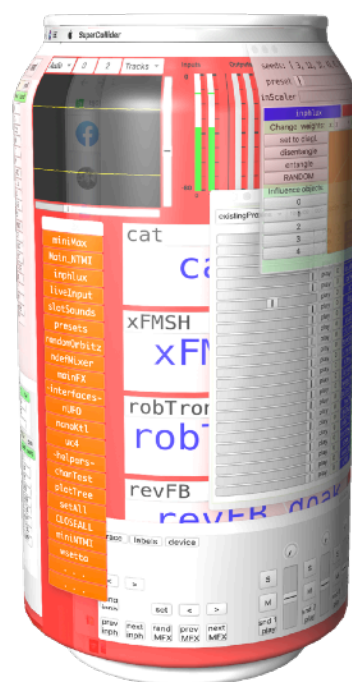


TAMING OF THE **STREAM**: PERFORMING WITH(IN) A PROTOCOL

Taming of the **Stream** is an exploratory project of Vasulka Kitchen Brno and our partners - iii of The Hague, Netherlands and Arts Incubator of Soeul, Korea. We met regularly once a week, five times in a row to discover what meanings the word **STREAMING** carries, implies, and what potential it holds or lacks.

The digital and **quasi-randomness** penetrated the thread of our collaboration. Rivalium **randomises** all the inputs and outputs. We adhered to the algorithm, **played** in real-time, but knew not where exactly we were headed or who headed us. The anarchistic subversion of the protocol leaved us confused at first but once we gathered our courage, we sailed through the ∞ never-ending ∞ ocean of the **streams**, still not knowing where, but understanding how and why.

Composition of this text follows this logic. It collects all the inputs and reintroduces them in a partly structured, partly arbitrary, and partly random manner. This method isnt to defeat the context and the search for the meaning. On the contrary, it is to abstract from it, enrich it and create fresh and ever refreshing potentials.



∞ stream (-s, -ing, -able) ∞ 14 ∞

∞ discover what meanings the word **STREAMING** carries, implies, and what potential it holds or lacks

∞ Taming of the **Stream** is an exploratory project

∞ Rivalium, a **streaming** protocol developed and designed by Lewis

∞ collaboration over distance and the format of presentation in **streaming** is always prone to have gaps in between, misinterpretation, disconnection, and glitch

∞ **Streaming** may be ambiguous that it is the exact timing in different spaces and different times

∞ **streamable** “content” give you a paid license to access questionable “information”

∞ Rivalium explores **streaming** not for its convenience but for its technical design, its potential, its explorative quality

∞ The “legality” (due to intellectual property) of remixing is still questionable to this day, but it is powerful, and common in main **stream** culture today

∞ what is the phenomenology of **streaming** in its effect on what and how we **play** and perceive?

∞ all participants were able to smoothly access the **streaming** server, and the sound became richer and more dynamic

∞ the power of working with **streaming** protocol doesn't always lie in establishing an instant live connection

∞ we shared earlier and feedback about the Rivalium **streaming** system.

∞ Click “Listen to this **stream**”

∞ Share your **stream** with other people

∞ random (-ness, -ly, -ises, quasi-) ∞ 8 ∞

∞ Although the platform randomly sends out individual sounds collected in real time, it was interesting for musicians to focus on “timing.

∞ no randomness, no control

∞ Digital quasi-randomness penetrated the thread of our collaboration

∞ Rivalium randomises all the inputs and outputs

∞ a lot of discussion about creation through randomness, chance and unexpected results.

∞ An infinitely generated random timeline!

∞ The most interesting part of this project is that each person shares their time random

∞ a platform that reversely utilizes the irony of this timing through the element of random

∞ online ∞ 4 ∞

∞ We had our first meeting with the artists we will collaborate with through an online video meeting

∞ It may have been an unfamiliar and uncomfortable situation for artists from various countries and different backgrounds to conduct projects online remotely

∞ The manual online is really really good, detailed.

