

BETWEEN ‘LUDIC PLAY’ AND ‘PERFORMATIVE INVOLVEMENT’

Performance Practice in Audiovisual Gamified Multimedia Artworks

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Lüneburg introduces her model of ‘performative involvement’ in gamified audiovisual artworks that describes how agencies afforded to the performer through the design of musical or visual interaction may influence the player’s range of expression, artistic and emotional involvement and meaning making.

Introduction

Although Computer Games have become a popular research topic of interest for researchers in many different fields of the humanities and interface culture, nevertheless, in the domain of audiovisual composition and performance practice, this topic has yet barely been covered. This is where the artistic research project GAPPP sets in. Our research starts out with the assumption that player interactions and game elements offer innovative aesthetic potential, as well as new models of player and audience involvement that can be applied in live-audiovisual works. In GAPPP, we therefore commission, create, and perform audiovisual compositions that incorporate game elements and principles, while they still clearly belong to the world of contemporary (art) music. This creative process is part of the methodology we apply. We are interested in the effect on creative and compositional decision taking, on audience perception and performance practice and last but not least the artistic result. We therefore gather data via participant observation, audience questionnaires, interviews with composers, performers and audience focus groups and –as is a principal of artistic research– via the artistic practice itself, that is composing and performing.

As key researcher for performance practice I am especially interested in the following questions: Do the game strategies offered by the composer of GAPPP enable the performer to shape the piece strategically in form and content? Which kind of agency does the composer offer the performer to further their involvement and render their actions meaningful? Do the performer’s decisions have a clear impact not only on the course of the game but also on the musical and visual experience of it? How do agencies afforded to the performer through software design and control devices for musical or visual interaction with the game system consequentially have influence on the player’s, performative involvement and range of expression during a live performance? And last but not least: what are the findings with regard to the conditions under which ‘performative involvement’ in audiovisual gamified multimedia artworks is furthered?

The Three Worlds of GAPPP

In GAPPP we move in at least three different worlds: The world of computer games, the world of contemporary, multimedia (art) music and the world of (classical) performance practice. Each of these worlds has their own creative and observing agents, principles, goals, connotations, aesthetics and peer groups. This effects not only the works created, it also has an impact on the audience in their expectations and perception and it touches the work of the performer on several levels. For this paper I will approach the performance perspective from the angle of game theory. Based on three short case studies of GAPPP, I will compare the agencies offered to the performers and the resulting interaction and involvement in each of the following pieces: Christoph Ressi *game_over_1.0.0*, Marko Ciciliani: *Kilgore* (Part 1 to 3), Martina Menegon and Stefano D'Alessio: *TONIFY*. All of these works offer clear connotations to the computer games, and they work on the basis of interactive, computer music systems. Video excerpts of the work can be accessed at <https://vimeo.com/203473492> (Ressi), <https://vimeo.com/250603699> (Ciciliani), <http://bit.ly/2rXDTS0> (Ciciliani) and <https://youtu.be/YCdNv14EEIs> (Menegon, D'Alessio).

In my terminology, I will differentiate between two ontological statuses, that of 'playing' (ludic play) and that of 'performing' (musical play); I define 'ludic play' as actions taken with regard to the game system and 'performing' or 'musical play' as actions that reach beyond and include musical or performative decisions and connotations that affect the overall "performance ecosystem that includes a performer, instrument, and spectator, all as active participants that also exist within a society and draw upon cultural knowledge." (Gurevich 2017, 329)

Agencies in computer games and their meaning for the concert situation

Game researchers Mateas and Stern differentiate between two forms of agency in computer games: "Local agency refers to the player's ability to see the immediate reactions to her interaction, while global agency refers to the knowledge of longer-term consequences of a causal chain of events." (Mateas and Stern, cited by (Calleja 2003, 56)). Game researchers Salen and Zimmermann state that "Meaningful play emerges from the interaction between players and the system of the game, as well as of the context in which the game is played." (Salen and Zimmermann 2004, 33). In the works of GAPPP, composers afford the performer agency on various levels which I will describe with the help of aforementioned case studies (Ressi, Menego/D'Alessio and Ciciliani).

Salen and Zimmermann also argue that "The context of a game takes on the form of spaces, objects, narratives and behaviours". (Salen and Zimmermann 2004, 33) What does this mean for the artistic works of GAPPP? When we play and simultaneously perform the audiovisual game-related works of GAPPP in a concert, we look at a second layer of context: we not only look at a game with specific spaces, objects, narrations and behaviours being played by any player, but we look at an artwork (that is shaped through game principles applied) meant for and performed in the context of a live concert setting. A context that carries weight in the player experience and in the experience of the audience. This implies that the players/performers cannot only be concerned with their own ludic pleasure, but they also have musical and performative responsibilities to shape the experience for the attending audience. Therefore, when Salen and Zimmermann state that

[m]eaningful play occurs when the relationship between actions and outcomes in a game are both

discernible and integrated into the larger context of the game. (Salen and Zimmermann 2004, 34)

as a performer to whom the audience is at the core of my actions, and who is concerned with conferring a sense of not only the game, but the total artwork to my audience, I would like to experience ‘meaning’ in both contexts: The game context but also the context of the “performance ecosystem that includes a performer, instrument, and spectator, all as active participants.” (Gurevich 2017) and in which meaning is experienced together. Therefore, in my opinion the principle of ‘meaningful play’ in works of GAPPP should apply to the performers and should in the best case have significance for the observing audience.

