ELECTRONICS MEETS CHALLENGES OF THE 21ST CENTURY

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Electronics Meets Challenges of the 21st Century

Polish-Norwegian Project On New Technology

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Polish Composers' Union / Polish Music Information Centre
norwegian center for technology and the arts NOTAM
Music Information Centre Norway
Fryderyk Chopin University of Music
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Electronics Meets Challenges of the 21st Century

Since the early 1950s, electro-acoustic music has been a symbol and a synonym of modernity in music, and in art in general. Its origins and growth have been inextricably linked with the development of technological civilisation worldwide. The turn of the 20th century brought a rapid acceleration of technical progress related to digital technology and new means of communication. The electro-acoustic music of our era has adopted all the new technological inventions, which led to fundamental changes in the communication between the author and the recipient of the musical work. Those changes pose a challenge for the creators of electro-acoustic music: both composers and engineers. They open up areas of new aesthetics, new performance practice and new forms of reception of that music.

It was to these issues that we dedicated the joint Polish-Norwegian project "Electronics Meets Challenges of the 21st Century" carried out by the Polish Music Information Centre (POLMIC – run by the Polish Composers' Union) in cooperation with the Norwegian Centre for Technology in Music and the Arts (Norsk nettverk for Teknologi, Akustikk og Musikk – NoTAM) and Music Information Centre Norway (MIC Norsk musikkinformasjon). The project obtained co-financing from the Ministry of Culture and National Heritage of Poland, the Operator for the Cultural Exchange Fund under the European Economic Area Financial Mechanism and the Norwegian Financial Mechanism.

Partnership with NoTAM is a continuation of co-operation initiated by the Polish Composers' Union in 1998, when the "Warsaw Autumn" Festival organised by the PCU included an internet concert "Warsaw – Helsinki – Oslo", prepared jointly with our partner. Co-operation with the second partner – Music Information Centre Norway – has continued since 1998 within the organisational framework of the International Association of Music Information Centres (IAMIC), of which both MIC Norway and POLMIC are members. The renewed contacts with NoTAM and extended co-operation with MIC Norway will certainly be continued also after the project "Electronics Meets Challenges of the 21st Century" has come to its close.

All the events of the project were held between 22nd and 25th September 2010 in the Fryderyk Chopin University of Music in Warsaw, except for one "club" event which was organised in "Skwer" – branch of the Fabryka Trzciny Art Centre, located in Krakowskie Przedmieście Street. The programme included: four concerts of electro-acoustic music, an interactive installation, two panels for composers whose works were performed at the concerts, and four conference sessions. One special event was the performance of Arne Nordheim's *Tenebrae* for cello and orchestra by the New Music Orchestra, included in one of the concert programmes as a homage to the memory of one of the greatest contemporary Norwegian composers, who also had close links with Poland. It was in the Experimental Studio of the Polish Radio in Warsaw that Arne Nordheim perfected his skills and composed electro-acoustic works. The composer died a few months before the meeting of the world's electro-acoustic music authors and experts in Warsaw – on 5th June 2010, aged 79.

The events of the project "Electronics Meets Challenges of the 21st Century" were held as part of the 3rd New Music Convention "ArtMusFair" organised by the European Composers' Forum, the Polish Music Information Centre POLMIC and Fryderyk Chopin University of Music simultaneously with the 53rd "Warsaw Autumn" International Festival of Contemporary Music and in the year of the celebrations of the 200th anniversary of Fryderyk Chopin. Altogether, the convention included about 50 different events which attracted approximately 300 professionals from Europe and all over the world, as well as an audience of about 4000.

This publication contains papers and presentations by participants of the conference "Electronics meets challenges of the 21st century" and the composer panels held as part of the project. It is our hope that these articles will familiarise the reader with the current situation of electro-acoustic music worldwide, and with its future prospects.

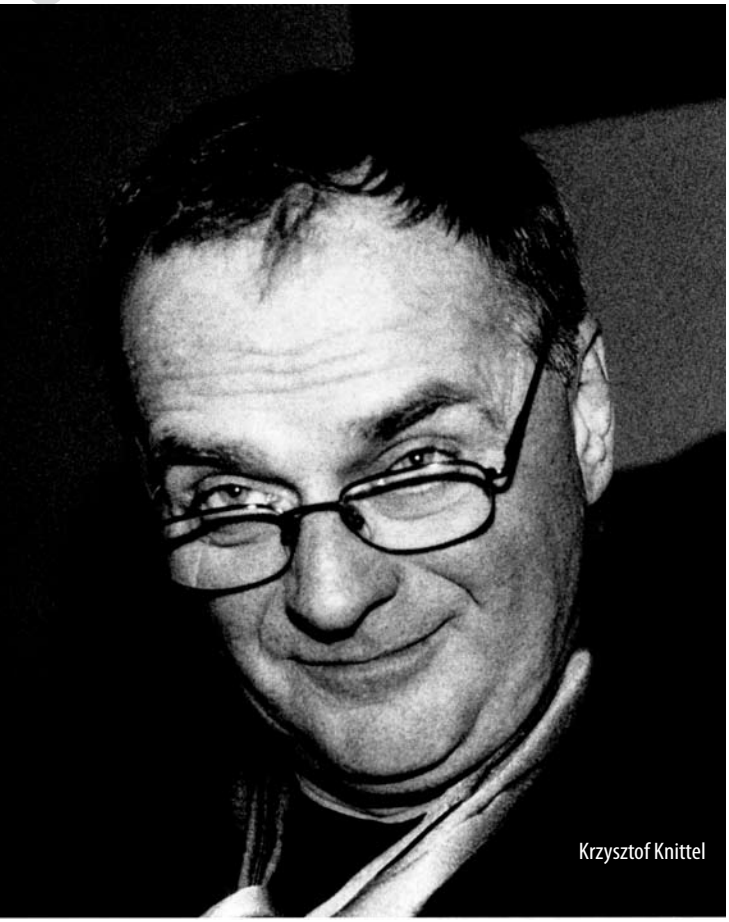
Mieczysław Kominek

Director of the Polish Music Information Centre POLMIC

INSTALLATION

qub
installation

Krzysztof Knittel
Marek Chołoniewski
Peter Sych
Maciej Walczak


Krzysztof Knittel

Krzysztof Knittel
born in 1947 in Warsaw, studied sound engineering and composition at the Fryderyk Chopin Music University in Warsaw. He has worked at the Experimental Studio of Polish Radio since 1973 and at the Center for the Creative and Performing Arts at the State University of New York at Buffalo in 1978.

He composes symphonic, chamber, stage, electro-acoustic and computer works that have been performed in most European countries, Asia, North and South Americas. He took part in many art performances, built sound installations and played in improvised music groups. Concerts dedicated exclusively to his music were held in Barcelona, Budapest, Kraków, Kromeriz, Leipzig, Moscow, Sao Paulo, Warsaw. His compositions have been written for Warsaw Philharmonic Orchestra and Choir, National Polish Radio Symphony Orchestra, "Amadeus" Chamber Orchestra of the Polish Radio, "Sinfonia Varsovia" Orchestra, "Camerata Silesia" Choir, for soloists – Elisabeth Chojnacka, Olga Pasichnyk (Critics' Prize at the "Warsaw Autumn" Festival for her performance in *The Heartpiece – Double Opera* composed together with John King), Janusz Olejniczak, Tomasz Stańko and many others.
He was co-founder of the KEW Composers Group (1973-75, with Elisabeth Sikora and Wojciech Michniewski), Cytula Tyfun da Bamba Orchester (1981), the Independent Electroacoustic Music Studio (1982-84), interdisciplinary group Freight Train (existing from 1986 till today), the European Improvisation Orchestra (1996-98), CH&K&K (since 1999, with Marek Chołoniewski and Włodzimierz Kiniorski).
Among his honors are the "Solidarity" Award in Music (1985), Norwid Prize in Music (2003), Polish Composers' Union Prize (2003). In 2005 he was awarded the "Gloria Artis" Silver Medal of the Polish Minister of Culture. He was also awarded by the Foundation for Contemporary Performance Arts in New York (1998).
He served as director of the "Warsaw Autumn" International Festival of Contemporary Music (1995-98), president of the Polish Composers' Union (1999-2003), vice-president (since 2000) and president (since 2005) of the Polish Music Council, member of the Supervisory Board of Polish public television (2003-2006), director of international "Ad Libitum" festival of improvised music (since 2006). He is a member of the Programming Board of Zachęta National Gallery. He teaches at the music academies in Łódź and in Kraków.

