

## Soft Interfaces - Crossmodal Textile Interactions

### *Impact Case Study*

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Year of completion:	2018
Discipline/field:	Applied Arts
Type of Doctorate (e.g. PhD, DDes, ArtD)	Doctor of Liberal Arts (DLA)
Supervisor(s)	Harmati Hedvig DLA habil.

### *Abstract*

The importance of cross modal interaction within the contemporary cultural, technological, and scientific panorama has evidently gained significant attention due to its remarkable advantages in creating a meaningful, interwoven, and integrated experience. The use and recontextualization of textiles in such exploratory quest into the human senses has proven to be critical. Computational science, algorithmic logic and digital devices have always been rooted and closely interwoven with textile crafts and practices. Recent technological advancements have further combined technology and textile, generating interactive textile surfaces, constructing endless possibilities for multisensorial experiences.



Within my practice-led research, I investigate the evolution of e-textiles and work comprehensively on developing functional soft interfaces and cross modal interactions in textiles, by investigating textile as the next link between perception, human senses and digital environments. On that basis, the focus of my DLA masterwork, is materialized by developing a technology and implementing it as an artwork. Soft Sound is the result of a prolonged artistic research on the intermedial relations between sound, textile, haptic space and tangible interfaces. A collection of electronic textiles exploring the phenomenology of

perception by creating a dialogue between senses, textile and the physical implementation of this work as a technological tool. A multisensory experience examining the correlations between textiles and touch, using sound as a material force.

## *Summary of impact beyond academia*

On completion of the practice-based DLA, alongside expert Esteban de la Torre, doctoral researcher Judit Eszter Kárpáti further developed the masterwork into a large-scale art installation. Their work was selected for and published at different venues worldwide, including leading new media art festivals, such as Japan Media Arts Festival, European Media Art Festival, Sensorium Festival of Digital Arts and Culture, IN-SONORA 12, Sound and Interactive Art Show.



The artwork outcome was selected for EU Creative Europe programmes, such as Beyond Quantum Music (BQM) project cofinanced by the European Executive Agency for Education, Audiovisual and Culture, and the project partners (ArsElectronica, Linz; TodaysArt, The Hague; New Art Center, Belgrade; Institute of Musicology SASA, Belgrade; Incontri Institute for New Music, Hannover) wish to make the results of the competition accessible to the widest possible audience, and got invitation Oscillations international exchange program taking place in 2020-2022 linking four artist-run organisations: Overtoon (BE), bb15 (AT), iii (NL), Lydgalleriet (NO). exploring the



tension between acoustic and visual art forms from a makers perspective. The program aims to facilitate the circulation of artists working with sound across national and disciplinary boundaries as well as to foster knowledge exchange between artist-run spaces. Oscillations is co-funded by the Creative Europe Program of the European Union.

Got commissioned by Material ConneXion a world-class materials library and consultancy and resource for furniture and architectural design to create samples, working prototypes for them. Currently, the sampled can be found in their material library in New York, Milan, Budapest. From there got invitation to work with companies, such as Jaguar luxury vehicle brand.

## *Underpinning research, context and summary of methodology*

The research proposed an art-based study on the augmentation of the textile medium seamed with technology to create multisensory experiences through the integration of different sensory modalities. The research started in 2013, and was undertaken by Judit Eszter Kárpáti DLA. The two artistic guiding principles of the practice-based artistic research was the interdisciplinary thinking and experimental approach. The aim was the development of conceptual and methodological tools in order to incorporate sound, as an active element, to the discipline of textile design. Following the extensive literature review on the cross modal, on the philosophical movements of phenomenology, presenting multiple positions on the classification, education and function of our sensory systems, and the analyzation of design examples and projects were presented as methodological samples of different ways to work with textiles and sound. With the methodology, research through design, in total 100 soft speaker swatch samples were created and tested, and 1 piece of 400cmx150cm, and 2 pieces of 250cm x 150 cm large-scale multichannel textile installation were produced.

The practice-led material research focuses on the use of sound as a material force, resulting into an audio-haptic surface. The augmented textile proposes new possibilities to create, and interact with sound. Originally, in completion of the DLA masterwork was an art installation, an experimental sound installation, a sound system, investigating the visual and tactile exploration of the vibrational force of sound expressed via the timbre of a textile. Empirically-iteratively refined the working prototypes during the DLA studies, to successfully developed textiles as an electroacoustic transducer, enabling textiles to convert an electrical audio signal into sound, while adding tactility to sonic experience. Pre-Doctoral research was undertaken in Milan WeMake makerspace, in the framework of Hungarian National Eötvös Scholarship in 2016.



Post-doctoral research is currently undertaken at the Moholy-Nagy University of Arts and Design Innovation Center by Judit Eszter Kárpáti, and also in the framework of Hungarian National Eötvös Post-Doctoral Scholarship taking place in Milano in 2022 summer to further investigating the application areas of intuitive soft interfaces elaborate on wat applications may benefit from the use of the proposed fabrication method, using autobiographical design as a methodology to reflect on the lived experience with soft speakers.

During and after completion of the DLA, dissemination throughout workshops, lectures, courses was given both nationally and internationally at Instrument Inventors Initiative in The Hague as invited artist residency (2019), Queen Mary University of London (2018), Lucerne University of Applied Sciences and Arts (2018), Moholy-Nagy University of Arts and Design curriculum, MOME Open education program (2017-present). Setting ground at MOME curriculum for this field of study, teaching interdisciplinary material thinking.

### *References produced by researcher from/during doctoral research*

Kárpáti J.E. (2018) Soft Interfaces - Crossmodal Textile Interactions, DLA thesis, Moholy-Nagy University of Arts and Design

DLA Masterwork, solo exhibition at Horizont Gallery, HU (2018)

Creative Applications

Filip Visnjic: Soft Sound – Textiles as electroacoustic transducers by EJTECH, Creative Applications, London UK, (2017)

European Media Art Award (2020)

Japan Media Arts Festival Jury Selection (2020)

Decode Art Award (2020)

### *Details of impact*

Teaching (courses, workshops, lectures) Royal Academy of Fine Arts (KASK), 2022, Lucerne University of Applied Sciences and Arts in 2018, Moholy-Nagy University of Art and Design 2016 - ongoing

Invited residency artist at instrumentinventorsinitiative, The Hague, 2020



Japan Media Art Award 2020 Jury Selection [http://archive.j-mediaarts.jp/en/festival/2020/art/works/Phase\\_In\\_Phase\\_Out/](http://archive.j-mediaarts.jp/en/festival/2020/art/works/Phase_In_Phase_Out/)

Commission for exhibition at Design Museum Holon, Sound and Matter in Design in 2017

DECODE Art Award in 2020 <https://decode-foundation.hu/en/2020/11/20/awarded-projects/>

Hungarian Design Award 2019 by Hungarian Intellectual Property Office, Hungarian Design Council selected project for exhibition

YouFab Global Creative Award, Tokyo, JP 2017

Promotion by Creative Europe program of the EU (Oscillations - <https://oscillations.eu/> ongoing, WORTH Project Partnership, Beyond Quantum Music - ongoing)

Commission for production of 50 material samples for Material Connexion New York in 2017 - ongoing <https://materialconnexion.com/>

Commission by Jaguar luxury vehicle brand - ongoing



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