Conditions for ‘performative involvement’

The works of GAPPP are special in the fact that they combine features of computer games with features of interactive audiovisual contemporary art. They propose a backdrop that makes audiovisual artworks (at least theoretically) more easily approachable to a young audience, since composer, performer and audience will probably share some common cultural knowledge. They also provide a common structural and creative approach that is partially based on ideas, mechanics or designs of computer games. In consequence these works invite to study with methodologies of artistic research and sociology the underlying interactive computer systems and design concepts and their clearly defined agencies and objectives they offer to the player/performer. Those agencies and objectives are sometimes more hidden, sometimes clearly recognisable for the audience, but in any case they influence the performers task of transferring meaning and expression to the audience in the concert situation. Therefore, they invite investigation on the involvement and a possibly shared grasp of the works by performer and audience alike.

Each of the pieces I investigate are based on what Robert Rowe calls ‘performance-driven’ systems, meaning that there is notated score that represents the music; the system reacts dynamically, often in a generative way to the input; the work is based on the idea that the computer system follows “a player paradigm” by trying “to construct an artificial player, a musical presence with a personality and behavior of its own”. (Rowe, *Interactive Music Systems* 1993) From the perspective of a performer it was especially interesting to me if those works afforded the performers the option of ‘performative involvement’, that is a chance not only to ‘ludically’ play the piece but to musically and visually play and shape the concert situation and thus grant the performer a meaningful creative agency and in consequence a high involvement level and responsibility that is in the best case transferred to the audience.

For that it is necessary to define what is ‘meaningful’ for a performer in a given performance situation which is defined by the interaction between player, work and spectator, between the performer and the digital music system, and by the artistic goal of the work and the greater context of the performance. Hence I claim that in order to enable ‘performative involvement’ of a performer, the designer of a work that is based on a generative, interactive music system needs to create

- meaningfulness with regard to technical skills: the work allows the performer to gain or enhance their technical capabilities and thus heightens their sense of agency;
- meaningfulness with regard to creative strategies and goals: rules, strategies and objectives make sense, they are clearly recognisable and they grant agencies that allow the performer to clearly musically, visually, strategically or content-wise influence the work;
- meaningfulness with regard to the musical objectives: the system and the work affords options to take musical decisions that make traceable sense and that are satisfying to the performer and possibly offer unexpected but challenging contingencies;

- meaningfulness with regard to the interaction with the audience: the system and the work allow for performative decision making and actions that let the performer transmit the artistic experience in cognitive, sensorimotoric or emotional ways on a social and artistic-communicative level.

Is it possible to trace performative involvement in the three case studies of GAPPP and what can we conclude with regard to performance practice in dynamical interactive computer systems in general?

Case study 1: Christof Ressi *game_over_1.0.0* for clarinet, sound module, sensors and computer game software

In Christof Ressi's audio-visual work *game_over_1.0.0* for clarinet, sound module, sensors and computer game software, global and local agency of the performer are clearly designed. The clarinet player performs a shooter game that is situated in outer space having clearly specified tasks. His avatar takes on the form of a little green spaceship that fires at hostile spaceships which enter the field from the upper margin of the screen. A motion sensor fixed to the clarinet traces the performer's movements horizontally and vertically. The movements are visually translated onto the screen as movements of his avatar through a virtual space. On the basis of the player's instrumental movements (up down, left and right), the avatar transverses the entire screen space. Spoken in the involvement dimensions of Gordon Calleja, the structures and goals of *game_over_1.0.0* are distinguished through an emphasis on 'kinaesthetic involvement' (performers substantially control the game through the movement of their instrument) and 'ludic involvement' (the player makes decision in the pursuit of game-assigned goals). (Calleja 2003, 4). However, we have to add a dimension that I call the 'performative involvement' in which the performer undertakes decisions in the pursuit of a musical performance goal as is typical for a concert situation.

The clarinet performer improvises along a highly energetic electronic midi soundtrack (provided by the composer) that resembles arcade background atmosphere and the sound world of games from the nineties such as *Super Mario*. The performer adds to this musical environment by improvising on the clarinet while at the same time steering the game as its player and fulfilling his game related tasks such as shooting hostile spaceships.