∞ there was no face-to-face communicate with foreign artists during COVID-19, but it was only project that could make me to meet others in online

∞ play (-ed, -ing, inter-) ∞ 16 ∞

∞ Rivalium is intended to explore the interplay of bias, cliché, dominance, ego, and expression in this environment

- ∞ I was very much looking forward to the Jam Session where everyone **played together**
- ∞ I used other programs to match the timing of all artists' **playing**
- ∞ what is the phenomenology of **streaming** in its effect on what and how we **play** and perceive?
- ∞ In different countries, they connect to a server through the Internet and **play** their own sounds
- ∞ Since I don't know the exact timing when the sound I'm **playing** will come out in what form and at what time, I focus on listening more and **play**
- ∞ **Playing** through careful listening, it's really fun!
- ∞ Maybe collaboration stems a dynamic **play** between this apparently contradictory behaviour?
- ∞ and the sound became richer and more dynamic through each week's thoughts and experiments on which sounds are suitable for **playing** through Rivalium
- ∞ the fanfare metaphore: first learn to **play together**, then forget to show off in solos because **together** it sounds better
- ∞ make your own instruments (or buy them and destroy them creatively before **playing**)
- ∞ Besides, when **playing together** in the same field, there is latency as well ($3\text{m}/10\text{ft}=10\text{ms}$)
- ∞ I experienced the form of **playing together** in real time, and this experience is likely to change my working direction in the future
- ∞ www.play.rivalium.com
- ∞ Click "**Play**"

∞ together ∞] ∞

∞ I was very much looking forward to the Jam Session where everyone played together

∞ perhaps the idea of creating and working together over this particular medium is not all about synchronicity and moving towards the same direction all together at the same time

∞ modes, anomalies and ways of relating and creating together in remote presence

∞ actual experience of playing together over the particular protocols

∞ the tendency of the components to couple together and the tendency of the components to express their intrinsic independent behaviour

∞ the fanfare metaphore: first learn to play together, then forget to show off in solos because together it sounds better

∞ we will always feel a little apart and at the same time together, no matter what latency

∞ Besides, when playing together in the same field, there is latency as well ($3m/10ft=10ms$)

∞ I experienced the form of playing together in real time, and this experience is likely to change my working direction in the future

∞ politics ∞ ! ∞

∞ I'm not sure I thought too deeply about the political implication of Rivalium

∞ Possibly the fragmentation of information could be a powerful tool in destructuring the narratives within propaganda. However, this destructuring is something that extends beyond politics, or its

communicative arm “the media” and is designed as a tool for the collaborative environment

- ∞ The collaborative environment is a social one, a society, and communication is the most important aspect of this.

- ∞ Rivalium is intended to explore the **interplay** of bias, cliché, dominance, ego, and expression in this environment.

- ∞ How long will we be consumed only by art produced by one person or huge capital power?

- ∞ There are no competing Internets. The design and operation of the Internet is managed by elite classes of monopolistic telecommunication and technology companies

- ∞ Consortiums for standards are chaired by well-funded, highly educated, institutionally backed individuals.

- ∞



∞ Political, technological, and aesthetic infrastructure of the streaming ∞

I'm not sure I thought too deeply about the political implication of Rivalium. Possibly the fragmentation of information could be a powerful tool in deconstructing the narratives within propaganda. However, this deconstructing is something that extends beyond politics, or its communicative arm "the media" and is designed as a tool for the collaborative environment. The collaborative environment is a social one, a society, and communication is the most important aspect of this. Rivalium is intended to explore the **interplay** of bias, cliché, dominance, ego, and expression in this environment.

Lewis shared the background and usage of Rivalium, a **streaming** protocol developed and designed by Lewis, and a lot of discussion about creation through **randomness**, chance and unexpected results.

Personally, it was a very meaningful time for me as I actively use the above three factors.

How long will we be consumed only by art produced by one person or huge capital power?

I thought that art produced by more diverse artists freely, even if trivial and unprofessional, would provide us with more diversity. And I'm already a fan

of Rivalium, a web server based string server! An infinitely generated **random** timeline! I thought it was the perfect platform to express the beauty of real-time improvisational music that exists only in the present moment! I was very much looking forward to the Jam Session where everyone **played together** at the next meeting.

Although the experience of working in distance is something that we all had to learn, research, and practice intensively during the pandemic of COVID-19, it is a bewildering concept. Trying to connect remotely and to collaborate over the net with a normal signal can be already challenging enough besides all the technical difficulties and the potential network failures. But postulating that collaboration over distance and the format of presentation in **streaming** is always prone to have gaps in between, misinterpretation, disconnection, and glitch, perhaps the idea of creating and working **together** over this particular medium is not all about synchronicity and moving towards the same direction all **together** at the same time. Instead, it might be a common denominator, which we can experiment with to find new forms and practices around it.

