinary paper and a specially designed sheet, we can make a 3D paper craft in 1-minute by using a microwave oven. The specially designed sheet is made from a combination of two materials, heat-shrinkable sheet and microwave-safe aluminum sheet. The aluminum sheet absorbs microwaves and provides heat energy to the heat-shrinkable sheet efficiently. Then the shrinking sheet bends and folds the paper. We established design method for the bent angle and bent timing by changing the size of the two materials. This research is supported by the Singapore National Research Foundation under its International Research Center Keio-NUS CUTE Center @ Singapore Funding Initiative and administered by the IDM Program Office.



**12 Robot Mask**  
 Kenji Suzuki, Dushyantha Jayatilake

We have been developing the Robot Mask to enhance the expressiveness of the face, where the principal of assistance is the manipulation of the skin through a minimally obtrusive wires, transparent strips and tapes based pulling mechanism. This wearable robot is originally designed to support the rehabilitation of a hemifacial paralyzed patient, whose voluntary muscle activities of the face degrades or disappear due to various medical conditions. Based on a special smile detection algorithm of facial electromyography signals from the non-affected side of the face, a bio-robotic control is carried out to assist facial expressiveness on the affected side through external manipulations of the facial skin. By using EMG of the wearer, we took traditional facial physiotherapy to a new level that enables completely voluntary participation of the patient in the robot-assisted physiotherapy.



**13 Touchy**  
 Eric Siu

Touchy is a human camera – a wearable device that literally transforms a human being into a functioning camera. The wearer is constantly "blinded" unless someone touches his/her skin that causes the shutters to open and restores the wearer's vision. When physical contact is held for 10 seconds, the camera takes a "Touch-Snap", which is displayed on the device's LCD. Online social technology loosens our social boundaries, yet equally dehumanizes physical communication. Connecting with people can now be as minimal as pushing a Facebook "Like" button. Considering the urgency of such dehumanization, Touchy is devised to encourage offline communication through touch, eye contact and engaging activity of photography. The resulting touch-snaps remind us of the ephemeral richness of togetherness. With such a strong social capability, Touchy investigate the potential to become a social healing device to heal social problems such as social anxiety. Since Sept 2012, the artist has put himself into experiment, and finds personal transformation after Thousands of touch-snaps.



**14 A Couple of Irons**  
 Eric Siu

The marriage of "A Couple of Irons" unionizes a screen and a camera in two irons as a pair of toys that translates playful mediation. They destroy the meaning and subvert the function of a domestic appliance. As a couple of absurd visual devices, they encourage creative interaction. At the same time, they provoke a question. Is it a design object or an art piece?



**15 Sustainable Cinema No.2: Lenticular Bicycle**  
 Scott Hessels

Sustainable Cinema is a series of kinetic public sculptures that merge natural power sources with early optical illusions to create a moving image. Nature is the energy and the director in each of the sculptures. Using simple illusions made with simple energy, they are faux media archaeology designed to start a conversation about searching for more sustainable solutions to power our emerging technologies and the rapidly expanding contexts for the moving image. The other sculptures in the series use natural force—wind, water—but Lenticular Bicycle is the first of five completed sculptures to use human energy. The pedal-powered animation references the ingenuity and resourcefulness of the hacked bicycles that are roughly converted for use in family businesses throughout Southeast Asia.



**16 Happiness Hat**  
 Lauren Mccarthy

A wearable conditioning device that detects if you're smiling and provides painful feedback if you stop. Frowning creates intense pain but a full smile leaves you pain free! Through repeated use of this conditioning device you can train your brain to smile all the time.



**17 Conversacube**  
 Lauren Mccarthy

A conversation aid device that will prompt you what to say and do and guide everyone toward smooth, comfortable conversation every time. Microphones monitor audio levels and the cube responds accordingly, providing individual prompts to each participant to enliven, mediate conflict, or balance conversation as necessary.