Marek Chołoniewski
born in 1953 in Kraków. He studied organ with Leszek Werner, theory of music and composition with Bogusław Schaeffer and electronic music with Józef Patkowski at the Kraków Academy of Music, where since 2000 he has been the director of the Electroacoustic Music Studio. Founder of many groups and societies: Muzyka Centrum Art Society, Freight Train, Studio MCH, DoubleMark, CH&K&K, mc2 duo, Infinity Quartett, Kinetic Trio, and dizzy kinetics.
Chołoniewski writes instrumental and electroacoustic music, also for the theater, film and radio. He is an author of sound and video installations, audio-visual, outdoor and online projects. A world renowned lecturer, composer, sound artist and live art performer, he has been giving concerts, workshops and lectures in Europe, North and South America as well as Asia. Author, founder, artistic director, coordinator and collaborator in many international projects: "audio art" series (1987), Audio Art Festival (1993), International Workshops for New Music Krakow/Stuttgart (1993), International Academy for New Composition and Audio Art in Tirol (1993–1999), Silent Films with Music Live (1994), Global Mix (1998), Art Boat (2000), GPS-Art (2000), Ensemble Spiel (2003), Bridges and European Modern Orchestra (2003-2008), Polish Society for Electroacoustic Music (2005), Polish Sound Art in China, Chinese Sound Art in Poland (2006), PAFME (2006), European Course for Musical Composition and Technologies (2006-2008), Festival for Polish Culture in Luxembourg (2008), dizzy kinetics concert tours in South America (2007-2010).

Marek Chołoniewski

He received the Honorable Award of the Polish Composers' Union, Award of the Ministry of Culture and National Heritage, as well as the Independent Project grant of the CEC ArtsLink in New York. Since 2008 he has been the Secretary of the International Confederation of Electroacoustic Music (ICEM/CIME).

Peter Sych

Peter Sych, born in Krakow in 1960, completed Music School in Krakow (Nowa Huta), where he learned the violin and piano. Emigrated to Australia in 1981. Studied Musical Instrument Technology at Northern Metropolitan College of TAFE in Melbourne (1983-1985) and worked at Bosendorfer piano factory in Vienna in 1985. Member of Australasian Piano Tuners and Technicians Guild Inc (since 1985). Between 1985 to 1988 studied Electrical Engineering at RMIT (Royal Melbourne Institute of Technology) Computer Science at Swinburne University in Melbourne.

Significant music technology projects and contributions:

1995. Piano Roll to MIDI Conversion system, constructed for International Music Show in Darling Harbour, Sydney Australia. This device has been utilized for archiving music from piano rolls onto digital media and restoration of original arrangements by National Film and Sound Archive in Canberra.

1997. Design and construction of piano roll cutting and mastering device for preservation and restoration of mechanical music.

2000-2006. Design and construction of Special Access Kit, a unique electronic sensor consisting of Banana Keyboard and dedicated software. The system has been designed to enable people with disabilities and impairments access the world of music creation and performance.

2004. Design and construction of a large scale programmable musical "Walk on Keyboard". Commissioned by Alfred Brash Soundhouse, Melbourne, Australia. 2004-2007. Design, construction and implementation of CASIO digital laboratory for music and language group teaching and performances.

Peter Sych

2005. Construction of an interactive musical carpet designed for stage performances and festivals. Commissioned by Victorian Arts Centre, Melbourne, Australia. 2007. Installation of "ISA Harp", an interactive electronic harp for Chookas Kids Festival (Victorian Arts Centre, Melbourne).

2008. Audio Art 2008, Krakow, Poland. Interactive installation of "ISA Harp" at the Academy of Music in Krakow in cooperation with Prof. Marek Chołoniewski and Marcin Pączkowski.

2009. Installation of "Iter/Eter", an interactive sound and picture system at the Warsaw Autumn Festival (in cooperation with Prof. Marek Chołoniewski and Marcin Pączkowski) and Audio Art Festival in, Krakow, November 2009.2010. Design and construction of "4D Motion", a new concept in sound creation, consisting of an electronic harp with invisible strings and dedicated music software.

Installation qub

Vernissage of the installation qub; from left: Krzysztof Knittel, Marek Chołoniewski, Maciej Walczak

Maciej Walczak

audiovisual artist, composer, programmer. In the years 1982–1986 he studied cello at the Music Academy in Łódź. He continued his education in Staatliche Hochschule für Musik und Darstellende Kunst in Stuttgart. The subjects of his studies were composition, new media, computer music, programming, multimedia, new music, interactive concepts, performance, live electronics. He graduated in: "Composition, Computer Music, New Media". Between 1990 and 1994 he worked in the electroacoustic music studio at the Music Academy in Łódź.

Walczak's multimedia performances are executed with the use of computers working on his own programs. His first audio-visiual presentation took place in Łódź in 1988. He has performed both in Poland and abroad since then.

Audience

Vernissage of the installation qub

qub installation

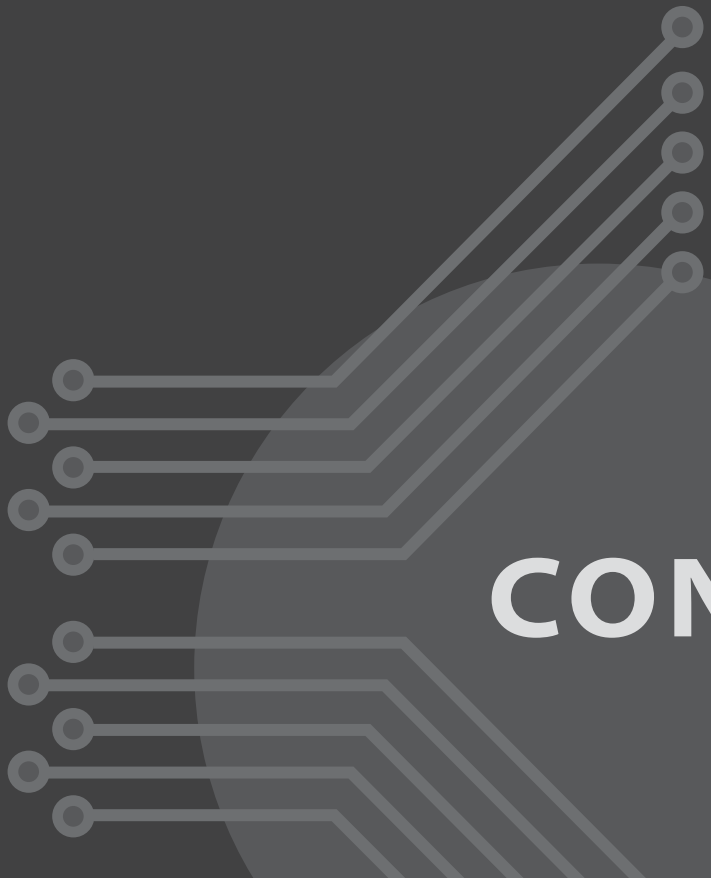
The *qub* installation consists of quadrophonic surfaces organised in a spatial sound cube. Sounds are generated by eight loudspeakers located on the vertices of the hexahedron. The ambient sound structures are controlled by hand motions of the audience over 256 invisible 'keys', created by the intersection of sixteen horizontal and sixteen vertical strings within an ISA Harp frame, an instrument designed by Peter Sych in Melbourne. The installation is available to everyone, and changes texturally, chromatically and spatially with the time of the day, like the scales of the Indian raga.

Lydia Kavina is a virtuoso of the theremin, the first touchless instrument in history, created shortly after World War I by Lev Sergeyevich Termen. The theremin is played by moving one's fingers in the air similarly to playing the harp or the piano; the motion is vertical and respects the varying distance between semitones and

Peter Sych

tones. In Marek Chołoniewski's interactive installation and works series *dark&lightZone* (1999), a set of optical sensors determines the areas equivalent to a 'keyboard' for controlling the work's electronic sound colours. In the installation *noga* by Krzysztof Knittel (1993), the audience triggers the microsensors that are located on the gallery's wall by walking through the crossing laser beams, like an organist playing the pedalboard.