The most interesting part of this project is that each person shares their time **randomly**. **Streaming** may be ambiguous that it is the exact timing in different spaces and different times. The platform "rivelium" used in this project is thought to be a platform that reversely utilizes the irony of this timing through the

element of **random**. Personally, I was curious about how this reverse use works for each artist in the actual performance, but in the last meeting, I used other programs to match the timing of all artists' **playing**. If there is a next opportunity, it will be interesting if a performance focusing on this reverse utilization is held.

The web is something that is open, but it is also not as free as we assume. There are no competing Internets. The design and operation of the Internet is managed by elite classes of monopolistic telecommunication and technology companies. Consortiums for standards are chaired by well-funded, highly educated, institutionally backed individuals. There are no pure “end users” involved other than usage and all but obligatory payment of the service. In the developed world, choosing to be without Internet is almost like to be without weather-appropriate clothes, you have access to it, you (probably) have “enough” money for it, so why don't you have it? So services that provide **streamable** “content” give you a paid license to access questionable “information” that might only ever be just a poor source of entertainment than anything that is worth the value you trade, or is ascribed by popular “opinion.”

During the session, we briefly tested Rivalium's compatibility in mobile devices and it was quite successful. And I think there's a potential for it as a tool for long durational performance-composition

incorporating different locations while on foot moving around.

Rivalium explores [streaming](#) not for its convenience but for its technical design, its potential, its explorative quality. It is remixing, but collaborative, live, improvised, immediate. Remixed media pre-dates the Internet as a tool to overcoming the constructs inserted into media to convey meaning beyond what is contained within its parts alone. The “legality” (due to intellectual property) of remixing is still questionable to this day, but it is powerful, and common in main [stream](#) culture today due to its ability to reveal information rapidly while revealing the interconnectedness of seemingly disparate media.

루이스 개발하고 디자인 한 스트리밍 프로토콜인 Rivalium 관한 배경 설명과 사용방법을 공유하고 임의성과 우연성 그리고 예기치않은 결과를 통한 창작에 관한 많은 토론이 이루어졌다.

개인적으로는 앞에 말한 3가지 요소를 적극사용하는 나로서 정말 의미있는 시간이었다.

우리는 언제까지 한사람 혹은 거대 자본 권력으로 생산된 예술에만 소비 될것인가?

사소하고 전문적이지 않더라도 좀더 다양한 예술가들이 자유롭게 함께 생산하는 예술이 우리에게 보다 다양성을 제공한다고 생각했다. 그리고 나는 이미 웹서버 기반의 스트리밍서버 Rivalium 의 팬이 되어버렸다! 무한히 생성되는 무작위의 타임라인! 오직 현 순간에만 존재하는 실시간 즉흥음악의 아름다움을 표현하기에 완벽한 플랫폼이라고 생각했다! 다음 미팅의 모두 함께 연주하는 잼세션이 너무 기대되었다.

The browser is free, its on all platforms. The design of Rivalium is simple, it uses concepts that are fairly easy to articulate and understand. This is intentional.



∞ Modes, anomalies and ways of relating and creating together in remote presence ∞

At first, it was difficult to predict how this performance would proceed, but when the performance began, the concern disappeared. All the performers seriously expressed their voices and tried to find an appropriate balance with other performers. Although it was difficult to find a perfect balance by different monitoring environments, we all felt the same seriousness and homogeneity as being in one space in a non-face-to-face environment.

There are almost too many ways to be connected remotely today. Most of the tools depend heavily on centralised systems, which can cause them to be insecure, or slow, or constrained. People seem to crave immediacy, a question to be answered in real time, to see a facial gesture to understand possibly deeper meaning to what is being said, a virtual intimacy during a period of safe distances. I care little for this immediacy and constant face to face, unless I can have deeply engaging conversation, and this is something I can't have with more than one person.

온라인 화상 미팅을 통해 협업을 같이 진행할 아티스트들과 첫만남을 가졌다. Michal, GI, Louis, Jennifer, Mint, Sojin and me

다양한 국가와 각자 다른 배경 갖고 있는 예술가들이 온라인상에서 원격으로 프로젝트를 진행하는 것은 다소 생소하고 불편한 상황이었을 지도 모른다. 하지만 모두 서로를 배려하며 간혹 접속불안정한 상태에서도 서로의 아이디어를 공유하고 토론을 계속 이어나가는 태도가 한편으로는 코로나19 상황에 마주한 우리가 꼭 필요한 덕목이 아닐까 하는 생각이 들었다.

