

Spatial Dis/Continuities in Telematic Performances (2020-2024)

Unraveling distributed space through 3D-audio, embodiment and Spatial Augmented Reality

SNSF-funded project at the Institute for Computer Music and Sound Technology, ZHdK (2020-2024)

Complete List of Outputs

Papers

Dziwis, Damian, and Henrik von Coler. 2023. "The Entanglement: Volumetric Music Performances in a Virtual Metaverse Environment." In *Journal of Network Music and Arts* 5, 1 (2023).

Ziegler, Matthias. 2023. "Osmosis: Asymmetries in Telematic Performance." In: *Journal of Network Music and Arts* 5, 1 (2023).

Fröhlich, Martin, Roman Häfeli, and Patrick Müller. 2024. "Telemersive Toolkit: Exchange Multi Media Streams for Distributed Networked Performance Installations." In *Proceedings of the 2024 ACM International Conference on Interactive Media Experiences*, pp. 354 – 360

Walter, Hannah, Eric Larrieux, Robert Torche, Cedric Spindler, and Patrick Müller. 2024. "NEXUS: A Tangible Multi-User Sensor-Based Telematic Novel Mixing-Interface for Multimedial Exploration." In *Proceedings of the 19th International Audio Mostly Conference: Explorations in Sonic Cultures*, 245–59.

Müller Patrick, Roman Häfeli, Johannes Schütt, and Matthias Ziegler. 2024. "Telemersive Audio Systems for Online Jamming," *Proceedings of the 5th International Symposium on the Internet of Sounds*, pp. 1-15.

Walter, Hannah, Vyborg, Robert Torche, Cedric Spindler, Eric Larrieux, and Patrick Müller. 2024. "kompost*klang*küche*: Telematic WORLDing with Glitch." In *Journal of Network Music and Arts* 6, 1 (2024).

Burger, Benjamin, Patrick Müller, Joel De Giovanni, Martin Fröhlich, Eric Larrieux, and Hannah Walter. 2025. "The Zone: Hyperintimacy in Telemersive Performance." In *Journal of Network Music and Arts* 7, 1 (2025).

Software

Haefeli, Roman, and Johannes Schütt. "Tpf-tools. A Low-latency Multi-channel Audio Transmission Software (client)". Zenodo, August 22, 2025.

<https://doi.org/10.5281/zenodo.16928107>.

Haefeli, Roman, and Johannes Schütt. "Tpf-tools. A Low-latency Multi-channel Audio Transmission Software (server)". Zenodo. <https://doi.org/10.5281/zenodo.16962376>

Schütt, Johannes, and Roman Haefeli. "Tpf-installers. A helper tool for low-latency multi-channel audio transmission". Zenodo. <https://doi.org/10.5281/zenodo.16963509>

Froehlich, Martin, and Florian Bruggisser. "Telemersive Toolkit: A Low-latency Multimedia Streaming Infrastructure (telemersive Bus)". Zenodo, August 25, 2025.

<https://doi.org/10.5281/zenodo.16941825>.

Haefeli, Roman, Martin Froehlich, Florian Bruggisser, and Joël Gähwiler. "Telemersive Toolkit: A Low-latency Multimedia Streaming Infrastructure (telemersive Router)".

Zenodo, August 25, 2025. <https://doi.org/10.5281/zenodo.16941794>.

Froehlich, Martin, Florian Bruggisser, and Joël Gähwiler. "Telemersive Toolkit: A Low-latency Multimedia Streaming Infrastructure (telemersive Gateway)". Zenodo, August

25, 2025. <https://doi.org/10.5281/zenodo.16941814>.

Schütt, Johannes, Roman Haefeli, Matthias Ziegler, and Patrick Müller. "TPF-JAM-TOOL. A Low-latency, Binaural Online Jamming Tool". Zenodo, August 18, 2025.

<https://doi.org/10.5281/zenodo.16893589>.

Conferences

Ziegler, Matthias. 2020. "Disembodied Routine." In ELIA Biennial 2020 – Expanding the Arts. November 2020, Zürich

Walter, Hannah and Robert Torche. 2022. "becoming vyborg. becoming with technology." In Un/Learning: Norms and Routines in Cultural Practice, August 31 – September 4, 2022. Hotel Marienhof, Reichenau/Rax, Austria and online

Walter, Hannah. 2022. "becoming vyborg." PhD Poster Session at Ars Electronica, September 8, 2022. University of Arts Linz, Linz.