In the case of the *qub* installation, the sounds of the virtual checkboard in the ISA Harp frame can be triggered by gestures of the pianist, percussionist or director, but also by a dancer, while the 'microkeys' of the different points in space constitute the colour shades of one of six 'macrokeys' that create the virtual, invisible walls of the sound cube…



CONCERTS

Norwegian Electroacoustic Music

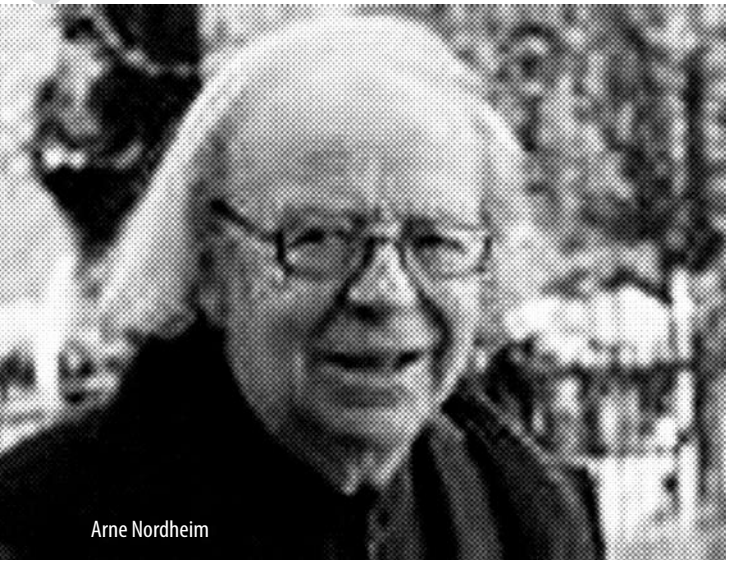
Arne Nordheim
Solitaire for tape (1968, 12′)
Kåre Kolberg
Keiserens nye slips for tape (1973, 10′)
Peer Landa
Downcast for tape (1992, 8′30″)
Jøran Rudi
Concrete Net for video and stereo diffusion (1997, 12′)
Risto Holopainen
Prosit highlights for tape (1998, 5′)

Jøran Rudi – sound engineering


Audience


Jøran Rudi and the audience

Jøran Rudi


Arne Nordheim

Arne Nordheim

Arne Nordheim (1931-2010) was one of the most conspicuous figures in the musical landscape of Norway for more than fifty years. He received a large number of prestigious international prizes and honors, and was awarded the honorary residence "Grotten" by the State for his outstanding work as a creative artist. In 1997 he was elected honorary member of the International Society for Contemporary Music. He passed away in June this year.

Nordheim studied organ and piano, music theory, and composition at the Oslo Conservatory in the years 1948-52. He wrote works in most genres, but his principal instrument was undeniably the orchestra, for which he, among other works, wrote *Eco*, *Greening*, *The Tempest*, *Tenebrae* and *Magma*.

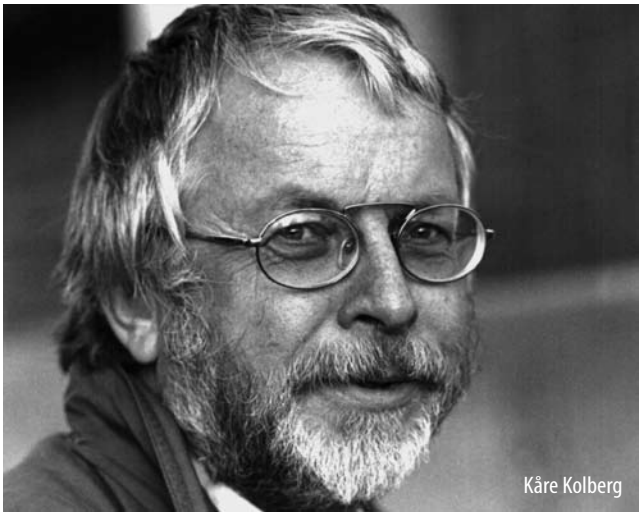
Nordheim was also Norway's most important pioneer in the use of music technology, and he experienced a huge blossoming of his artistic intentions during his periods in Warsaw at the Polish Radio Experimental Studio. It was here that, following an invitation from Józef Patkowski, and with Eugeniusz Rudnik as assistant, he created *Solitaire*, the multimedia work that opened the Henie Onstad Arts Center in 1968, and *Polypoly*, the work that filled the Scandinavian pavilion at the World Expo in Osaka in 1970, with long loops of magnetic tape and thousands of images.

Nordheim was also an early organizer of electroacoustic music in Norway, and already in 1963 he performed Karlheinz Stockhausen's *Gesang der Jünglinge* and Edgar Varèse's *Poéme Electronique*, both iconic works in electroacoustic music. He was also a leading force behind the organization of the first electronic music studio (NSEM) in Norway, which led up to the current national studio, NOTAM.

Solitaire

was written for the dedication ceremony of Henie Onstad Arts Center at Høvikodden, near Oslo. The premiere performance was complemented by stage lighting and dance – "a cantata for sound, light and movement".

The title *Solitaire* is inspired by the poem *Les Bijoux* from Baudelaire's *Les Fleurs de Mal*. The glittering and mesmerizing sheen of metal and precious stones had its direct, sparkling gestalt in music. "Solitaire" is the name of the most austere diamond setting, where all of the stone's sides are open to refract light. However, "solitaire" may also be translated as "alone", and this beautiful and glittering timbre landscape may also stir feelings of something both alien and alienated. A "virtual" space where we experience the human voice as it interrupts and pierces this glittering and rushing soundscape, with the effect being one of nakedness and loneliness in an all-encompassing whole. The piece's shimmering and crystalline sound is largely developed from recordings of poetry readings. The voice material's timbre, rhythm and energy resizes the development of the different parts of the music, and creates an audible image of a landscape within and beyond words – an important aspect of Baudelaire's poetry.


Kåre Kolberg

Kåre Kolberg

born in 1936, he is one of Norway's pioneers in contemporary music, and has been especially concerned with the role and function of contemporary music in society. He has been active as a composer, organist, musicologist, researcher, critic and organizer, and has held numerous posts in Norwegian music life.

Due to his engagement in social activity, Kåre Kolberg was one of the first composers to deal with the public's attitude towards modern music. The "neo-friendly" elements in his otherwise fairly modernist musical language can be regarded as an indication of his desire to communicate more directly with his audience. Kolberg's music has always been characterized by contrasts. Not only does he employ dynamic contrasts, but also contrasts of sound and rhythmic and melodic contrasts in which, e.g. lyrical, melodic passages are juxtaposed with blocks of sound. However, perhaps the most characteristic feature of Kolberg's music is his juxtaposition of material from different genres. Modernism contrasted with elements from jazz or popular music, and elements from the romantic genre with idioms from contemporary music. These contrasts lend his music great expressive force and are a source of considerable musical humor – which is another typical feature of Kolberg's music. A great many of his compositions reveal subtle humor, such as *The Emperor's New Tie* (1973) and *For the Time Being* (1984).

Keiserens nye slips (The Emperor's New Tie)

was composed with the aid of a PDP 15/40 computer at Elektronmusikstudion (EMS) in Stockholm. It was programmed in the EMS-1 computer language developed in the same studio. The work was commissioned by Fylkingen, Stockholm, with funds provided by the Nordic Cultural Fund.

"But the Emperor hasn't got a tie on!" cried the children (all shouting at once). "He hasn't got a tie on!" echoed all the people at last. "He hasn't got a tie on!"

Peer Landa

Norwegian composer, scarcely earns a living by writing computer and instrumental music. He was invited to CCRMA in 1989 by John Chowning.


Peer


Landa

Downcast

is entirely based on digital signal processing, and several DSP applications in the C programming language have been written exclusively for this piece. Thus, *Downcast* serves as a presentation of the idea of using a general-purpose computer language (its code) as the musical notation. The initial audio material for the piece is derived entirely from a recorded female voice that is rigorously processed by the computer programs. The original sample can be heard at the very end of the piece.

Complex rhythmic syncopation is a crucial component of the composition. At times there are up to a thousand layers where the melody line jumps from one layer to another following the pattern of these syncopations. Elements such as dynamics and spatiality are fundamental to the piece as well. Reverberant spaces are derived from actual physical rooms, through reverb impulse responses. The convolutions of those room-responses are combined into layers and used in the style of classical counterpoint.

Jøran Rudi

Jøran Rudi

born in 1954 in Oslo. He began his career in music as a member of one of the influential Norwegian rock bands that emerged at the end of the 70's. His studies in music theory and composition were completed at New York University, and Rudi has since developed a portfolio of works for electronic instruments and/or fixed media, as well as for dance, film, performance art, installation and multimedia. Rudi has for the last 17 years built up NOTAM – Norwegian center for technology in music and the arts, where he currently holds the position of artistic and academic director.

Concrete Net

is a visual and musical combination of ideas from several sources:

- long steel wires used in western Norway for transporting hay down
- the sides of mountains
- the distances in our solar system
- J. G. Ballard's book *Concrete Island*.

The distances between the planets in the solar system provide a set of numbers that have been used as ratios in all signal processing, hopefully resulting in a perceivable type of consistency. These ratios have also determined the synthesis of virtual string sounds, in a technique called physical modeling, where one specifies the instrument, NOT the resulting sound. The strings have been set in motion by recordings of excerpts from Ballard's brilliant dystopia, sliced into pieces according to the rations from – yes, the solar system.

The piece borrows from science, other arts and culture in order to construct a narrative in which a dramatic first part is followed by more fine-tuned balance of a more subtle character.


Risto Holopainen

Risto Holopainen
has composed electroacoustic and instrumental music, made several computer animations, has written music for dance and also participated as a performer in some of those dance events. His CD *Garbage Collection* appeared as the first release on Mere Records in 2008.
Currently he pursues a PhD project on adaptive synthesis at the University of Oslo.

