

Tokyo University of the Arts COI Site

2020 Initiative

“Otomai no Shirabe”: a Concert with AI Piano Transcending Space-Time

A concert at Sogakudo Concert Hall on May 19 before an audience of 800 featured a Disklavier grand piano with an AI-based automated performing system developed by Yamaha, performing with four members of the Berliner Philharmoniker’s Scharoun Ensemble Berlin (violin, viola, violoncello, and double bass).

They performed 4th and 5th movements of “Trout” piano quintet by Schubert. Past performance data for master pianist Sviatoslav Richter (1915-97) was loaded into the Disklavier and famous performances were accurately reproduced to the extent possible. On the day of the concert, picking up the sound and rhythm of the four performers through microphones and observing the subtle movements of the performers’ arms through a camera mounted before them to align itself with human breathing, the AI performed ensemble for 20 minutes.

For the concert, through rehearsals and meetings between the Scharoun Ensemble and AI piano in April in Berlin, the AI read not only the subtle movements of the performers, even on the day before the concert, but also remembered the performance characteristics of each member just before the performance. There were initial problems with the timing of the piano and the four people’s breathing, but improvements came with practice.

The four members had never performed with Richter. Technology made possible to realize a dream ensemble truly transcending space-time.

Group Leader of the 2020 Initiative and Isao Matsushita, Vice President who conducted the performance, and Motoichi Tamura, Department Manager of Development Department 1, R&D Division of Yamaha Corporation, in charge of the AI piano Disklavier, were pleased with the results. They are aiming to develop an AI system capable of handling sections with rapid changes in tempo and long performance. In addition, a new field, “Sports Arts Science”, will be announced in August.

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Workshops at Aiseikai

Atelier Pangaea (organized by Social Welfare Corporation, Aiseikai), based in Tokyo's Nakano Ward, is a place where local people with various disabilities come to engage in their own creative activities. Around 25 people participate in the activities, including artists and students at colleges of the arts, realizing the interaction of various people. As part of a series of TUA classes "Disability and Arts", workshops have been held at Atelier Pangaea every year since 2012. The artwork created jointly with them was presented at the event "Disability and Arts" in December.

Students taking this year's classes chose "World Travel with Music" as the workshop theme. They performed music pieces from various nations, starting with "Moon over the Ruined Castle" of Japan and including "Libertango" of Argentina. Two 1m x 5m sheets of cloth (one is a world map with the land masses cut out) were layered and attached with double-sided tape. Areas corresponding to countries where the

music pieces originated were painted by the hands and feet of participants, a form of body painting. After all the music pieces, the upper sheet of cloth was removed to show an original world map, which was then completed by painting fish and ships to areas corresponding to the ocean.

Contemporary society is described as "cerebral." Virtually everything is created and realized in the brain, shrinking chances to learn through actual bodily movements. Creative expression by those with mental disabilities, however, reveals the primordial nature of bodily movements and asserts the real existence of the physical opposite to virtual worlds. Are human beings cerebral or bodily organisms? Nowadays music and painting are digitalized, the virtual worlds expanded enormously and expression losing its physicality. The workshop provided the opportunity to reconsider what comes from painting a picture and playing music by moving our own hands and fingers.



Culture Sharing

Progress on the reproduction of Shakyamuni Triad statue at Horyuji Temple



The surface (casting surface) of the reproduction of statues brought into the first floor of Arts & Science LAB. in April is somewhat clouded over, something that generally occurs when the casting cools and hardens. A team of Metal Hammering course in the Department of Crafts is currently at work to clear the surface. They felt the need of resurvey for this work and conducted visual investigation, photographing and videotaping of original statue in the Main Hall at Horyuji Temple on June 29. As if one thin bronze layer after another was removed, the reproduction is approaching to the original statue. This meticulous work would require sophisticated skills.

On the other hand, a number of unclarified issues have been pointed out in relation to the existing Shakyamuni Triad statue. Another project to resolve them is simultaneously in progress. First, it is said that the figures of Hiten (a type of angel) were attached to the sides of the halo of the principal statue, but none currently remain. The project team will reproduce this challenging Hiten. Second, the view that the positions of the attendant figures on the left and right have been reversed is generally accepted; working from this notion, the team should attempt to replace their positions. The reverse position would certainly appear to be correct, given the lengths of the lower left and right sides of the attendants' robes. Another issue involves the snail-shaped hair knots on the top of the statue's head, some of which in original statue have fallen off over the years. The project will try to repair the current spotty condition of the hair in reproduction. Based on the few works from this period, the team uses a computer to consider various factors and create a tentative plan.