Ich als Performer, als Spieler, habe verschiedene Möglichkeiten, die Musik zu steuern, das Game an sich, die Rollen und verschiedenes Anderes ... Ich habe wirklich einen [Gestaltungs-]Raum, was ich machen kann und was ich machen will. (Benes 2017)

I as performer, as player, have various options to shape the music, the game itself, the roles I take on and various other things... I have room to manoeuvre, creative leeway, with regard to what I can do and what I want to do. (Benes 2017, translation by the author)



Fig.1: Szilard Benes firing on enemy spaceships in Ressi's *game_over_1.0.0*.

Musical accents (slaps) and short high pitches of the clarinet get visually transformed into missiles to shoot the enemies with. If shots are hits, the hostile spaceships explode, if they are misses, the spaceships might hit the player's avatar which leads to him losing lives. Through his playing, the instrumentalist can strategically manipulate the soundtrack and the visual scene, change the density and speed of the musical material, the pitch of the melody or harmonies or increase the number of hostile spaceships; if for example the player hits the walls of the space, the software will transpose this action into a certain musical meaning for the piece, for instance increase the overall tempo or density; if he stops moving a different musical or visual action will be triggered. Ressi designed the game in a way that it grants the player meaningful local agency, the performer receives immediate musical or visual feedback to all their actions. Moreover, it offers the option for a performer's 'subversive play' one of the practices of 'critical play' which Flanagan describes in *Critical Play* (Flanagan 2009). 'Subversive play' means here that the instrumentalist performs „in a subversive fashion“, in the context of a situation that is „imbued with semiotic meanings, expectations and appropriate behaviour“ (Oliva 2017, 2)

Es gibt verschiedene musikalische Effekte wie zum Beispiel Slap Tone oder kurze Töne [die Schüsse auslösen]. ... es gibt laute Effekte ..., damit kann ich ... diese Algorithmen von UFOs verrückt machen und sie werden sich sehr schnell bewegen, obwohl ... naja, das würde ich nicht so gerne machen, weil dann sterbe ich einfach ... Ich kann das Spiel so spielen, dass es mich herausfordert. (Benes 2017)

There are various musical effects such as 'slaps' or short tones [that trigger shots] ... there are loud effects ...with those I can ... drive the algorithms of the UFOs crazy and they will move very quickly, however ... I might better not do that, because then I'll die... I can play this game in a way that it challenges me. (Benes 2017, translation by the author)

In Benes' case ,subversive play', was often tightly connected with musical performance aspects, however always intertwined in the play and the rules of the game.

Ich kann natürlich auch eine Melodie spielen... [Die] Musik ist ... davon abhängig, wie ich spiele, ich kann sie mit meinem Spiel ändern ... Das ist dann wirklich nicht einfach, denn dann muss man natürlich alle Regeln wissen. (Benes 2017)

Of course I can also play a melody... the music depends on how I play, I can change it through my playing ... That is really not easy, because to do this you need to know all the rules. (Benes 2017, translation by the author)

Benes describes ludic and musical play in *game_over_1.0* as a complex situation between music, play and game that requires a great amount of inner involvement. As he recounts in an interview with the author, it starts with his inner psychological attitude. To overcome boredom, because after several rehearsals he already knows the piece so well, he emphasizes the need for curiosity to discover new options even after the 10th run-through; the necessity to always listen carefully, not only to listen to the music, but to hear and be aware of what is happening in the real (concert) space while playing the virtual game on screen. He sees a beauty in always discovering new things, in changing little somethings in musical performance or in his strategic play within the game system. He talks about the necessity to always search and stay agile. If you do so, he says, there a millions of possibilities to make music or a play or a game and to change it again and again. In his own words he describes *game_over_1.0* not only as a game, but as an interaction.

Also man kann man wirklich lustige Sachen machen und das finde ich gut, dass man die Entscheidung hat... Es ist eine ganz, ganz lebendige Sache. ...Es gibt eine Symbiose zwischen dem Spiel, also Spieler oder Performer, und die ganze Zeit gibt es einen Gott oder einen Programmierer [the composer Ressi], der das steuern kann oder ändern oder was er will eigentlich. Er kann einen unterdrücken oder er kann einfach nur zuschauen. ... Deswegen hat man wirklich einen unglaublich grenzlosen Spielraum ... Der Einzige, der das begrenzen kann, ist Christof [the composer]. (Benes 2017)

Well, one can really do funny things, and I like to have the power of decision ... It is a very, very spirited thing ... There is this symbiosis between the game, I mean the player and/or performer, and all the time there is a god or a software programmer [the composer Ressi] who can steer everything or change it or actually do whatever he wants. He can oppress the player or he can just watch ... This is why you have an almost unlimited range of possibilities to play ... the only one who can limit it is Christoph. [the composer] (Benes 2017, translation by the author)