Ziegler, Matthias, and Patrick Müller. 2022. "Osmosis." In Now Net Arts Conference 2022: Network Arts Stage. Artistic, Technological, and Social Strategies, October 31, 2022.

O'Reilly, Brian, Timothy O'Dwyer, Dirk Stromberg, Alexandra Murray-Leslie, Benjamin Burger, and Luca Niggli. 2022. "Students' Perspectives on Telematic Improvisation Summer School." In Now Net Arts Conference 2022: Network Arts Stage. Artistic, Technological, and Social Strategies, October 31, 2022.

Walter, Hannah. 2022. "MICRO. Listening to the Micro Practice of Telesonocephalopoda." In Now Net Arts Conference 2022: Network Arts Stage. Artistic, Technological, and Social Strategies, November 1, 2022.

Dziwis, Damian. 2022. "The Entanglement. Volumetric Music Performances in a Virtual Metaverse Environment." In Now Net Arts Conference 2022: Network Arts Stage. Artistic, Technological, and Social Strategies, November 1, 2022.

Walter, Hannah. 2023. "soil*food*sound*intra*actions." In Now Net Arts Conference 2023: Innovations for Artistic and Technical Design, November 2, 2023. Online.

Müller, Patrick, and Benjamin Burger. 2023. "Telemersive metadramaturgies." In Now Net Arts Conference 2023: Innovations for Artistic and Technical Design, November 2, 2023. Online.

Fröhlich, Martin, Roman Haefeli, and Patrick Müller. 2024. "Telemersive Toolkit. Exchange Multi Media Streams for Distributed Networked Performance Installations." In ACM International Conference on Interactive Media Experiences: Exploring the Archipelago of Ideas: Crafting and Generating Immersive Experiences, June 14, 2024. Stockholm

Walter, Hannah, Robert Torche, Cedric Spindler, Erwin Fonseca, Daniel Riniker, Eric Larrieux, Martin Fröhlich, and Patrick Müller. 2024. "Sympoietic World-Making: Bridging Spaces through Telematic Performance and Multimedia Mixing." 29th International Symposium on Electronic Art (ISEA), June 22, 2024, Brisbane.

Burger, Benjamin, Henriette-Friederike Herm, Tim O'Dwyer, and Lynette Quek. 2024. "Shared Campus: Teleprovisation Summer School." In Now Net Arts Conference 2024: Network Arts Aesthetics, August 31, 2024.

Walter, HannaH Vyborg, Eric Larrieux, and Patrick Müller. 2024. "NEXUS: A Tangible Multi-User Sensor-Based Telematic Novel Mixing-Interface for Multimedial Exploration." Audio Mostly: A Conference on Interaction with Sound, September 19, 2024, Milan

Müller, Patrick, Roman Haefeli, Johannes Schütt, and Matthias Ziegler. 2024. "Telemersive Audio Systems for Online Jamming." In IEEE 5th International Symposium on the Internet of Sounds. October 2, 2024. Erlangen

Ziegler, Matthias. 2024. "TPF-Tool – a 3D telematic audio experience." In Now Net Arts Conference 2024: Network Arts Aesthetics, August 31, and November 6, 2024. Online.

Müller, Patrick, and Benjamin Burger. 2024. "The Zone: Hyperintimacy in Telemersive Performance." In Now Net Arts Conference 2024: Network Arts Aesthetics, November 7, 2024. Online.

Müller, Patrick, Camilo Mendez, Roberto Alonso, Charles Kwong, and Sharon Chan. 2024. "Out of Time." In In Time? Encounters in Temporality – Symposium Zurich University of the Arts, Hong Kong Baptist University. November 29. 2024. Zurich / Hong Kong and online.