Prosit highlights

The substance that floats through *Prosit* is a fine red wine, and the opening of the bottle and the pouring of wine serves as a formula, albeit in a loose sense, for the development of the piece.
The idea of formula composition has influenced many of the methods in *Prosit*. Thus the analysis data control several of the synthesis parameters in a program that has been used to generate much of the material. Apart from this, various features of the material are imposed on each other, such as timbre, through convolution and spectral analysis; pitch contour that is imposed on various sounds and passages of various durations; and particularly time proportions that control the overall unfolding of *Prosit.*

Electroacoustic Free Improv

Krzysztof Knittel
Marek Chołoniewski
Franziska Baumann
Andrei Smirnov


Marek Chołoniewski


from left: Zofia Knittel, Andrei Smirnov, Krzysztof Knittel, Małgorzata Krawczyk


from left: Marek Chołoniewski, Franziska Baumann, Krzysztof Knittel


Krzysztof Knittel


from left: Franziska Baumann, Krzysztof Knittel


from left: Marek Chołoniewski, Franziska Baumann


from left: Marek Chołoniewski, Franziska Baumann,
Krzysztof Knittel, Andrei Smirnov

Krzysztof Knittel
see page 12

This is a story about the trumpeter Don Cherry, which the jazz sax player and composer Steve Lacy once told Derek Bailey, the outstanding guitarist, author of the book Improvisation, its nature and practice in music: "He used to come over to my house in '50 and '60, around that time, and he used to tell me, 'Well, let's play'. So I said 'OK. What shall we play?' And there it was. The dilemma. The problem. It was a terrible moment. I didn't know what to do. And it took me about five years to work myself out of that. To break through that wall. It took a five years to get to the point where I could just play."

###

Playing based on one's own intuition - this is personal music-making. It can be trained, as one develops mostly what one had already thought up and worked out before. But intuitively one can also select patterns of performance and sound derived from many existing musical traditions, or repeat one's own phrases infinitely. For me, the idea of *intuitive music* refers both to the creative technique and to the very sound material, and is strongly linked up with contemporary art, with music created by means of aleatory techniques, with the creative use of chance in shaping the form of our composition – coming to life intuitively in the process of interaction among the performers – and, finally, with a certain freedom in the treatment of musical material - no specific sound selected in advance, no self-imposed limitations, since the principle of freedom is one of the foundations of intuitive music.

###

Answering Bailey's question why he had never taken up electronic music, Earle Brown explained: "And for my part I found it very boring just to sit down in the studio and cut and splice tape and combine these things. I mean I really like the society of making music with people, you know? (...) I believe affirmatively that improvisation is a musical art which passed out of Western usage for a time but it certainly back now. And I felt that it would come back which is why I based a lot of my work on certain aspects of it. It's here and I think it's going to stay. And it's not going to do away the writing of music but it's going to bring an added dimension – of aliveness – to a composition and bring the musician into a greater intensity of working on that piece."

###

For years I have listened to jazz, especially to Coltrane, but I began to improvise myself relatively late, under the martial law, I believe, when I was copying "Solidarity" bulletins on my typewriter. After all this banging on the keys (11 carbon copies each) I had no strength and no will to compose – in fact, I saw no point in writing music. So I would sit and play the drums for hours on top, all kinds of phrases. Eventually, it even turned into a piece – in *Man-Orchestra* I came out burdened with all those objects I played on. I began to improvise more bravely, and at first I did not care if the results were good or not. Gradually, after several years I began to discover my own voice in improvisation. I called it "sounds from the margin". I left out the whole "centre" of the sound universe and explored the fringe – the realm of noises and cracks. I embraced them as my world of sound, and so I did not take the hard earned bread away from musicians who play traditional instruments.

Krzysztof Knittel, 22nd July 2010

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Morawska-Büngeler, Marietta. *Dusza dźwięków*, Warszawa 2010.

Marek Chołoniewski
see 22 page 12

Compositions written for hundreds of years in the form of precise musical notation explicitly define the form to be performed. They appear as the opposite of most works created by means of improvisation in jazz, in the folk traditions of various cultures, and in contemporary performance practice. Free improvisation, making use of sophisticated musical discourse, frequently leads to much more interesting results that strictly notated musical forms. But this is not the main subject of the long debate on this issue. The predictability and repeatability of a musical piece, the precision with which the composer conveys his uniform musical idea in the form of musical notation becomes, in a way, a substitute for the value and quality of the work. There are also many other elements which differentiate the two types of creative process, and just as many common elements, the most important of which is probably the end result. Free improvisation, not based on any predesigned plan, is a special form of live musical composition based on intuition, on sophisticated performance skills and on the interactive collaboration of musicians, and the resulting musical structures are

not infrequently surprising not only for the audience, but for the improvising musicians themselves.
During the concert given by four artists: Krzysztof Knittel, Marek Chołoniewski, Franziska Baumann and Andrei Smirnov – we will be able to experience a unique multiplication of improvisations and interactions between the performing soloists and their original electronic systems. Krzysztof Knittel has for many years explored the fascinating overlap of analogue and digital techniques. Marek Chołoniewski uses optical systems to create kinetic audiovisual projects. Franziska Baumann transforms her own voice by means of interactive systems attached to the body. Finally, Andrei Smirnov plays a modern version of the legendary Thereminovox, the first non-touch instrument in the history of music.

Marek Chołoniewski

Franziska Baumann
a vocalist, composer and sound artist, is experienced in a diversity of improvised and composed music. As a vocalist she explores the human voice as a multi-faceted instrument expanding traditional boundaries. She has developed an extensive vocabulary of experimental and extended vocal techniques such as multiphonics and glottal clicks and a variety of unique microtonal, timbre-modifying and percussive vocal techniques that have become her "signature sounds". As a composer her repertoire is diverse and includes commissions for electroacoustic and improvised projects to experimental radioworks, large-scale site-specific sound environments and installations, all of which are characterized by a very personal language. Franziska Baumann is the recipient of numerous grants and scholarships. She is a professor for non-idiomatic improvisation-composition and vocal performance at the Berne University of Music, Switzerland.


Franziska Baumann

cyberglove

As "artist in residence" in the STEIM "Studio for Electroinstrumental Music", Amsterdam, Franziska Baumann has developed an interactive SensorLab based cyberglove to enable her to control articulations of voice, sounds and space in real time via gesture and movement. It is used to operate with her left hand the near field sensitivity of the microphone and thus to articulate the character of her amplified voice.
Following the natural movements of her right hand and arm during a performance as a vocalist she has developed an instrument at STEIM Amsterdam that allows her to use physical gestures to sculpt live and prerecorded sounds in space. Her interest focuses on the natural energy flow of the movements to produce a feeling of touching sounds. This approach also enhances her ability to open herself to the near field sound around her body and to the possibilities of shaping sounds with hands and feet.

Andrei Smirnov
Andrei Smirnov is an interdisciplinary artist, author, curator, educator, composer, researcher and developer of electronic music techniques. He is a founding director and Senior Lecturer at the Theremin Center for Electroacoustic Music at Moscow Tchaikovsky Conservatoire, where he teaches courses on the basics of Electroacoustic Music and Physical Computing. Since 1976 he has conducted research and developments in electronic music techniques, gestural interfaces, hardware and software sensor technology, with particular interest in design of the HCI systems with complex relationships between the performer's actions and the interpretation of this information in non-linear methods using custom software. He collects and keeps unique archives on the history of Music Technology and Audio Computing in the early 20th century Russia as well as a collection of original historical electronic musical instruments, combining deep research into the history of music technology with extensive experience of interactive composition and performance.