Game theorist Oliva states that “In the cybertext [of games], players exert ergodic actions to traverse the text [of a game], and their ability to listen and react to musical cues structures the final musical output. The player, therefore, is not only involved cognitively in interpreting and understanding music, but actively reconfigures its sections through ergodic action.” (Oliva 2017, 5) In my opinion, the performative situation the instrumentalist finds him- or herself in when playing (ludic play) and performing (musical play) in Ressi's *game_over_1.0*. even exceeds what Oliva describes. In *game_over_1.0.0* form, harmonic structure, tempo and melodic content, as well as certain aspects of the visuality and the story telling manifests in the performance of the instrumentalist. The performer concurrently plays the game and performs it for his audience in the concert situation, and he is at all times aware of this twofold and simultaneous ontological

state and creatively steers this process. The creative musical performance has high importance in the unfolding and in the perception of the musical work and the performer has been given a high amount of agency in the total creative work. This requires an enormous creative agility, clever ad hoc musical and strategic decision taking, and it encourages the mental and cognitive involvement of the player/performer.

Interestingly, although our lab audience was relatively young and game affine, the performance of *game_over_1.0* was received controversially by our audience members. There were those who were reminded of games of the nineties like Super Mario or Space Invader and could relate to the aesthetics; those who were deeply drawn into the performance of the instrumentalist and imagined what it would mean to play the game themselves.

Also ich persönlich wäre im dritten ziemlich aufgegangen [Ressi] ... weil ... mich das in der Hinsicht so fasziniert hat... Ich habe mir gedacht, wenn ich das dann spiele und dann selber herausfinden muss, ... wie das Ganze funktioniert oder was für eine Tonkombination verursacht jetzt irgendetwas, ... da habe ich mir schon gedacht, da kann man durchaus auch Stunden dann halt eben daran verbringen und spielen und spielen und spielen und nebenher dann auch gleich üben und immer besser werden. ... Das hat schon einen ziemlichen Sog ausgewirkt. (Focus group 2, interview in the framework of the GAPPP lab concert 2017, classical clarinet player)

Well, I personally would have been quite drawn in by the third one [Ressi] ... because ... I was so fascinated with it ... I thought, if I would play this and would have to figure out ... how these things work or which combination of tones is the reason for which reaction ... I thought you could spend hours with this and play and play and play and all the while practice and get better and better... that really affected me and took me in. (Focus group 2, interview in the framework of the GAPPP lab concert 2017, classical clarinet player, translation by the author)

Others experienced the piece as if they would watch it on YouTube which they didn't enjoy so much, because instead of being a backseat player they prefer playing themselves:

mich hat das eher so erinnert, wie wenn ich jetzt auf YouTube jemanden zuschaue, der ein Spiel durchspielt. Also es gibt Leute, denen gefällt das voll und ich bin halt nicht so einer. Und wenn da jetzt jemand zockt, dann zockt er halt sein Ding herunter und fertig, aber ich fühle mich jetzt nicht so ... hineinversetzt ... Also ich brauche, wenn dann Direktes..., dass ich der Spieler bin (Focus group 2, interview in the framework of the GAPPP lab concert 2017, sound designer/gamer)

It reminded me on a situation on YouTube, when I watch somebody playing a game. There are people who really like that, but I am not one of them. If somebody is gaming, when then he games his thing and that's all, but no, I don't put myself in his position or feel drawn in... I need the directness ... I need to be the player myself (Focus group 2, interview in the framework of the GAPPP lab concert 2017, sound designer/gamer, translation by the author)

Some found the sonic world loud, aggressive and slightly unnerving

Nach 8 Minuten habe ich mir gedacht, okay jetzt nervt es ein bisschen, weil es ist schon ein bisschen laut und ... es waren dann halt eben so die richtig quietschenden Töne dabei. (Focus group 2, interview in the framework of the GAPPP lab concert 2017, classical clarinet player)

After 8 minutes I thought, ok, now, this jangles my nerves, because, it really is a bit loud and ...there

were this, you know, really jarring sounds. (Focus group 2, interview in the framework of the GAPPP lab concert 2017, classical clarinet player, translation by the author.)

and there were those who enjoyed the spectacle and the sonic world

Ressi macht halt wahnsinnig Spaß zum Zuschauen ... das finde ich dann voll cool und ich glaube, ... dass das voll Spaß macht. ... man hat da erst so normale Jump'n Run-Soundästhetik so im Kopf. Und es kommen aber so schöne ausgearbeitete Klänge dazu, die dann irgendwie mit dem Instrumentalen voll schön sind. Das hat mir sehr gut gefallen. (Focus group 2, interview in the framework of the GAPPP lab concert 2017, composer)

It is just so much fun to watch Ressi ... this is so cool and I think ...that it is so much fun. ... First the normal Jump'n Run sound aesthetic is in your head. But then there are these beautiful elaborate sounds that somehow go so beautifully with the instrument. I really liked that. (Focus group 2, interview in the framework of the GAPPP lab concert 2017, composer, translation by the author.)