Research-Performances

Patient Nr. 3561 *(initiated by subproject C)*

Festival Rümelingen, Appenzell, 16.9.2021

Hannah Walter (Konzept, Szenographie, Violine), Kaspar von Grüningen (Kontrabass), Charlotte Lorenz (Violoncello), Samuel Fried (Tonbandmaschinen), Ernesto Coba, Nicola Mišić, Cedric Spindler (Audio Design)

Supported by Verein Neue Musik Rümelingen, Pro Helvetia, Gwärtler Stiftung, Nicati de Luze, Kanton Bern, Stadt Biel, Kulturamt AI, Schweizerische Interpretienstiftung SIS, Stadt Thun, BEKB Förderfonds

SOL *(initiated by subproject B)*

Audiovisual Telemersive Performance

Festival Refresh, Zürich, 10.-13.11.2021

Benjamin Burger (concept, direction, video), Patrick Müller (concept, dramaturgy, audio), Performance by Momo Kunz (performance), Hannah Walter, Ernesto Coba-Antequera (sound), Joel De Giovanni (video, streaming), Martin Fröhlich (projection mapping), Roman Haefeli (streaming)

MICRO. Listening to the Micro Practice of Telesonocephalopoda *(initiated by subproject C)*

A telematic multi-location production

Gare du Nord, Basel, 11.5.2022; NowNet Arts Conference, Zürich / Stony Books, 1.11.2022; CMC, La Chaux de Fonds, 12.11.2022

Collectif Mycelium, Chimère Électrique [Hannah Walter, Robert Torche] (Konzept, Konzeption, Performance), Mariella Bachmann, Coco Fried, Stefanie Mirwald, Joan Jordi Oliver, Stanislas Pili (Performance), Ensemble Interface (Basel), Bettina Berger (Flöte), Andrea Nagy (Bassklarinette), Christophe Mathias (Violoncello), Mikael Szafirowski (Technik)

Supported by Fachausschuss Musik BS/BL, Pro Helvetia, Isabelle Zogheb, CMC - Kooperationsbeitrag, CMC - Kooperationsbeitrag, Kanton Bern, Stadt Biel, Schweizerische Interpretienstiftung SIS

OSMOSIS *(initiated by subproject A)*

Telematic concert and performance installation

NowNet Arts Conference, Zürich, Stony Brooks, 31.10./4.11.2022

Patrick Müller (overall direction, concept), Matthias Ziegler (concept, music, flute), Joel De Giovanni (image, sound cubes, staging), Benjamin Burger (staging, direction), Johannes Schütt (audio engineering, streaming), Martin Fröhlich (motion capture, projection mapping, streaming), Hannah Walter (sound cubes), Roman Haefeli (IT, streaming), Patrycja Pakiela (live mix), Oliver Sahli (virtual platform), Dominique Girod (contrabass), Sylwia Zytynska (percussion)

<https://www.youtube.com/watch?v=gO3Snsoe7QU&t=1s>

kompost*klang*küche *(initiated by subproject C)*

A telematic multimedia performance

Musikfestival Bern, 7.–9.9.2023, Stiftsgarten / Grand Palais

Collectif Mycelium, Chimère Électrique [Hannah Walter, Robert Torche] (Künstlerische Leitung, Technik und Performance), Anja Fonseca (Kompost und Performance), Margaretha Jüngling (Küche und Performance), Julien Mégroz (Performance), Erwin Fonseca (Kamera), Eric Larrieux (Sensorentwicklung), Cedric Spindler (Softwareentwicklung), Patrick Müller (Oeil extérieur)
Supported by Musikfestival Bern, Pro Helvetia, Burgergemeinde Bern, GVB
Kulturstiftung, Gesellschaft zu Ober-Gerwern Bern, Gesellschaft zu Schuhmachern, AAAG Architectes Sarl

ZONE (*initiated by subproject B*)

Audiovisual Telemersive Performance

Festival Refresh, Zürich, 9.–11.11.2023

Benjamin Burger (concept, direction performance), Patrick Müller (concept, direction audio, sound design), Stefanie Steffen (performance), Joel De Giovanni (direction camera), Eric Larrieux, Hannah Walter (sound design), Martin Fröhlich (streaming, projection mapping), Roman Haefeli (streaming)