**18 Inside Out**  
 Jaehyuck Bae

Inside Out is a series of machinic-kinetic sculptures that purport to give an expression to invisible systems by using light and shadows. The sculptures consist of sets of transparent acrylic gears that have been generated through programming and produced by a laser cutting. The work raises the issue of device art, because it explores ways of producing complex artworks by manufacturing technology. Machinery has had an intimate relationship with the arts in human history. Although there exist paradoxes between invisible systems and mechanical systems in terms of their physicality, such contrasts can afford us a chance to reflect on invisible systems that sustain us. In modern times, machines themselves have become invisible, surrounded and accessed by interfaces. Inside Out should be interpreted as a materialization of an invisible system, interpolated into a visual attraction. It proposes for the viewer a way on watching, reflecting upon and enjoying something we often miss to appreciate in the current era.



**19 Urania**  
 Martina Mezak

Urania is a cloud making device. It allows us to control the cloud density by blowing up the clouds. Installation is dealing with technological simulation of nature. An aesthetically pleasing ambience generated through imitation of pleasant and calming natural phenomena is replicated in the gallery space. The interactive visual imagery allows the user to participate in the creation of a virtual sky. By blowing into long velvet tube, clouds can either be created or dispersed from the sky. Participant is laying on soft mattress beneath computer generated clouds on the ceiling. Due to the 'immateriality' of matter in this installation /clouds-air/, digital medium serves as an ideal surrogate for the gassy, airy state of clouds and breath.



**20 Tateye**  
 Anselmo Tumpić

Tateye is the prototype of eyeglasses that use two built-in lasers to engrave retina with permanent tattoos. This allows you to see a design symbols (shapes) of your choice, always and everywhere. Various simple forms can be chosen, depending on the taste of the consumer. Tateye is part of the "Prototype" series of objects. The function of prototypes in real production is testing the safety of future products. Tateye will not pass the safety test due to its way of functioning, tattooing the eye retina. Because that Tateye will forever remain in the "prototype dimension" as a test specimen. Since the functionality is the goal of design, in this case it exceeds the limits of the law, functioning as an art object. Although the observer knows that in today's society there are rules that will protect him from objects such as Tateye, Anselmo Tumpić makes these objects just to encourage the audience to think about whether it is a pity that this object are not really usable and are we really protected by the law.



**21 Beggar Robot**  
 Sašo Sedlaček

Beggar Robot is a robot for the materially deprived and is constructed entirely from old computer hardware and a few spare parts that were obtained at no cost. As a low-tech, friendly device, it advocates three main ideas in contemporary activism. It is a surrogate agency created for a world in which the marginalized such as impoverished individuals and families, refugees and asylum seekers and those hidden from the public view, will never step onto the street to beg, except in the most dire of circumstances. The robot has access to areas normally off-limits to beggars, such as shopping malls and community events, where the richer members of society more often frequent. The hypothesis is that this part of society is only able to show some sympathy towards the marginalized if they communicate from a safe distance and via a technological interface. The project tests and exploits the advantages of robotic interface by bringing his Beggar Robot to public spaces in different countries and adapting it to the local context and local language, to beg in the name of the poor.



**22 Pendulum**  
 Sanela Jahić

Pendulum, 2007-2008, is a mechanical installation and a complex visual machine that rediscovers kinetic art through new media and neuroscience. The kinetic machine uses RGB LED diodes programmed according to the logic of cyclic rotation or pulsation of the POV principle (Persistence of Vision). A dematerialised image in the form of a light field is produced by the powerful circular rotation of LED diodes that emulate a photographic matrix in time. With the algorithm for calculating the distance in relation to speed in a circular movement, the image is simultaneously appearing and disappearing. Rotation is a gesture of gathering pixels from LED diodes into a unique phantom image. With such software and electronics the mechanism constructs a photograph of a narrow writing in a person's back. Harrow is a component part of the ideological apparatus from Kafka's story In der Strafkolonie (1914), where it writes Laws into the individual's body and his or her subjectiveness, as society inscribes its rules onto our identities. Pendulum presents identity as an always discursively constructed and ideologically mediated.