When we aligned the personal and cultural background of the interviewees of this focus group, it seemed that appreciation for the game aesthetic, recognition of the accomplishment of the performer and the fact if an interviewee liked or disliked the sonic aesthetic of *game_over_1.0.0* was connected to the cultural knowledge, personal education and former experiences of the interviewees.

In summary we can trace all four kinds of meaningfulness mentioned above; the work shows structurally, visually and musically a strong emphasis on game aesthetics; it encourages ludic play but concurrently needs a high amount of 'performative involvement' to counterbalance the dominant game aesthetic and pursue a musical performance, a concert version of a multimedia art piece.

Case study 2: Marko Ciciliani *Kilgore* (2017/18), for electric guitar, drum-pads and two joy-stick controlled games

In the audiovisual art-game *Kilgore* (2017/8) by Marko Ciciliani, spatial involvement, the exploration and learning of the game's spatial domain, (Calleja 2003, 4) of the virtual world that unfolds onscreen, stands in the foreground. The landscape in which the game is situated shows a mountains area with steep canyons, a big lake with an island, on which a house is placed, and a smaller lake in the middle of the steep mountain terrain. Each of the two players moves individually through the landscape with their avatar while seeing the virtual surrounding from a first-person-perspective. The performers run their individual version of the same game, the visuals of which are shown in full-screen mode on two individual screens in the stage area. They cannot meet in the landscape however their individual actions influence the game as a total.

Kilgore consists of altogether five sections. [[1. Note: At the time of this paper parts 4 and 5 of *Kilgore* were still in development. Parts 1 to 3 had been performed at two different venues in Belgium and Estonia but not yet in the framework of a lab concert of GAPPP. For that reason, I cannot add interview snippets of audience' group or performer's interviews but base my investigation on my personal performance experience of *Kilgore* and my exchange with the composer.]] Three sections are titled *PreLudus* (1), *InterPaidia* (3) and *PostLudus* (5). While the computer animation in these parts introduce the audience to

the landscape end environment the players are supposed to explore, the performers play on electric guitar and drum pads. They ignore the visuals but play along an electronic soundtrack while following given musical game rules concerning phrasing, rhythm and interaction. In the two remaining longer computer game sections (2 and 4), the musicians each operate using a traditional joy-stick only without providing any further instrumental input.

What are the objectives the players/performers have to fulfil in *Kilgore* and which local and global agencies does the game system offer them? In Part 1 the musicians play a musical game over the sonic backdrop of the changing visual scene displayed on screen. The performers' musical game is not related in any way to the computer system and both don't influence each other. Insofar the musicians have no agency whatsoever with regard to the game onscreen, however they can shape the music and the concert experience through their playing thus gaining musical and performative agency. Involvement here is mostly performative, that is the performer explicitly undertakes decisions in the pursuit of a musical performance.

In part 2 the players have a clearly game-related local agency, namely finding their way through the mountain maze while hitting objects and collecting points, sinking a bronze object into a hole at the bottom of a drained lake and letting a bridge grow. A dimension of ludic involvement is added to spatial involvement (Calleja, 2003, 4), emphasised for player and audience alike through the display of points and goals reached onscreen. By reaching and triggering certain points of the landscape or earning a certain amount of points they influence the course of the game, and eventually open a secret access from the mainland to the island.

Calleja states that "What makes travel in virtual worlds appealing is not only the affective power of their aesthetic beauty, but also the performed practice of exploring their technical and topographical boundaries." (Calleja 2003, 77) And indeed, as a performer it is tempting to be entirely drawn into ludic play, be skilful and quick in navigating one's avatar through the gorges and chasms of the mountains, locate and destroy red objects, collect live points by hitting the blue blocks, that fall from the sky, dunk the bronze rock, be the first to trigger a new section, and so on. However, while being involved in the ludic play of *Kilgore*, the performers concomitantly influence the overall form and timing of the piece, the music itself, and the visual experience of the audience, a sign of performative involvement.

To reach a confluence between the composer's, performer's and spectator's "goal and expectations," to further the "commonality of the [concert] experience," (Gurevich 2017) and to let the audience participate in the ludic and musical play of the game, the performers ideally supply the audience with a cognitive map. As Liboriussen argues "[t]he cognitive map is a mental tool that aids its constructor in navigating the virtual world. At the same time, the cognitive map provides an overall sense of how the virtual world is structured and a sense of connectedness" (Liboriussen 2009, 222) To include the audience in the performers' experience of involvement and connectedness, the players map the landscape and guide the audience members through the scene and visually support the experience of hitting the red, blue or bronze objects. (The latter is important, since hitting those objects is in general not accompanied by a typical "Hollywood" sound design, but often triggers only subtle changes in the audio environment. These changes can easily be missed in the overall rich and dense sound environment).