There is discontinuity being technological aptitudes of individuals. Asynchronous engagement in this case I believe is superior. When teaching, when learning, it is easy when a situation enables concurrency, and control over when and how something occurs. I enjoyed using Rivalium, however demonstrating it in the context of a video call was occasionally painful due to the limitations of the video call capabilities: sharing screens, sharing audio, explaining interfaces, describing the abstract ideas of technology with only words, the virtual “experience” of interaction, all seem to introduce entropy to the ideas I wanted to convey.

We had our first meeting with the artists we will collaborate with through an online video meeting. Michal, GI, Louis, Jennifer, Mint, Sojin and me. It may have been an unfamiliar and uncomfortable situation for artists from various countries and different backgrounds to conduct projects online remotely. However, I thought that the attitude of being considerate of each other, sharing ideas and continuing discussions even in the sometimes unstable state of connection, is an essential virtue for us in the face of COVID-19 situation.

∞ Experience of **playing**
together over the particular
protocols - the
phenomenology of **streaming**
in its effect on what and how
we **play** and perceive ∞

The Rivalium system is a more interesting process than I thought. In different countries, they connect to a server through the Internet and **play** their own sounds. But I can't monitor my sound right away. Since I don't know the exact timing when the sound I'm **playing** will come out in what form and at what time, I focus on listening more and **play**. This is one of the best forms of concentration. And when I finally find my own sound in the complex sounds of other musicians and the non-linear passage of time, it gives me great motivation to move forward.
Playing through careful listening, it's really fun!

There exist vast libraries with books about collaboration, from point of view of management, from industry to culture, and probably art. Still it is a mysterious phenomenon, how do animals and species like us collaborate? And when we try to collaborate, sometimes it works out, but at other times it fails terribly, though all the formal prescribed ingredients are being respected and all

guidelines followed. Probably it is a too complex thing to grasp intuitively, because it could be an interaction on different levels, interactively and communicative wise, from personal/subjective (not individual) to social and environmental. Perhaps it is a simple mechanism that guides us on the biological level, like the notion of "metastability", or the simultaneous realisation of two competing tendencies: the tendency of the components to couple **together** and the tendency of the components to express their intrinsic independent behaviour, which can be seen on the organism's cell level but is responsible for the coupling of organs, bodies, and relationships of the body to others. The latter is intriguing, looking at our own and other's creativity in the light of the commons, or the result of expressivity and ideas that create an art which eventually ends as a commons: de-fleshed from individual claims and appropriations, and in public domain, or not owned anymore privately. The fate of all art. Isn't the Mona Lisa partly of us all, our, even when the actual owner has it standing in Le Louvre? And as artists, aren't we all belonging to these commons, like the art places we share, the habits we expose, sorts or sounds and constructions we make, or the technology we are using? Though at the same time we 'perform' this individual bio/c.v. driven exceptional status of having an unique expressivity and presence. Maybe collaboration stems a dynamic **play** between this apparently contradictory behaviour?

I found that Sonobus was quite straight forward to

understand and set up, however I felt that there was more to the control via the interface that I and others didn't understand. Theoretically, I would describe the design and thesis of Sonobus to be at odds with those of Rivalium. As a result, perhaps bias, or preference, or simply through the lived experience, I didn't enjoy Sonobus. I felt it enabled the aspects of collaboration I intended to move away from through the design and implementation of Rivalium. I felt this extended into the personalities within the collaboration as well. Even trying to use Rivalium with Sonobus felt like it undermined Rivalium's ability to express its philosophy, it wasn't useful in this context. However, due to the social prevalence and therefore general desire for software that provides the real-time, linear, power of Sonobus, I doubt something like Rivalium will ever be adopted by communities at scale like Sonobus. However, I feel as though (for me only, I guess) my belief about the design and purpose of software like Sonobus vs that of Rivalium were vindicated, and this experience and experiment for me were an important milestone in this creative journey.

Rivalium 시스템은 나의 생각이상으로 흥미로운 프로세스다. 각기 다른 나라에서 인터넷으로 서버에 접속해 각자의 소리를 연주한다. 그렇지만 바로 나의 소리를 모니터링 할수 없다. 내가 지금 연주하는 소리가 어떤형태로 어떤시간에 나올지 정확한 타이밍을 알수없기에 나는 더욱 듣기에 집중하며 연주를 한다. 이것은 참 좋은 집중의 형태중 하나 이다. 그리고 마침내 다른연주자들의 복잡한 소리와 비선형적인 시간의 흐름속에 나의 소리를 찾았을때 그것은 나에게 다음으로 나아

갈수있는 큰 동기를 부여한다. 주의깊은 듣기를 통한 연주, 정말 재밌다!