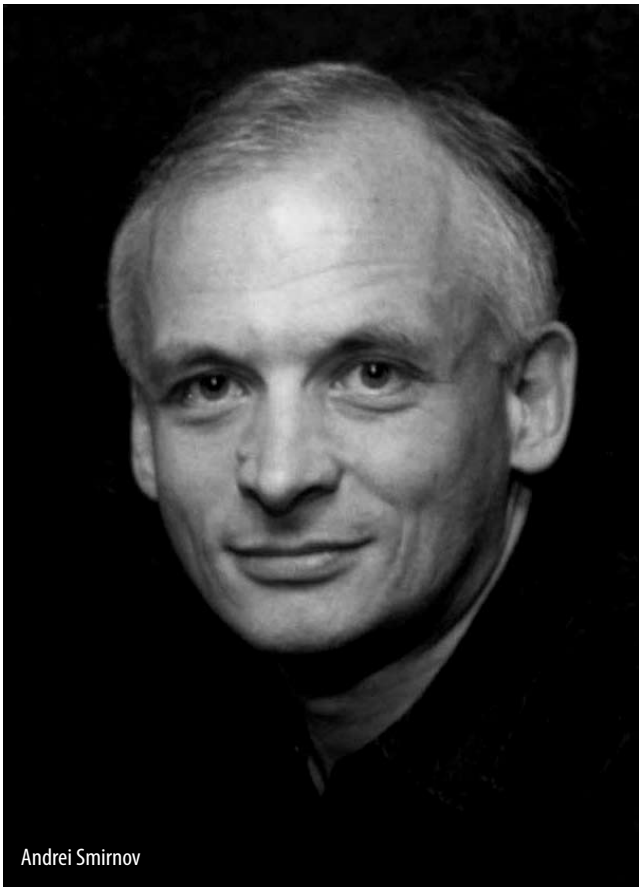
Theremin-vox

(Vaka Theremin) is one of the most distinctive of all electronic instruments. It was invented in 1919 by a Russian physicist and musician, Lev Sergeyevich Termen, whose name somehow became French-ified to Leon Theremin. It has a unique sound, and a unique design. It's also one of the very few instruments you play without touching. Instead of a keyboard, or strings, it has antennas which

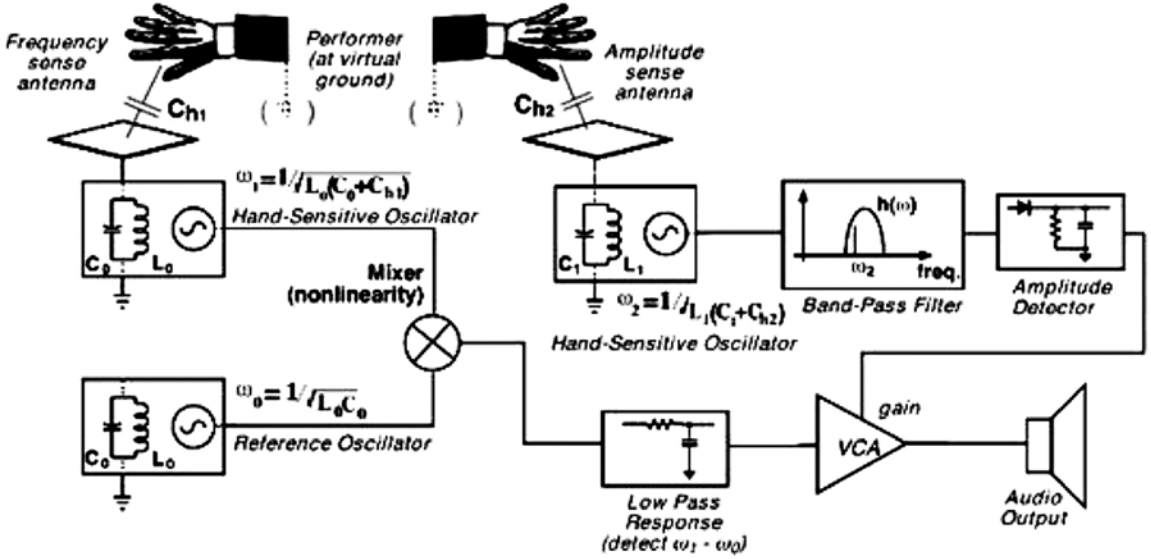
sense the movements of your hands in the surrounding space. Those antennas provide a control of pitch and loudness. The pitch antenna is a vertical rod situated in front of the player and slightly to the right. The loudness antenna is placed to the left and fashioned into a horizontal loop so as to be under the horizontal palm of the player's left hand. Movement of the right hand toward the pitch antenna controls pitch, while movement of the left hand toward the volume antenna controls loudness or volume.

Pitch is changed by the capacitance of your hand, or whatever goes close to the antenna. The Theremin has two very high frequency oscillators (around 350 kHz). One of them is fixed, and the other is varied by the capacitance of your hand: it is the difference between the two frequencies which decides the pitch. That way, even a 0.05% change in the variable oscillator can be substantial for audio frequency – enough, with good design, to give a range of five octaves.

Thus the audio frequency note is produced by heterodyning the outputs of two ultrasonic oscillators. The fixed oscillator operates in the region of 350 kHz with the variable pitch oscillator being above this frequency, the difference equaling the frequency of the note being played. The position of the right hand is sensed by the change of capacitance it introduces in the pitch antenna. This change controls the frequency of the variable pitch oscillator. Left hand circuitry derives a control voltage from the loudness antenna, this voltage being used to control the gain of the voltage controlled amplifier and hence the amplitude of the output. The resulting sine wave output is processed to give more complex waveforms which provide a choice of tone colors in addition to the pure sine wave tone.



Andrei Smirnov



Brain Jazz: Guiding the Found Processes

The modern computer music techniques offer composers a potentially limitless array of possibilities to create and process sounds, which, actually, means the devaluation of sound itself in a creative context of musical composition. In the 1970-80s the emerging computer music technology was seen as a value in itself in the creative process. Quite often to 'compose music' meant 'to compose tools' and vice versa. Within our current creative environment of digital art production, musical technology appears as a big shopping mall, where everything is cheap and easily available to everyone, providing a template way of thinking and producing: more appropriate for mass production than for works of individual art.

On the other hand, despite all the aesthetic discoveries and innovations in the 20th century music, the symphony orchestra has not change much. Certainly, it is possible to develop new performing techniques for old instruments, combining them in a new fashion in the contexts which are not peculiar to them, expanding somehow the sound palette. Perhaps a much more productive way is to create new tools and instruments combining unique acoustical properties with the most recent achievements of modern technology, using the acoustical properties of various objects and spaces, working with resonances and vibrations, inventing unusual ways of sound production and amplification, combining these with emerging new opportunities of computer technology.

What is nice – the current technology tends to become invisible and obvious, opening up a potentially limitless array of brand new possibilities to avoid any old templates by applying and hacking processes, which previously were hardly accessible. It opens up new fields for creativity, which sometimes are not easy to identify in relation to former traditions and aesthetics.

Guiding the Found Processes

As an artist I prefer to deal with the Found Processes, not necessarily musical. I study in order to initiate them, to guide them in a desirable direction, to extract a sound from them or to gain control data which will conduct other processes. There are quite clear rules of the game, known to the performer, which often change in the process of the performance according to the score and/or mutual arrangements, defining the musical structure as a whole. Perhaps we can talk about improvisation, which is quite limited by the boundaries predefined by the author.

Unlike in free improvisation, I always have an exact idea about the desirable results of the process we initiate on the stage. I have a plan. Sometimes – a kind of score, but no guarantees of success. I develop a kind of self organizing system, which incorporates the human-performer as an organic part, responsible for the flexible positive feedback, leading to the growth and development or destruction of the musical process and related musical form, carrying out the main principle of the interactive system – to engage the performer in an active, kinetic relationship with the musical process. In most cases I leave them alone on the stage – the Machine and the Human connected in a flexible but unstable and extremely fragile unity.

Digital Theremin

Digital Theremin is a project in progress, initiated in 2000 during experiments with the theremin-sensors – devices which are based on the same principle as the well known electronic musical instrument theremin and the terpsitone, created by the Russian inventor Leon Theremin. The Theremin was the first electronic musical instrument, built in 1919-1920, furnished with special antennas to control sound by the free movement of hands in the space surrounding it. The terpsitone, first built by Leon Theremin in 1932, is a special theremin-platform for a dancer to control sound by means of body movement. Unlike the classical theremin, which is a musical instrument produces sound, the theremin-sensor is a controller. It produces the control data to play with computer software.

Digital Theremin project is a direct consequence of new wonderful opportunities resulting from the development of new microcontroller technology accompanied by the fast development of popular open-source electronics prototyping platforms, such as Arduino, based on flexible, easy-to-use hardware and software, intended for artists, designers and anyone interested in creating interactive objects or environments. It opens up new opportunities to develop new instruments as a part of creative project, intended to develop new musically expressive forms and structures.

A major project based on the theremin-sensor technology is the SonoChronoTop – a series of installations and performances, whose major paradigm is an active, flexible sound environment, depending on the interaction with a dancer's movement, correlating with a meaningful gesture. Within this project I composed the active virtual space and related algorithms, defining the final musical form not as a fixed structure, but a result of evolution of a self-organizing dynamic system, crossing several structural levels during the performance, adaptive to the character and prehistory of the movement.

The DIY multichannel digital theremin-sensor system was used for motion tracking, extending the idea of Leon Theremin's Terpsitone. Unlike any analog theremins, digital theremin-sensors

are very convenient for live interactive performance as well as long term interactive audio-visual installations. They do not need any continuous maintenance and tuning by the performer or the personnel. Any conductive media could be utilized as antennas: metal objects, foil, water, human body, plants and vegetables, metal threads, thin plastic films with metallization, all sorts of Christmas stuff, conductive fabrics and clothes etc. The performer can obtain almost any pitch to distance scaling to get the best linearity by pure software means.