There are three different perspectives, the performers can show to the concert audience and each perspective goes along with a certain sound. The first perspective lets performers and audience traverse the mountains and canyons seen from the first-person perspective of their avatar; these movements through the virtual world trigger a low bass hum that is added to the dense sonic world of the landscape. Depending on the speed and density of one's movements the hum can be varied.

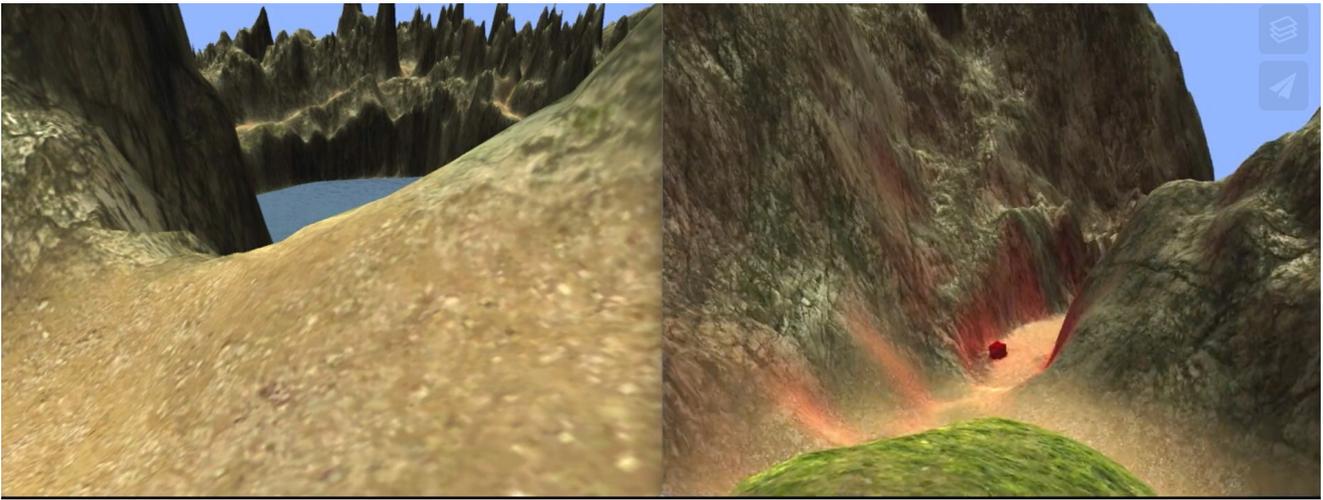


Fig 2: First person perspectives (showing a red object on the right).

Secondly the performers can push a button on the game controller, that lets the audience see the environment from a surveillance perspective with an arrow indicating the position and direction of the (invisible) avatar (Fig. 3). This is accompanied by a shrill, high signal sound, that accentuates the change of perspective and can serve to add a rhythmic, contrasting, alerting element to the sonic backdrop and game. Last but not least players can repeatedly hit the jump button which goes along with a short percussive medium high sound and lets the avatar fly across the landscape (Fig. 4). Players need to develop dexterity in the handling of the game controller to develop virtuosity in navigating the scene and at the same time the musical and performative options that go along with it.

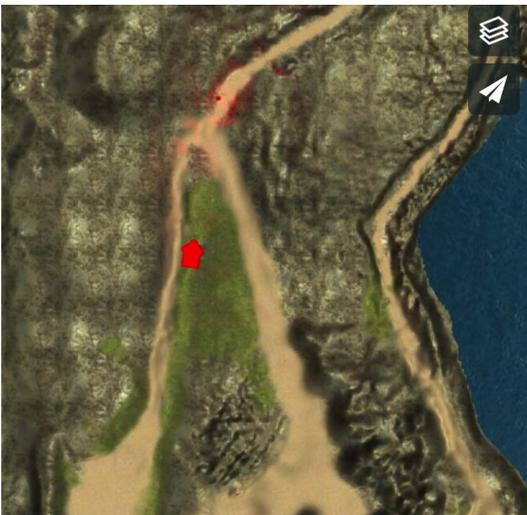


Fig. 3: Surveillance perspective, the red arrow indicates the audience and the player in which direction the avatar is heading.



Fig. 4: Flying perspective, which allows a general overview over the landscape.