As many artists gathered to improvise, "timing" was one of the important issues. Although the platform **randomly** sends out individual sounds collected in real time, it was interesting for musicians to focus on "timing." In addition, as everyone uses their own laptops, it was difficult to set a same audio environment without hearing other sounds. I think that differences in individually set audio systems may have sent differences to the collective sound source flow.

Rivalium was still heavily dependent on support from myself to explain, debug, train, set up etc. Despite this learning curve and bottle neck to "getting started" the jams we managed with Rivalium alone were fulfilling, enjoyable, and surprisingly emotive. There's much more to be done, but I think it is possible to accomplish my goals with where the platform is currently.



∞ Short, fool-proof manual on how to utilise Rivalium ∞

Visit:

www.play.rivalium.com

Click “add new recording”

Click “Manage input device”

Click “Activate input device”

Select one of the “Set as input” buttons

Click “return to recording” in the top left corner

Click “Recording”

Record some audio

Click “Listen to this [stream](#)”

Click “[Play](#)”

Listen to your recorded audio

Copy the URL in “Public share link”

Share your [stream](#) with other people

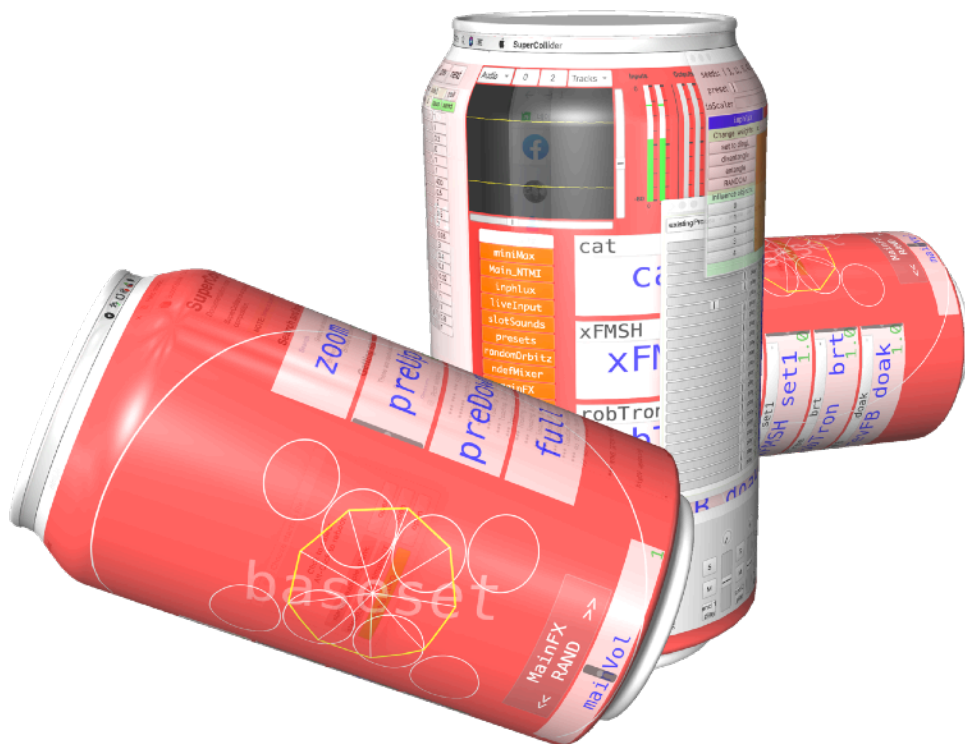
∞ Short fool-proof manual on how to utilise Sonobus ∞

Sonobus or how to create peer-2-peer sound connections, uncompressed and with low latency. Multiple platform, Free & Open Source. The manual online is really really good, detailed. I have nothing to add, but this:

[https://sonobus.net/sonobus_userguide.html]

The other day a musician who claimed to be "non-technical" asked me to show how to set it up. It was done remotely in 10 minutes. She did not believe it. She thought there should be more to it, hidden. There isn't, it's just a connective device. There are many software like this, just that this one is easy to

put up -- for now... So set up a P2P connection, invite other people and play as if you were close!



What did you carry away from the project? How this experience helped or transformed your practice, if it did? Did you enjoyed yourself or not? Why?