One more consequence of the Digital Theremin project is the 3-D Theremin – a new performance instrument I use in musical performances and improvisation, capable of spatial multidimensional control over the sound, providing control over the dynamic processes as well as individual sounds.

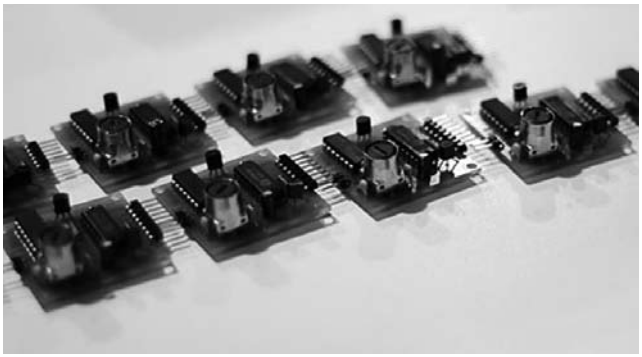
Brain Jazz

The Brain Jazz interactive performance/installation for one soloist, one programmer, two assistants and interactive brain-wave biofeedback system was realized in 2001 as a result of a long-term research and development project, initiated in 1985 within the 'Emosaurus' project – an attempt to create a computer game based on a biofeedback system, which was carried out at the Institute of Psychology of the Russian Academy of Sciences.

Early experiments with using the nerve and muscle bio-electric signals (bio-potentials) for musical biofeedback systems were conducted in the late 1960s – mid 1970s in Europe and the US. The basic idea of the biofeedback is simple: the system generates a changing audio process, the performer reacts to changes of sound. The system registers some changes of the performer's electrophysiological data and alters the audio process in a certain way. The performer reacts to the change. A machine registers the change of electrophysiological data and alters the audio process further, etc.

In the Brain Jazz, the system is measuring the performer's electroencephalogram (EEG), which is a complex signal and an important brain state indicator. It can be registered by electrodes placed on the scalp. EEG spectral analysis (decomposing a signal

Sensor-Garden installation and performance during the A=V '07 – mini Festival / Krujok, Munich, Kunstarkaden, Germany. 20-24.11.2007.
A plant is connected to the Theremin-sensor as a kind of live antenna. Performers and spectators can interact with the plant touching its leaves, branches and trunks. MAX/MSP based interactive system is analyzing and interpreting incoming sensor data conducting the pre-programmed sound generative process. Different ways of interaction produce musically meaningful audio reactions.



The Theremin-sensor kits intended to convert any laptops into digital Theremins, useful for numerous interactive applications.
Andrei Smirnov's Theremin-Sensors Workshop at the Club Transmediale, Berlin.

into its constituent frequency components) is an important method to investigate brain activity.
In the practical system, developed for the performance, the amplified EEG signal was bandpass filtered between 0.5 and 50 Hz. The raw EEG was then subjected to time-varying spectral analysis by computing the mean spectral power in the different frequency bands usually employed in EEG analysis (often called the "brain waves"), that is, theta (4-7 Hz), alpha (8-12 Hz), beta (13-24 Hz), and gamma (24-45 Hz) as well as delta frequency band (0.5-4 Hz).
David Rosenboom and Jacqueline Humbert gave short descriptions of what it is like to experience the extremely strong, highly coherent production of the corresponding brain waves:
'Beta: "Maximum efficiency in making abstractions. Making instantaneous logical connections between things seen in the environment."
Alpha: "Super consciousness of the presence of everything in the environment but not making abstractions. Raw data stored but not coded. No filters on incoming information."
Theta: "Pure relaxation, oneness. Everything on automatic pilot. Automatic, non-evolutionary automation."'[1]
Delta power has been examined in a number of various EEG studies as an indicator of sleep/wakefulness and other conditions.
The system is analyzing and interpreting incoming data into the process of generation and development of a flexible musical structure, depending on the brain state of the performer. Although the control over the stream of sound events can be musically justified, the mechanisms of interaction often remain unclear to the audience. Quite often there is a doubt whether it was not better to use a ready-made, reliable phonogram. For instance, how can the audience notice and recognize the origins of the processes resulting from postsynaptic potentials of cortical pyramidal cells?
While the process of generating sound texture was dependent on the slowly changing data, based on the relative values of the mean spectral power of alpha, beta, theta and delta frequency bands, all fast processes, related to the rhythm and fermatas as well as a macro-segmentation of the audio stream (a counterpart of the musical phrase) were dependent on the facial expression of the performer, gaining a kind of 'semantic feedback' from the audience. The data, related to the eyes movements and facial expression was obtained by measuring the electrooculogram (EOG) – the bio-potential, which was derived from an electrode placed medially above the left eye and a second electrode laterally below the left eye to detect vertical and horizontal eye movements.
The piece is divided into three parts – 'Relaxation', 'Action' and 'Meditation', related to specific tasks the performer has to follow during the performance, resulting in corresponding psychological states of the performer and related electrophysiological processes.
In the first version of the piece, performed in 2001, the musical material was based on pitches, rhythms and timbres, organized in series, generated by a MIDI system and controlled by the MAX/MSP software. In the current version all sounds are derived directly from the performer's electroencephalogram. The spectrum of the raw EEG signal is transposed up to fit the audible range by means of a phase vocoder with an extra real time sound processing by means of Michael Norris's spectral plugins.

Keepalive

In some cases I reserve my own right to interfere with the process of performance by software means, to influence developing processes, sharing responsibility with the soloist. If the system fails, the role of a co-performer increases. When the system hangs (which, unfortunately, happens) – there is simply an improvising musician left on the stage. Similar to real life, there are numerous reasons for the fault and crash. I regard this fact not as a drawback, but as an important feature of live performance. I never build a musical form as something that is 'goal directed', a linear approach, meaning that the work flows from beginning to end to an unmistakable conclusion. I regard each performance as a new essence, born on a stage, having own destiny, not necessarily predictable or even desirable to the author. Even when it 'dies' in the very beginning and the expected musical form has failed, the performance has taken place. The essence has been born. Its life was short, it has prematurely died, but it lived…

Andrei Smirnov

[1] Rosenboom D. *Biofeedback and the Arts: Results of Early Experiments*. Aesthetic Research Centre of Canada (A.R.C.) 1974. p.120.

Stefan Östersjö

Electronics meets challenges of the 21st century

Natasha Barrett
Deconstructing Dowland for guitar and interactive live electronics, Polish premiere (2009, 9')
Rolf Wallin
Strøk for tape (1989, 7')
Clarence Barlow
otodeblu for retuned player piano (1990, 4')
septima de facto for retuned player piano, world premiere (2006, 7')

Chopout for interactive computer and Disclavier, world premiere (2010):
Krzysztof Czaja
Id
Andrzej Kopeć
R-evolutio
Szabolcs Esztényi
Torus

Lidia Zielińska *In the Rear* for computer, world premiere, 'Electronics Meets Challenges of the 21st Century' project commission (2010)

Natasha Barrett – computer
Stefan Östersjö – guitar
Jøran Rudi – computers
Szabolcs Esztényi – Disklavier, piano improvisation
Krzysztof Czaja, Andrzej Kopeć – computers
Piotr Olczak – visual layer
Lidia Zielińska – computer
Rafał Zapała – Max/MSP
Ewa Guziołek-Tubelewicz – sound engineering


Natasha Barrett

Natasha Barrett
works primarily with composition, research and creative uses of sound. Her output spans concert composition through to sound-art, large sound-architectural installations, collaboration with experimental designers and scientists and spatialisation performance interpretation. Whether writing for live performers or electroacoustic forces, the focus of this work stems from an acousmatic approach to sound, the aural images it can evoke and an interest in techniques that reveal detail the ear will normally miss. Sound's spatio-musical potential features strongly in her work, over the past ten years involving practical application of ambisonics and more recently the interactive spatial sonification of scientific data.

Barrett studied in England with Jonty Harrison and Denis Smalley for Master's and doctoral degrees in composition. Both degrees were funded by the humanities section of the British Academy. Since 1999 Norway has been her compositional and research base for an international platform.

Barrett's works are performed and commissioned throughout the world, receiving numerous recognitions, most notably the Nordic Council Music Prize (Norden / Scandinavia, 2006), Giga-Hertz Award (Germany, 2008), Edvard Prize (2004, Norway), Noroit-Leonce Petitot (Arras, France, 2002 & 1998), Bourges International Electroacoustic Music Awards (France 2001, 1998 & 1995), Musica Nova (2001),

IV CIMESP 2001, Concours Scrime (France 2000), International Electroacoustic Creation Competition of Ciberart (Italy 2000), Concours Luigi Russolo (Italy 1995 & 1998), Prix Ars Electronica (Linz, Austria 1998), 9th International Rostrum for Electroacoustic Music (2002).
Her installations include a major work for the Norwegian state commission for art in public spaces. Works are available on Aurora, empreintes DIGITALes, Euridice, Albedo, CDCM Computer Music Series and Cultures Electroniques Bourges.