<https://vimeo.com/913084191>

Further Performances

Virtual Concert Hall

20.10.2020, Bern, Luzern, Stäfa, online; 27.10.2020, Zürich, San Diego, Irvine, online
Franziska Baumann (voice and electronics, Bern), Michael Dessen (trombone, Irvine California), Marc Dresser (double bass, San Diego), Gerry Hemingway (percussion, Luzern), Matthias Ziegler (flutes, Stäfa), Joel de Giovanni (video scenography and streaming, Zürich), Johannes Schütt (sound mixing and streaming, Diessenhofen), Patrick Müller (dramaturgy, Zürich)

<https://vimeo.com/652546238?p=1t>

<https://vimeo.com/652547645?p=1t>

Freespace Jazz Fest: Experimental Jazz Lab

Telematic Concert between Hong Kong and Zurich with live-streaming

8.11.2020, The Room, West Kowloon Cultural District, Hong Kong; Concert Hall 1, Toni-Areal, Zurich University of the Arts

Hong Kong: Nelson Hiu (chinese flute and string), Tsui Chin Hung (guitar), Charles Ng (saxophone), Henky Chan (video and streaming), Fung Chin Lung (audio and streaming), Kung Chi Shing (direction); Zurich Pablo Lienhard (saxophone), Joan Jordi Oliver Arcos (saxophone), Florian Kolb (bass), Tizia Zimmermann (accordion), Bojan Milosevic (video and streaming), Patrycja Pakiela (audio and streaming), Patrick Müller (direction)

<https://youtu.be/YDhMTqniC9k?t=29199>

Requiem: Interconnection / Latent Energies

NowNet Arts Festival, 20.12.2020

Sarah Weaver, Stephan Moore (composition), Yoon Sun Choi (voice, New York), Jane Ira Bloom (soprano saxophone, New York), Ned Rothenberg (woodwinds, New York), Matthias Ziegler (flutes, Zurich), James Zollar (trumpet, New York), Ray Anderson (trombone, New York), David Taylor (bass trombone, New York), Mark Dresser (bass, California), Gerry Hemingway (percussion, electronics, Lucerne), JoVia Armstrong (percussion, electronics, California), Stephan Moore (electronics, Chicago), Sarah Weaver (conductor, New York)

<https://vimeo.com/496914311>

Through the Looking Glass

Theater Dortmund, Akademie für Theater und Digitalität, Dortmund / Zürich, 25.5.2021

Benjamin Burger (concept, video), Joel De Giovanni (video, streaming), Patrick Müller (audio, streaming), Hannah Walter (violin)

Impromptu. Improvised Telematic Encounter

20.10.2021, Zürich / New York, online

Ali Ryerson (flute electronics, New York), Matthias Ziegler (contrabass flute, Zurich), Gregory Golda, Patrycja Pakiela (recording)

<https://www.youtube.com/watch?v=zOrtTOGRlgM>

Angelus Novus

Telematic compos(t)ition and installation for one performer and four Cyborg-String-instruments in four remote locations

Konzertreihe Ladies First, Ligerz, 6.3.2022

Chimère Electrique (Hannah Walter, violin, Robert Torche, electronics)

Entanglement

Simultaneous performance for real and virtual spaces

8.4.2022, Zürich, online

Damian T. Dziwis (concept, artistic direction), Frantz Lorient, Hannah Walter (performance), Joel De Giovanni, Martin Fröhlich (technical support), Patrick Müller (dramaturgy)

<https://www.youtube.com/watch?v=yKGc8dYJSLs>

Freespace Jazz Fest: Experimental Jazz Lab

Telematic Concert between Hong Kong and Zurich with live-streaming

28.10.2022, The Room, West Kowloon Cultural District, Hong Kong; Immersive Arts Space, Toni-Areal, Zurich University of the Arts

Hong Kong: Daniel Chu (piano), Larry Shuen (electronics), Longman Luk (erhu, electronics), Lawrence Lau, Charles Kwong, Fiona Lee (electronics), Cat Cheung, Eric Cy Au (audio, video), Ko Man Kit, Kristina Lee (internet and streaming), Chi-shing Kung (dramaturgy); Zurich: Charles Ng (saxophone), Joan Jordi Oliver Arcos (saxophone, electronics), Iulia-Andreea Smeu (violin, electronics), Eric Wong (guitar), Carina Khorkhordina (trumpet), Patrycja Pakiela (audio, streaming), Joel De Giovanni (video, streaming), Patrick Müller (dramaturgy)