User interfaces and teaching are difficult to get right. Even for something that is created by one person, for free to use by others, a high level of empathy with difficulty of adopting a conceptual model is necessary by the designer.

Musical collaboration is exciting, although difficult. When it works, it is amazing, everyone involved can feel it. When something doesn't work, it can be crushing, I felt depressed or anxious at times. This is something I want to explore more, practice, and becoming better equipped to expect and manage. no virtuosity (since creativity is in all of us)

First of all, there was no face-to-face communicate with foreign artists during COVID-19, but it was only project that could make me to meet others in online. In addition, I felt so good because I thought I experienced the most up-to-date form of performance.

We had a more in-depth jam session. Now, all participants were able to smoothly access the **streaming** server, and the sound became richer and more dynamic through each week's thoughts and experiments on which sounds are suitable for **playing** through Rivalium. We had an impromptu jam session of about an hour and a half, and it was truly a time of consciousness-raising.

no competition (like the futurists already wrote)
no curators only facilitators and technicians (to cross galleries and museums)
the fanfare metaphore: first learn to **play together**, then forget to show off in solos because **together** it sounds better
no repetition, unless inspired by natural observations
no harmony, just just intonation and tunings to a world
no **randomness**, no control (are light, sound, windspeed, earthshakes, butterfly wings flapping, or others not enough?)
no strict divisions digital-analog-nano-makro
make your own instruments (or buy them and destroy them creatively before **playing**)

우리는 한층더 심층적인 잼세션을 진행했다. 이제 모든 참여자가 순조롭게 스트리밍서버에 접속할수있었고, 또한 어떤소리들이 Rivalium 통한 연주에 적합한지 한주간의 각자의 고민과 실험을 통해 소리가 보다 풍성해졌고 다이내믹 해졌다. 약 1시간 반의 즉흥 잼 세션을 가졌는데 실로 의식고양의 시간이었다.

TOTS = to examine:
Till soon
G

앞서 나눈 잼세션의 대한 서로의 피드백과 Rivalium 스트리밍 시스템에 관한 피드백을 공유하였다. 우리는 5주간 협업의 기간 동안 특정의 리더를 두지않고 어떤 정해진 디렉션없이 서로의 아이디어를 공유하고 발전시켰다. 이러한 작업과정 과 태도들은 지금 코로나19 팬더믹 시대나 혹은 먼미래에도 꼭 필요한 가치가 아닐까라는 생각을 한다. 보다 개인적이고, 사적으로, 대수롭지않게 창작활동을 할때 좀더 자신의 방식 탐색하고 개발해 나갈수 있고, 또 그런 다수가 모였을때 수평적인 다양성 안에서 새로운 보편적 가치가 생성된다고 생각한다.

I feel I want to go beyond the current design and use of Rivalium now. I also want to further my development of other musical projects.

As expressed in the beginning one thing I take from this particular project and experiment is that the power of working with [streaming](#) protocol doesn't always lie in establishing an instant live connection, asynchronous and omni-present connection could bring a nice ring to our ears.

We shared each other's feedback about the jam session we shared earlier and feedback about the Rivalium [streaming](#) system. During the five-week collaboration period, we shared and developed each other's ideas without a specific leader and without any set direction. I think that these work processes and attitudes are essential values in the current COVID-19 pandemic era or in the distant future. I

think that when you do creative activities more personally, privately and insignificantly, you can explore and develop your own way more, and when such a large number of people gather, **new universal values** are created in **horizontal diversity**.

Considering the notes above on Metastasis, we will always feel a little apart and at the same time **together**, no matter what latency. Besides, when **playing together** in the same field, there is latency as well ($3\text{m}/10\text{ft}=10\text{ms}$). No fuzz. Don't drink and drive.

Of course, this project was really fun and interesting. It would have been better if we could face-to-face, but it was still great experience. Personally, I always preferred fixed media work and have been mainly working on such work. However, through this project, I experienced the form of **playing together** in real time, and this experience is likely to change my working direction in the future.

PS. I am interested in LiveLab, shall we try it out next week? Are you all available somehow? Let me know, I am in! Let's have fun with it like last time!

There were times I struggled to feel enjoyment, but for the majority of this collaboration I very much enjoyed myself. Everyone was incredibly mature and easy to work with. I do wish to continue the creative collaboration with everyone involved.

"All humans seem to like music. Hilarious. Some animals do as well. Weird. "
August Todds, 1892.