Deconstructing Dowland

John Dowland's song *Can she excuse my wrongs?* was published in 1597 in the First Book of Songs. The song is in the form of a galliard that we find as both consort setting and as three galliards for lute solo. Taken together, these lute pieces may give an idea of Dowland's art of extemporization. In 2003 Barrett began work on a live electronics composition for guitarist Stefan Östersjö. This composition, *Where shadows do for bodies stand* takes as its starting point Dowland's *Can she excuse my wrongs?*. The electroacoustic medium provided a means to connect antique music to a new aesthetic of sound-surrealism that dually serves to expand the guitar's quiet and intimate sonority. Dragging the antique into the modern even further, deconstruction of the three galliards was the source of *Deconstructing Dowland*. Deconstruction can be a process of dismantling to create something new; a transgression, a disruption, a shifting of meaning from the inside out. *Deconstructing Dowland* was commissioned by Stefan Östersjö with funds from the Norwegian Fond for lyd og bilde.

Rolf Wallin
born in Oslo in 1957, is one of the foremost contemporary Nordic composers. His musical background spans from jazz, avantgarde rock and early music to traditional classical training, and this versatility is reflected in an exceptionally manyfaceted list of compositions. Wallin's compositional output covers a wide range of techniques and expressions: from strictly absolute music to music theatre, from strongly intuitive music for dance and performance art to elaborate computer-aided composition in his instrumental music.
Wallin's music is regularly performed worldwide. He has written for some of the world's foremost performers, ensembles, institutions and orchestras, such as Cleveland Orchestra, Ensemble Intercontemporain, IRCAM, Arditti String Quartet and Wiener Mozartjahr.

Strøk

In Rolf Wallin's *Strøk* (1989), the sound of living instruments is given center stage. But instead of thinning out and scraping off layers of sound, Wallin constructs bulky expanses of sound with sensual textures that never move far from their instrumental origins. The work is based on 12 seconds of the Norwegian fork songs *Huldreslåtten* and *Nordafjells*, performed on the Hardanger fiddle by Hallvard T. Bjørgum. Assorted manipulated variants of this material are built up layer by layer, and *Strøk* is very much guided by harmonic elements, in that inherently natural tones of the Hardanger fiddle have been allowed to permeate the work. All the same, there is a quality of movement that probes beyond the familiar, and the constantly wandering sound constellations are never trapped in any form of folklorism. The strong rhythmic element in the traditional fiddle tunes merges with the pulsating expenses of sound, and the work can be interpreted as a way of eliciting the unconscious soul of the Hardanger fiddle, in which the distinctive sound of the instrument is magnified and brings to mind dreamlike, almost surreal soundscapes.

Eivind Buene


Rolf Wallin


Clarence Barlow

Clarence Barlow
was born in 1945 into Calcutta's English-speaking minority. Between 1951 and 1965 he studied piano and music theory, producing his first compositions in 1957. In the years 1962-1965 he studied natural sciences in Calcutta. In 1966-68 Barlow was active as pianist, conductor and music theory teacher. In 1968-73 he studied composition and electronic music in Cologne. In 1971 he used a computer as a compositional aid for the first time. Between 1982-1994 he taught computer music at the Darmstadt Summer Courses. In the years 1984-2005 he was a lecturer on computer music at Cologne Music University. He was guest professor of composition at the Folkwang University Essen between 1990 and 1991. In 1990-94 – artistic director of the Institute of Sonology in The Hague. In 1994 he became a professor of composition and sonology in The Hague Royal Conservatoire till 2006. From 2005 to 2006 Clarence Barlow was guest professor of composition at the School of Music and Performing Arts ESMAE in Porto. Since 2006 he has been professor and head of composition at the Music Department, University of California in Santa Barbara.

otodeblu

is my response to Georg Hajdu's invitation to add to his collection of short piano pieces using 17 tones per octave and to Amnon Wolman independently requesting a short piece to add to those with which he was to celebrate John Pierce's 80th birthday in 1990. With my computer program AUTOBUSK it basically took me 8 hours into Wolman's deadline of October 1st 1990. My initial wish to develop a harmony involving the 7th and 11th partials I left for later (see below), the grammar here deriving from natural 5ths and 3rds. The four-minute-piece's title could be seen to refer to AUTOBUSK (generating all but a tiny quote from the song "Sixteen Tons"), to the brand new Octogenarian for whom it was written, to its completion date (Oct. 1), the hours it took to make (8) as well as to its (blues) style. Also 'otodeblu' is Japanese for 'made blue by sound'.

septima de facto

meaning 'the seventh in fact', is a piano piece made in the summer of 2005 and based on a song by the artist Prince: the piece derives on the one hand from the song's harmony (here extended to include natural 7ths as already planned in 1990) and metre (here condensed to a 7/8 beat) and on the other from the phonetics of parts of the text (a spectral analysis was converted into piano sounds by my "synthrumentation" method). This piece of seven minutes forms after a 15-year delay the second part of a diptych (with "otodeblu" of 1990) performable by computer

or by pianists, and which though originally intended for a tone-system of 17 equal steps per octave can be rendered in other tunings such as those with 12 or 24.

In this performance, both pieces are performed on a player piano in 17-tone equal temperament. For *septima de facto* this is a world premiere.

Clarence Barlow


Krzysztof Czaja

Krzysztof Czaja
born in 1962. He graduated from the Fryderyk Chopin Academy of Music (now the University of Music) in Warsaw. At present he works at his alma mater in the class of composition in the Studio of Electronic and Computer Music.


Krzysztof Czaja and Andrzej Kopeć


Andrzej Kopeć

Andrzej Kopeć
a composer born in Białystok. He graduated from the Fryderyk Chopin Academy of Music in Warsaw in the classes of clarinet and composition. At present he is working at the Fryderyk Chopin Music University in Warsaw in the class of composition in the Studio of Electronic and Computer Music. His interests include algorytmic music and programming of interactions.

Piotr 'Olsen' Olczak
born in 1975, ground rigger and lighting director. In his free time, he pursues computer-generated art, industrial and recently also anaglyph photography as well as VJing.

Szabolcs Esztényi
a composer, pianist, improviser and a pedagogue of Hungarian origin. He was born in 1939 in Budapest. From 1969 he has been resident in Poland. He studied piano with Margerita Trombini-Kazuro and composition with Witold Rudziński at the State Academy of Music in Warsaw.
As a composer and a soloist he appeared at numerous festivals, both in Poland and abroad, among others at "Warsaw Autumn", Poznań Music Spring, Warsaw Musical Meetings, Festival "Musica Polonica Nova" in Wrocław, Festival in Łańcut, Forum in Memoriam Witold Lutosławski, Polish Piano Festival in Słupsk, Biennale in Zagreb, Budapesti Zenei Hetek, Donaueschinger Musiktage, Piano Festival in Bergamo-Brescia, Festival d'été de Lanaudière in Quebec, Nordiske Musikdage, Recontres Internationales de Musique Contemporaine Metz. He performed with such eminent artists as Jerzy Artysz, Andrzej Hiolski, Heinz Holliger, Roman Jabłoński, Jadwiga Kotnowska, Wilanów Quartet, Halina Łukomska, Olga Pasichnyk, Jadwiga Rappé, Zygmunt Krauze, Jerzy Witkowski and Iwona Mironiuk. He has given many world premiere performances of works by such composers as Kazimierz Serocki, Rafał Augustyn, Paweł Szymański. He has recorded for the Polish Radio.
For many years Esztényi has collaborated with Ferenc Lantos and Mária Apagyi, the creators of musical-visual pedagogics and founders of Free Artistic School in Pécs, Hungary. Since 1972 Esztényi has been a teacher of piano improvisation at the Music Academies in Warsaw and Łódź. He is a regular guest at the national academic centres as well as at the Hungarian institutions: Institute of Pedagogics at the Instrumental Academy in Debrecen, University in Pécs, Educational Centre in Pécs.
He is the winner of the 1st prize at the National Improvisation Competition in 1968. In 1988 he received the Polish Composers' Union Prize for the promotion of Polish contemporary music, in 1989 – prize "Orfeo" founded by the Critics' Section of the Polish Musicians


Szabolcs Esztényi

Society for the performance of pieces by Tomasz Sikorski at the 32nd "Warsaw Autumn" International Festival of Contemporary Music, and in 1993 – an annual prize granted by the Polish Composers' Union. From 1993, Eszténvi has held a professorship of the Fryderyk Chopin Music University, Warsaw.