Through their navigation in the environment, the performers build a visual map of the virtual world while at the same time shaping the overall musical experience. That way they let the audience visually, sonically and emotionally partake in the challenge of navigating the maze and audience and performers share what

Calleja calls “a sense of habitation within the game environment”. (Calleja 2003, 75)

Part 3 offers again musical agency and performative involvement only. While the visual landscape changes from day to night and the camera glides via the newly erected bridge to the house on the islands, the guitar player adds to the musical and emotional landscape. The audience gets a glimpse of the environment the players will explore next. *Kilgore* affords the player at the same time local and global agency that is clearly game related and visually and musically feeds back into the computer system, but also agency that is explicitly and only related to the visual and musical concert experience.

In *Kilgore* the emphasis ostensibly lies on the visual exploration of the mountainous landscape and the objectives the players have to fulfil. However, the composer counterbalances each of the main, spatially and ludically dominated sections (2 and 4) with those segments in which the virtual camera roams the virtual scene while the players are given clear musical and performative tasks. Consequently, the player-performers involvement fluctuates between performative involvement and spatial involvement. Meaningfulness with regard to technical skills, musical objectives and interaction with the audience are the main motivators and factors for the performers.

Interactive Music Systems and the Generative Dynamical Systems of GAPPP

What is the difference between a game-related artwork of GAPPP and a solo or chamber music piece based on live-electronics as it is most often presented in the contemporary (art) music world? Di Scipio describes interactive music systems that are the most common basis of works with live-electronics:

most interactive music systems ... share a basic design, namely a linear communication flow: information supplied by an agent is sent to and processed by some computer algorithms, and that determines the output This design implicitly assumes a recursive element, namely a loop between the output sound and the agent-performer: the agent determines the computer's changes of internal state, and the latter, as heard by the agent, may affect his or her next action (which in turn may affect the computer internal state in some way). ... Here, 'interaction' means that the computer's internal state depends on the performer's action, and that the latter may itself be influenced by the computer output. (Di Scipio 2003, 270)

The underlying ontology of ‘agent acts, computer reacts’ (Di Scipio 2003, 270) usually does not apply for the game-related works of GAPPP. In the case of Ressi and Ciciliani the computer system operates as an autonomous, generative system that on the one hand reacts to the performer's input on the other hand acts as an independent agent that feeds unforeseen contingencies into the game which the performer cannot necessarily control. Thus the works have two sources of dynamical behaviour – the performer's actions and the computer's independent agency. How the kind of dynamic interaction with the computer is designed, shapes the agency and involvement of the performer in a meaningful way. I will now investigate what kind of involvement and meaningfulness *TONIFY* by Menegon D'Alessio offers.

Case study 3: Martina Menegon and Stefano D'Alessio: *TONIFY*

Martina Menegon and Stefano D'Alessio's *TONIFY* is an interactive audiovisual work for two participating audience members. Menegon's and D'Alessio's main goal was to create an “interaction with the audience”

and solve the question of how to make this interaction a game, “how to make it funny to watch, entertaining to watch, but also [funny] to do”. (D'Alessio und Mengon 2017)



Fig.5: *TONIFY*, view onto the stage © GAPPP

The players perform from a stage position, standing in front of their individual computer screen facing the audience. The two game computers of the players stand left and right of the main stage screen on which the audience can follow the course of the game. Each computer displays four different basic emoticons that each player has to imitate with their facial expression. The emoticon changes every 5 seconds. The different background colours that reflect from the computers illuminate the players' faces. Each player's expression is individually captured by a face tracking system, a neural network, that detects parameters of the facial expression of the player. On the basis of machine learning each computer had prior learnt what a neutral, surprised, angry or happy face looks like, so it is able to detect how happy, neutral, surprised or angry the player looks and if it matches the emoticon displayed on the computer screen.



Fig. 6: View of *TONIFY* showing the computer screen to which the players have to react.

Whenever a new face appears on the computer screen, a different set of four sonic textures is initialised that corresponds with either the neutral, smiling, angry and surprised face. A humming bass stands for instance for a neutral face, a jumpy soundscape for the surprised expression. The way how the audio is processed depends on the correctness of the imitation by the performer. When the performer imitates the emoticon wrongly or inaccurately the sound becomes distorted or otherwise processed, when they imitate it correctly we hear the original, unprocessed sound.

The computer scores the personal imitation skills of the performers. The correctness level of the imitation shows in form of a slider-line and points that indicate the total scoring. It can be perceived on the individual screens but also on the main screen of the concert hall which hangs in the back of the performers. At the bottom of the main screen, to the right and on the left, the audience sees the user names of the players. The middle of the screen is used for slightly distorted, semi-transparent mappings of both performers' faces. Depending on the correctness of their imitation, one or the other face is more in the foreground. 'Shared involvement' (the player competes with other agents in the game) is the Callejan category that is at the basis of the emotions this game triggers (Calleja 2003, 4).

