



Cyber Performance

Training Programmes to establish a tech-culture fusion platform for cyber performances

Introduction to Cyber Performance

Essentially a Cyber Performance involves transmitting signals through networks to another place uni/bi-directionally, as well as filming/recording a real-time performance using an AV system, and then displaying the images using interactive technologies. The basic technical configuration necessary for a Cyber Performance consists of three parts: video, audio and network. For this project, we use UltraGrid software that was developed by the Czech R&E network in 2002, for low latency and high-quality video network transmissions, and JackAudio, a professional sound server daemon. Those working in this area are trying to find the best solution to overcome key challenges, such as managing the interaction between stages and actors in different locations caused by network delays, including latency, ensuring eye contact between actors, limited camera angles, successful music synchronization between remote sites, and communication with audiences.

Overview of the Project

The ultimate goal of this project is to build a sustainable community to discuss and collaborate around Cyber Performance (CP) and tech-culture fusion projects that use the TEIN network. To achieve this, the project will involve the Asi@Connect network, gaining interest from NRENS, understanding the needs of tech-culture exchange, spreading the reach of Cyber Performances and extending the capabilities of CP technologies. Furthermore, it is very important to establish a long-term tech-culture fusion platform that enables knowledge and skills to be shared, exchanged and fostered with relevant countries regularly, systematically and effectively. The project has six activities, including live Cyber Performances, workshops and training programmes. Five of these have been completed and the sixth will be a live CP that connects Dhaka (Bangladesh), Jamshoro (Pakistan), Chennai (India), Penang (Malaysia) and Hanoi (Vietnam) during the APAN47 meeting in Daejeon (Korea) in February 2019.

First Activity

Preparatory meeting and training programme around operating a CP system

The first project activity took place during the APAN44 meeting in Dalian (China), and aimed to build a community of interested people, and to promote the project to both beneficiary countries and participating nations. It included a training programme, which was designed to introduce practical CP skills, techniques and ideas when using UltraGrid and JackAudio. As most of participants had no experience of CP, a full manual was created to guide them through the CP process. All attendees were enthusiastic learners and shared their knowledge with the wider group.



Second Activity

Tech-Culture fusion workshop and live Cyber Performance

At this workshop, participants discussed how to overcome network delays, including latency, how to set camera angles for eye-contact between performers, and how to manage the performance between different locations. Held in November 2017, the main event was a live Cyber Performance with Hanoi (Vietnam) connected to Jamshoro (Pakistan) and Chennai (India). Network paths were established through the help of the ERNET, PERN, VinaREN NRENS and TEIN*CC. There was close collaboration between engineers and artists during the rehearsal across the different networks, enabling them to check and understand the experience at each venue. Each country demonstrated their own traditional music and dance one by one remotely, and a three way improvisational performance was tried. This was a first cultural exchange between India and Pakistan through a CP, a first step in broader cultural collaboration.



Third Activity

Project meeting and training programme on using JackTrip to connect multiple sites

Held during APAN45 in Singapore, this training programme focused on sound, which is a crucial part of any Cyber Performance. JackTrip is a system used for multi-machine network performance over the internet that supports any number of channels of bi-directional, high quality, uncompressed audio signal streaming. This training programme was designed to introduce practical skills, techniques, and ideas for using JackTrip to connect multiple sites. At the beginning the course was open to project members, providing them with practical JackTrip training, but was later made available to anyone interested.



Fourth Activity

The International Symposium on Tech-cultural Exchange beyond CP

At this event, Dr. Daeyoung Kim of Korea was the keynote speaker, giving a presentation titled "Experiences and Challenges of Cyber Performance". The programme also featured Kenjiro Cho from Japan and Alain Baumann from France, who gave speeches on the technical and artistic aspect of CPs, as well as a special lecture given by Rosa Sanchez from Spain. Eight panel presentations ran alongside these speeches. During the symposium, presentations were focused on obstacles in communication between performers who are remote from each other. While some groups in the global CP community are interested in the transmission of ultra-high definition images such as 4K, 8K or 16K, the relatively low bandwidth available in Southeast Asia makes this difficult in the region. Instead, the symposium focused on how teams can use software effectively, instead of expensive hardware, sharing direct and indirect experience on how to solve technical and artistic issues.

Fifth Activity

Project meeting and training programme for using Syphon

The main aim of the project meeting during APAN46 in Auckland (New Zealand) was to discuss the final project event through a live, multi-site CP. The training programme was designed to provide practice in using Syphon and Arena with UltraGrid in order to share frames with one another in real-time. Using Syphon means there is no need to deploy a video mixer, enabling video from remote sites to be handled and then a final output created using Arena. All attendees were very passionate and exchanged their ideas freely with each other during the meeting. By the end of the event the five participating entities in the project were ready to perform a full scale Cyber Performance.

Sixth Activity

Live Cyber Performance and project meeting

We are preparing a live CP, supported by Asi@Connect, during the APAN47 meeting in Daejeon, Korea. It will be held at 17:00 local time on Tuesday 19 February 2019 in @room 201. Five venues – Jamshoro (Pakistan), Chennai (India), Penang (Malaysia), Dhaka (Bangladesh) and Hanoi (Vietnam) will be connected to Daejeon and the project will show traditional/popular performing arts using one-way, three-way and multi-way communication.