<https://www.youtube.com/live/j9NzeTb9G7E?si=JHMeVvD7eyGQ7HdD&t=843>

https://www.youtube.com/live/j9NzeTb9G7E?si=Fe7_KuJHZ4lF9E5s&t=4677

Live Contemporary Network Arts Works

NowNet Arts Online Performance Series, 18.12.2022

Sarah Weaver (composition), Yoon Sun Choi (voice), Matthias Ziegler (flutes), Jane Ira Bloom (soprano saxophone), James Zollar (trumpet), Ray Anderson (trombone), Dave Taylor (bass trombone), Mark Helias (bass), Ursel Schlicht (piano), Stephan Moore (electronics), Sarah Weaver (conductor)

kompost*klang*küche*glitch

A telematic multimedia performance

Usinesonore Festival, La Neuveville, 4.6.2024

Collectif Mycelium, Chimère Électrique [Hannah Walter, Robert Torche] (Künstlerische Leitung, Technik und Performance), Anja Fonseca (Kompost und Performance), Margaretha Jüngling (Küche und Performance), Julien Mégroz (Performance), Erwin Fonseca (Kamera), Eric Larrieux (Sensorentwicklung), Cedric Spindler (Softwareentwicklung), Patrick Müller (Oeil extérieur)

Supported by Usinesonore and Stadt Biel.

Gego Archipelago / Time-Space Vessels

Comprovisations, telematic concert

In Time? Encounters in Transdisciplinarity, 29.11.2024, Zürich, Hong Kong, online
Camilo Mendez (composition, objects, Hong Kong), Charles Kwong (composition, electronics, objects, Zurich), Roberto Alonso (violin, Hong Kong), Patrick Chan, Justin Lo (violoncello, Hong Kong), Sharon Chan (theremin, Zurich), Joel De Giovanni (video, Zurich), Kris Lee (video, audio, Hong Kong), Patrick Müller (direction, audio, Zurich)

Education

Teleprovisation. Let's do it!

Summer school, 11.–21.8.2021, Kyoto, Singapore, Zurich, Shared Campus

Faculty: Takuro Mizuta Lippit, Saburo Hirano (Kyoto Seika University, Kyoto), Timothy O'Dwyer, Dirk Stromberg, Brian O'Reilly, Peter Zazzali (LaSalle College of the Arts, Singapore), Benjamin Burger, Designer, Lucas Niggli, Patrick Müller (Zurich University of the Arts, Zurich)

Teleprovisation: Interdisciplinary Telematic Improvisation

Summer school, 22.–31.8.2022, Singapore, Trondheim, Zurich, Shared Campus

Faculty: Benjamin Burger, Takuro Mizuta Lippit, Lucas Niggli (Zurich University of the Arts, Zurich), Alexandra Murray-Leslie (Norwegian University of Science and Technology, Trondheim), Timothy O'Dwyre, Peter Zazzali (LaSalle College of the Arts, Singapore)

Performing the post-digital I

Project week, 23.–27.1.2023, Immersive Arts Space, Zürich, Master Transdisciplinary Studies

Faculty: Patrick Müller, Corinne Soland, Stella Speziali

Underwater Cables: Practices in Telematic Performances

Summer school 21.–30.8.2023, Singapore, Trondheim, Zurich, Shared Campus

Faculty: Benjamin Burger, Takuro Mizuta Lippit (Zurich University of the Arts, Zurich), Alexandra Murray-Leslie (Norwegian University of Science and Technology, Trondheim), Timothy O'Dwyre (LaSalle College of the Arts, Singapore)

Performing the post-digital II

Project week, 22.–26.1.2024, Immersive Arts Space, Zürich, Master Transdisciplinary Studies

Faculty: Patrick Müller, Stella Speziali, Hannah Walter

Rituals in Teletopia: Practices in Telematic Performances

Sumer school 26.8.–4.9.2024, Singapore, Taipei, Zurich, Shared Campus

Benjamin Burger, Henriette-Friederike Herm, Takuro Mizuta Lippit (Zurich University of the Arts, Zurich), Timothy O'Dwyer (LaSalle College of the Arts, Singapore), Shao-Ting Sun, Cheng-Chieh Yu (Taipei National University of the Arts, Taipei)