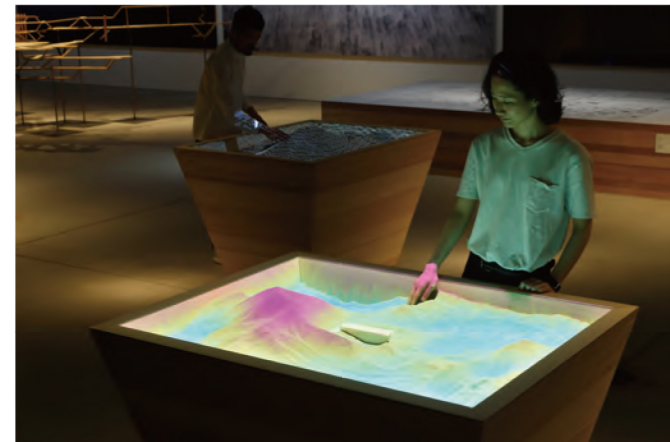
This summer, the project will assemble the disassembled reproductions of Shakyamuni Triad statue and the halo on the pedestal. The complexity of the structure would make it important to proceed step by step, resolving one problem after another.

Surveys and Meetings in the Netherlands

The team of senior researchers, researchers, and research assistants, six in all, visited the Netherlands from June 28 to July 5 for joint research with NICAS - Netherlands Institute for Conservation, Art and Science. In connection with two reproduction projects ("The Tower of Babel" by Pieter Bruegel and "Flowers in a Blue Vase" by Vincent van Gogh), the team conducted the research of pieces, color matching, and had meeting with project members at Museum Boijmans Van Beuningen. In addition, trial pieces of reproduction were presented, discussions were held, and future schedules and works were confirmed at Delft University of Technology. The team studied and purchased painting materials sold in the Netherlands, and made a preliminary examination of pieces planned to be reproduced with NICAS. All of these made the trip very productive.



"Synesensory" Media



"Sandbox of Daidara" by Takashi Kiriyama and Toshiyuki Kuwabara (2016). Photo by KIOKU Keizo 21_21 DESIGN SIGHT Exhibition "DOBOKU: Civil Engineering" (to September 25, 2016)

"Sandbox of Daidara"

The Research on "Synesensory" Media produces exhibits which apply media technology as a part of interface development for culture sharing. At the current "DOBOKU: Civil Engineering" Exhibition at 21_21 DESIGN SIGHT, visitors can dig in the sands and make piles of sand in the "Sandbox of Daidara". Sand forms are measured with Kinect sensors and reinterpreted as topography. The shapes of mountains and valleys are expressed by projecting gradation and contour lines. When you shade the sand with your hand like rainclouds, the system simulates water gushing forth and flowing down to the low point. The exhibition uses software developed at the University of California, Davis, as a part of its KeckCAVES project to provide visualization of geology. The exhibition lets visitors explore through play, providing many people the opportunity to move their own hands for experience the fun of sand, linked to video. The research will continue to propose experiences connected with multiple senses like touch and vision.

Robotic Performing Arts



The Pepper UX Design Workshop

Research on Robotic Performing Arts held "the Pepper UX Design Workshop" sponsored by SoftBank on July 14. This workshop targeted designers and programmers at companies developing Pepper applications (certified Pepper vendors). Group Leader Hirata started with a theater workshop involving active movement by participants. Researcher Chikaraishi explained the development process for past robot theater performances. At the end of this event, one question after another was posed from participants. The workshop proved a great success.

By a questionnaire survey, more than 60% of the participants reported feeling "extremely satisfied" with the event; just under 40% reported feeling "satisfied". Taken together, the response from these two groups accounted for all participants—an extraordinarily high rating, even compared to similar seminars held in the past.

A second workshop was already offered by Softbank. Plans are being drafted on how to develop for the next step.

Sustainable Revitalization of local communities

Masanori AOYAGI project professor

Public Collaboration Center, Tokyo University of the Arts

I have travelled to many cities, towns, and villages over the past two or three years, from Okinawa to Hokkaido. Visiting local arts festivals in various places honored as a "Cultural and Artistic Creative City", I visited ordinary local communities in the surrounding areas as well. Every one of them, led by the headman, is fervently involved in revitalization of local communities. I strongly applauded their efforts, which would be impossible to expect more ingenuity and reform than the actual. However, virtually almost of these communities has not been revitalized as they were in the past. This is because various social phenomena which resist short-term solutions—such as low birthrates and longevity, and population decline.