Chopout

is the name of an instrument intended for one pianist and offering just one kind of timbre – a pure, acoustic piano sound. The instrument consists of two pianos and a computer system which controls their mechanisms and follows the action of the piano being played by the pianist.

Chopout is at the same time the name of the process which leads from the abstract form programmed by the composer (*Id*) to the actual music (*Anathemata*), being composed by the program concurrently from the material accumulated during the performance by the pianist, who is improvising both following the score (*R-evolutio*) and freely (*Torus*). The four colours which dominate in the visual layer – stage lighting and image projection – correspond to the four stages of this process; black (*Id*), red (*R-evolutio*), blue (*Torus*) and green (*Anathemata*).

Lidia Zielińska

was born in 1953 in Poznań. She graduated in composition from the State Academy of Music in Poznań from the class of Andrzej Koszewski. She is a winner of numerous prizes at competitions around the world. Her compositions have been performed at festivals in many countries in Europe, Asia and both Americas. In 2007 she received the Polish Composers' Union Prize for outstanding and versatile achievements in composition. Zielińska's works have been comissioned by Polish Radio, "Solidarity", The Theater of the Eighth Day, Holland Dance Festival, Euro – Musik – Theater in Stuttgart, Dutch ensemble "De Ereprijs", Swedish Radio, The Ministry of Culture Baden – Würtenberg, "Warsaw Autumn" Festival, Adam Mickiewicz Institute, The Ministry of Culture and National Heritage of Poland. She worked, among others, in studios of electronic music in the Music Academy in Kraków, Experimental Studio of the Polish Radio in Warsaw, IPEM/BRT in Gent, EMS in Stokholm, ZKM Karlsruhe.

At present Lidia Zielińska holds a professorship of the Poznań Academy of Music and is the director of the Studio of Electroacoustic Music at the same institution. She continues to lecture in sonology at the Poznań Academy of Fine Arts.

Zielińska is the author of various publications and lectures. She is also vice-president of the Polish Composers' Union and the Polish Society of Electroacoustic Music. She used to be a member of a Repertoire Committee of the "Warsaw Autumn" International Festival of Contemporary Music.


Lidia Zielińska

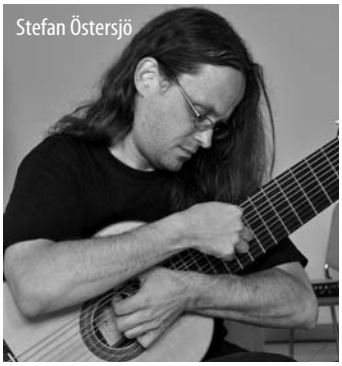
In the Rear

The piece was composed in the Electroacoustic Studio of the Poznań Academy of Music in 2010. It exists in 4 versions: ambisonic, multichannel, stereophonic and binaural. I am extremely grateful to Rafał Zapała for his precious help with the technological experiments and to Laura Sobolewska, a pianist whose performance is recognizable in my piece.

Lidia Zielińska

Stefan Östersjö

born in 1967, is one of the most prominent new music soloists in Sweden. Since his debut CD (Swedish Grammy in 1997) he has recorded extensively and toured Europe, the US and Asia. He writes articles on contemporary music and is frequently invited to give lectures and master classes at universities, festivals and academic conferences. His special fields of interest are: the interaction with electronics, and experimental work with different kinds of stringed instruments other than the classical guitar. His great interest in chamber music has resulted in the founding of the flute, viola and guitar-trio HOT 3 and collaboration with most chamber ensembles and important soloists in Scandinavia such as Jonny Axelsson, Geir Draugsvoll, KammarensembleN, Ensemble Gageego and Ensemble Ars Nova. He is continuously working with composers both in Sweden and abroad on the task of extending the repertory of solo works and chamber music with guitar. As a soloist he has cooperated with conductors such as Lothar Zagrosek, Peter Eötvös, Pierre André Valade, Mario Venzago, Franck Ollu and Tuomas Ollila. He has recorded extensively for the Swedish National Radio and also for Swedish TV as well as in many other countries.


Stefan Östersjö

Stefan Östersjö studied with Gunnar Spjuth and Per-Olof Johnsson at the Malmö Academy of Music and also with Peder Riis and Magnus Andersson in Stockholm and Darmstadt. He holds a PhD in the performance of new music. His thesis *SHUT UP 'N' PLAY! Negotiating the Musical Work* was published by Lund University Press. He is at present engaged in artistic research on the performance of new music at the Malmö Academy of Music and as a research fellow at the Orpheus Institute in Gent, Belgium.

Jøran Rudi
see page 24

Rafał Zapała
born in 1975, composer (contemporary, electronic and theatre music) and improviser (percussion and live electronics). Graduated from the Academy of Music in Poznań (after choir conducting studies with Janusz Dzięcioł and composition studies with Lidia Zielińska). Doctoral student at Krakow's Academy of Music; assistant lecturer at the Department of Composition and on the staff of the Electro-acoustic Music Studio of the Academy of Music in Poznań.

Ewa Guziołek-Tubelewicz
graduated from the Department of Sound Production at Warsaw's Academy of Music (1982). In 1983 she took up a post in the Experimental Studio of the Polish Radio, where she still works, specialising in the production of electronic and computer music. She is responsible for sound projection at numerous contemporary music festivals and concerts. She is also involved in the reconstruction of historical recordings and in mastering.


from left: Natasha Barrett and Stefan Östersjö

Norwegian Noise

in co-operation with Ultima Oslo
Contemporary Music Festival

Hammond Pops, world premiere

"Golden Serenades":
Frode Flatland, Jørgen Træen – electronics
Sigbjørn Apeland – Fender Rhodes electric piano, electric organ

from left: Frode Flatland and Jørgen Træen

Golden Serenades

was founded in 1999 by Jørgen Træen and John Hegre, whose musical output spans from pop to serious composition and hard-nosed experimentalism. They both appear with different bands and orchestras: Hegre with Noxagt, Ultralyd and Jazkamer, etc., Træen also in Jazkamer, and under the pseudonym Sir Duperman. Together they are "Golden Serenades".

Since their start-up in 1999 they have pursued the noble art of instrument dismantling and destruction. Through performances and installations the duo has created a long series of sonic havoc, making them one of the leading acts within the noise genre in Europe. "Golden Serenades" got attention from the national press following a performance in 2007 where they crushed guitars valued at $5000. The performance was sponsored by official funding and the liberalist Knut Haavik in the board of culture deemed the whole act "horrendous" and "waste of tax-payers money". The concert was held up as an example of "unnecessary culture" by the far-right Progress Party throughout their political campaign.

Their music, as much of the music in the experimental field, is based on the invention of the magnetic tape. By using new techniques for cutting tape or manipulating the tape machines, one could compose with sounds from sources that were not musical in the traditional sense, and Hegre's and Træen's version of musique concrète references the works of Pierre Schaeffer, Pierre Henry and John Cage.

For the concert at "Warsaw Autumn", the "Golden Serenades" were joined by Sigbjørn Apeland, organist in Korskirken, Bergen, and professor at the Grieg Academy at Bergen University. John Hegre was not able to come to the concert and was replaced by Frode Flatland. The improvisation they played is based on the organ, which "Golden Serenades" sample on tape recorders, manipulate and play back on several bass and guitar amplifiers, thus combining musique concrète with iconic elements from rock music. Improvisation is the key for this trio, not only in the structural sense, but also in the sense of listening to what they are doing, without knowing exactly where they are heading.

The work was commissioned by *Dans for Voksne*.

John Hegre
is half the brain behind Jazzkammer (sometimes spelled Jazkammer) and a prominent guitarist in ensembles like Der Brief, Rehab and Noxagt. Since the late 1980s he has worked with live music, installations and studio art with a long list of collaborators that include Lasse Marhaug, Merzbow, Maja Ratkje, Fransisco Lopez and MoHa!

Frode Flatland
born in 1982. Associated member of Golden Serenades. Plays baritone-guitar in the rock-trio Ungdomskulen. Builds effect-pedals and synths, and is currently electrifying music of Norwegian composer Edvard Grieg. Starts every day with improvisation and a cup of tea.

Jørgen Træen
works regularly with Jazzkammer, the retro-cartoon-pop outfit Toy and the free improv noise unit Der Brief. Træen has also released several solo albums as Sir Duperman – including a remix album of Jazzkammer "hits". Following this success Træen went on to produce a series of top selling Norwegian pop acts (Sondre Lerche, Jaga Jazzist). He is also involved in the pop/electronica unit House of Hiss.

Sigbjørn Apeland
is a performer par excellence on the organ and a credited researcher. His work often borders between contemporary music, church music, folk music and improvisation. He has established a long-standing working relationship with the fiddle player Nils Økland and singer Berit Opheim.


John Hegre


Jørgen Træen


Frode Flatland


Sigbjørn Apeland

Audience