The 'instrument' the performers use is their own face. The interface, although highly technical and sophisticated is easy to understand and to work with. No prior education is needed for the performers actions which is to 'contort' their face in the right way to score points. They stand in a competition to each other, in an 'athletic' contest measuring the best manipulation of their face muscles in combination with the fastest respond time. The performance is rapid and the core issue is "the execution of an action by a participant, an action that may succeed or fail." (Calleja 2003, 58)

The individual player's agency is clearly defined and restricted to the task of imitating the emoticons shown to them; contingency is minimal. The seemingly obvious goal is to score high and win the game. According to the game designers, the idea is even simpler. They aim for the emotional involvement simply through the pleasure of doing the game and along the way earning points.

[T]here is not really a goal or something, it's just like the pleasure of gaining points, you know. ... I was reading this article ... in which they found out that ... even if the number [of points earned] is not connected to what you are doing, it is more enjoyable to do it. (D'Alessio and Mengon 2017)

However, in theory the goal could be changed from 'not winning' to 'entertaining the public, from ludic play to musical play, from playing a game to performing an artwork. In that case the performers could manipulate the sonic aesthetic range of the game by failing their tasks and thus evoking stronger audio processing or distortion much in the sense of Flanagy's afore mentioned 'subversive play'. Visually they could work with and exaggerate their facial expression to entertain visually and add to the situational comic of the performance. This would be a way to add the model of performative involvement to the mix of what is happening on stage. In reality, though, the computer system didn't not react in a generative way but linear, the changes in music were discernible for a trained ear only, the performative agency limited to subtle transformative changes in sonic colour.

Asked where on a scale from game to artwork our audience members would place *TONIFY* and how important the actual performance factor was the interviewees said:

Ich hab mich erstmal gefragt, was ist überhaupt ein Spiel, ein Game und ich würde sagen, in traditionellem Sinne ist es ja etwas, das man gewinnen kann, oder verlieren kann, das man mit einem Bott oder mit einem Menschen spielt. Und da ist natürlich die zweite Aufführung eben mit dieser Gesichtserkennung [*TONIFY*] ... mir als ehestes als Spiel aufgefallen. So was war für mich direkt ein Spiel. (Focus Group lab concert GAPPP 2017, interviewee 1)

Das [Stück] mit diesen ... Gesichtsausdrücken, mit diesen Emotionen, diesen vier verschiedenen, bei dem ist Performance nicht so relevant. (Focus Group lab concert GAPPP 2017, interviewee 2)

I firstly asked myself, what is a game actually? And I would say, in a traditional sense it is something you may win or you might lose, it is something you can play against a bot or a human adversary. And then of course this second performance with the face tracking [*TONIFY*] ... would qualify most for a game. For me this was a game. (Focus Group lab concert GAPPP 2017, interviewee 1, translation by the author)

This [piece] with these ...facial expressions, these emotions, those four different, in this piece performance is not that relevant. (Focus Group lab concert GAPPP 2017, interviewee 2, translation by the author)

When we refer to the statement by Salen and Zimermann mentioned initially that “[*m*]eaningful play occurs when the relationship between actions and outcomes in a game are both *discernible* and *integrated* into the larger context of the game” (Salen and Zimmermann 2004, 34), we might distinguish the differences to the games before: The larger context of the game is entertainment. ‘To provide fun’ and to make *TONIFY* playable for everybody is the ultimate goal for the creators. Accordingly, the players don't need to enhance their technical capabilities, there are almost no strategies or objectives that point beyond the relatively simple task of smiling, frowning, looking sad or looking serious. The visual and musical outcome is established from the very beginning and only marginally controllable or manipulable. This doesn't make it a less successful work, on the contrary audience members stated that they would like to try

the piece themselves or even play it at home.

Concluding I would therefore state that dynamic interaction with a computer system does not in itself evoke 'performative involvement'. Performative involvement is linked to aforementioned situations of meaningfulness, it thrives in works that are multidimensional and that offer layers allowing the player-performer to musically and/or visually shape the work itself and the visual and sonic experience of the audience in the concert situation. The ultimate goal for me would be to reach a confluence between the composer's, performer's and spectator's "goal and expectations," and "commonality of cultural experience," (Gurevich 2017) to enhance the artistic experience for all.

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Biography



Fig. 7: Barbara Lüneburg © Mihai Cucu.

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Barbara Lüneburg, PhD, is an internationally acknowledged violinist and artistic researcher working in contemporary classical art music and multimedia art. From 2014-2018 she was director and lead artist of the artistic research project *TransCoding – From ‘Highbrow Art’ to Participatory Culture* funded by the Austrian Science Fund. Her arts based research deals with performance practice and the creative potential of performers, collaborations between performers and composers, charisma, performer-audience relation, and game based audiovisual art. Lüneburg holds a professorship for Ensemble and Digital Performance at Trossingen University of Music, Germany, and works as researcher at the University of Music and Performing Arts Graz, Austria.