The importance of revitalization of local communities for all of Japan has already been given attention through "National Garden City Initiative" announced in 1980 by the Ohira Cabinet and the "Furusato Creation Project" by the Takeshita Cabinet. Nevertheless, the trend of regional decline has not been corrected, but gotten worse. No effective measures are currently taken, and the decline is being neglected. Metaphorically speaking, the current situation could be described as follows: imagine that your heart and other main organs and blood vessels are barely functioning, and the ends of body are frostbitten, gradually closing in on the body's core.

There is no ingenious idea to resolve this dire situation drastically and no options but to pursue small measures and attempts suitable for each local area. Moreover, sustainable policy is important, not temporary like shot in the arm. It is necessary to reconsider local festivals and traditional arts again, and design to enliven them by whole communities. Culture has become more important throughout Japan than ever, but there is little possibility to increase the budgets of Agency for Cultural Affairs. That being the case, we just have to revitalize local culture through the contributions of individual citizens. I hope to disseminate this campaign all over Japan.

Mikito SEKIYAMA

NHK ENTERPRISES, INC

We spoke with Mikito Sekiyama of NHK ENTERPRISES, one of the participant organizations for the COI Site, Tokyo University of the Arts, about initiatives and prospects for 2020 based on the keyword “connecting”, his current theme. * NHK: Japan Broadcasting Corporation



—What type of organization is NHK ENTERPRISES ?

NHK ENTERPRISES is involved in content production, development, and sales, including producing NHK programs and other video content, event planning and production, program and character licensing, and sales of DVDs, Blu-ray discs, and other merchandise. In program production, we are working with everything from documentaries and nature programs to entertainment and dramas. Each section works based on a direction expressed in the catchphrase: “Driving Innovation in Content Creation”. The strength of NHK ENTERPRISES is that the various sections with their specialties connect to each other to create new value.

—Mr. Sekiyama’s Initiatives

I’ve produced stage programs and events through various genres of entertainment. There’s a way of creation that content distributed through television is aimed for supreme goal, but I have always been interested in producing space. So I work to show my own creativity in producing spaces which give rise to such content. I would like to create expressions ahead of the times in the form of entertainment using various approaches: for example, incorporating high-definition image or live streaming into musical events. “Connecting” is my personal theme at the moment. I’m interested in how to connect various people, emotions, and values, and from there how to create new relationships and

meaning—how to popularize a sense of the future and a sense of existence that many people can share. I think the entertainment is best form of expression for it.

—About 8K video initiatives and prospects for 2020

Ahead of full-scale introduction of 8K broadcasting in 2020 when the Tokyo Olympics/Paralympics will be held, we’re working on companywide theme to improve 8K production capabilities and challenge new possibilities. With 8K, the focus tends to be on technology innovation—high resolution, large screens, and public viewing. In contrast, we’re looking for value appropriate for or over 8K presentation. Our target is finding ways to deepen not just sports, but culture as a whole. New outputs by 8K technology make the quality to raise and to deepen original perspectives included in each cultural content, and new value and new meaning would be found starting in 2020.

—Expectations for TUA

TUA is outstanding in possessing every element of creativity. TUA’s skills and creativity will be connected with the world in 2020, when Japan becomes a hub for communication to the world. TUA needs to consider the intensity to propose new value. I think it would be great if it upgrades from top specialist organization of Japan to the top in the world.

Report on “a Special Exhibition on Afghanistan at Tokyo University of the Arts, SOS in Afghanistan”

The exhibition held from April 12 to June 19, 2016, at Chinretsukan Gallery in Tokyo University of the Arts, University Art Museum, closed successfully. Day after day, Special Senior Advisor Kosaku Maeda and Visiting Professor Takashi Inoue of Eurasia Cultural Exchange Center, Tokyo University of the Arts presented gallery talks at the exhibition gallery, where the clone mural painting “The Sun God Soaring in the Sky” (a reproduction of the destroyed mural painting which was on the ceiling above the East Great Buddha in Bamiyan) was displayed. Their impassioned commentaries on history and cultural property of

Bamiyan sometimes continued for over an hour, fascinating participants and filling the gallery with enthusiasm. The exhibition attracted many people, some came from far. Roughly 56,000 was counted as total visitors to the exhibition. Approximately 9,000 copies of the “Documentation of Displaced Cultural Property from Afghanistan ~from Protection to Repatriation~” were distributed to people who donated at the gallery. Officials from the government of Afghanistan and Afghan students studying in Japan also visited the gallery. The exhibition offered a significant opportunity to share the wish for peace through cultural property.