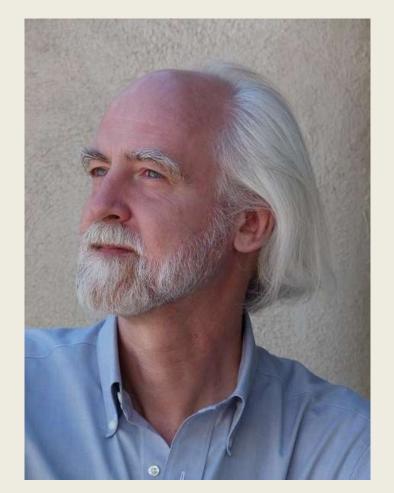


# Lars Graugaard



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Complete artist information including video, audio and interviews are available at <a href="https://www.pricerubin.com">www.pricerubin.com</a>

# **Lars Graugaard – Biography**

Lars Graugaard is a very experienced and highly trained musician, composer and scholar with an artistic vision and musical understanding that lets him move freely between sophisticated surroundings and popular culture. He has a strong academic background with a degree in flute performance from <a href="The Royal Danish Academy of Music">The Royal Danish Academy of Music</a> and a PhD in interactive music from <a href="Oxford Brookes">Oxford Brookes</a> University.

Lars' musical background lies in a mix of styles and his production comprises compositions in the modernistic European tradition from large-scale orchestral pieces to chamber music, as well as popular projects and digital experiments into the latest trends of interactive music and cross-modal forms. He is Visiting Faculty Artist at <a href="New York University Steinhardt music department">New York University Steinhardt music department</a> since 2010 and composer-in-residence at <a href="El Grup Instrumental">El Grup Instrumental</a>, Valencia, Spain until 2015. In 2015 he will commence a composer residency with the young and promising Hamburg-based <a href="Decoder Ensemble">Decoder Ensemble</a>.

Although trained as a performer Lars has always been very active in music creation, with more than 180 score compositions released on numerous LPs, CDs and digital formats to his credit. His compositions always have a direct appeal and are crafted with great musical knowledge on all levels. There is at times a strong eclecticism in his music, adapted to the circumstances of a commissioned composition. Moreover, Lars permeates his compositional process with recent discoveries in human perception and cognitive musicology, and all of this makes for a body of musical work that equally appeals to the senses and to the mind. Recent major compositions include the orchestra work 'Venus', the sinfonietta works 'Blind Lemon' and 'Engage & Share', 'Book of Throws' for 12 players and improvising piano soloist, the interactive opera 'Trenes de Marzo' and 'Milbank's Football' for symphony orchestra. A CD in surround format with his most significant works commissioned by NYU Steinhardt will appear on the Danish dacapo label during 2015.

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#### **Lars Graugaard – Biography**

As a performer Lars continues to gives concerts all over the world. When the flute was his principal instrument he performed and recorded CDs with the music of his contemporaries as well as classical composers such as J. S. Bach, Boccherini, Spohr, Beethoven, Rossini and Reger. He holds a diploma in flute performance from the Royal Danish Conservatory, Copenhagen. In recent years he has turned to the laptop as his preferred performance tool, shaping it as a sophisticated vehicle for interpretation in interactive and generative music. Many if the ideas Lars make use of come from music research into expression and emotion in music. His performances are always in real-time with procedures written into custom computer code to algorithmically guide and intuitively shape basic musical ideas and sectional development.

A recent group performances are guided improvisations with instrumental performers that are skilled in free improvisation in duo settings with top-level international performers. This includes NYU Steinhardt affiliates such as pianist Jean-Michel Pilc, bass-player Drew Gress, wind-player Dave Schroeder, flutist Robert Dick and guitarists Brad Shepik and Keisuke Matsuno, as well as NYU Improvisers' Ensemble and NYU Jazz Composers' Ensemble. The richness of these activities provides Lars with a platform for continuous development in research and theory and subsequent application in composition, performance and programming.

Lars was professor of interactive music at <u>Carl-Nielsen-Academy-of-Music</u> and lectured for five years at Aalborg University's <u>Medialogy Department</u>, both in his native Denmark. Lars has participated in and directed several research projects and he has held a handful of trusted positions in international organizations in the field of music and is on the board of the <u>International Society for Contemporary Music – ISCM</u>. Lars was composer-in-residence 1996-1999 at <u>Odense Symphony Orchestra</u> and he was Artistic Director 2007-2014 of <u>re-new forum for digital art's annual festival and conference</u>. In 2013 Lars initiated the record label and music promoter <u>clang</u>.

Lars regularly hosts workshops in composition techniques in interactive music and real-time laptop performance.

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Lars moves with ease between sophisticated surroundings and popular culture, and since 1982 he has composed more than 180 works that range from score compositions in the contemporary classical tradition over popular projects and well into digital experiments into the latest trends of interactive music, installations and cross-modal forms.

The compositions embrace score works for solo instrument, chamber music, orchestra and opera as well as interactive works and installations. You will find works in all common instrument categories including strings, brass, woodwind, percussion and laptop as well as solo voice and choir.

On the website http://www.l--l.dk you will see that very many work entries have the score available in PDF format for free download, and several have recordings you can listen to on-line. If you are interested in performing a particular work you should contact lars@l--l.dk to get the performance material.

The compositions are ordered in categories and listed in reverse chronological order.

#### **Orchestra**

#### Venus

violin and double-bass solo, electronics and orchestra 2,2,2,2/2,2,0,0/arpa/8,7,5,5,3 (2013)

#### Milbank's Football

2,2,2,2/2,2,0,0/perc/6,5,4,3,2 (2011)

## **Unto These Yellow Sands**

0,2,0,0/2,0,0,0/8,6,4,4,2 (2000)

#### Symphony No. 1

3,3,3,3/4,3,3,1/harp,2perc,timp/strings (2000)

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## Shake Off Slumber, And Beware:

0,2,0,0/2,0,0,0/8,6,4,4,2 (2000)

#### The Disguise Within

viola solo and 2,2,2,2/4,2,2,1/harp,2perc/strings (1999/2000)

## Four Settings of Carl Nielsen

singer and 2,3,2,3/4,3,3,1/harp,1perc,timp/strings (1999)

#### **Locked Embrace**

clarinet solo and 3,3,3,3/4,3,3,1/harp,2perc,timp/strings (1998)

## Your Shadow, Passing By

3,3,3,4,3,3,1/harp,2perc,timp/strings (1998)

#### To Forget You Is To Forget My Name

flute solo and 3,3,3,4,3,3,1/harp,2perc,timp/strings (1997/98)

## Parallel Love Orange

two pianos and 2,2,2,2/2,2,0/2perc/strings (1997/98)

## This Is My Blood

3,2,3,2/4,3,3,1/harp,2perc,timp/strings (1994/97)

## The Hand, Unveiled

hp solo, 2,2,2,2/4,0,0,0/1perc/strings (1986/87, rev. 1996)

## Four Songs – of Desire and Sadness

soprano solo and 3,3,3,4,3,3,1/0/strings (1995/96)

## Concerto for Euphonium and Brass Band

euphonium solo and brass band (1994/95)

## Concerto for Flute and Wind Band

flute solo and wind band (1994)

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## Four Songs for Tenor Voice and Wind Band

tenor voice and wind band (1994)

#### **Sated Bodies**

3,3,3,4,3,3,0/harp,3perc/strings (1993/94)

#### Serenades

wind band (1990/91)

#### Resound

3,3,3,4,3,3,1/timp,1perc,harp/string (1989)

#### **Three Studies**

3,3,3,4,3,3,1/harp,2perc/strings (1986)

#### **Chamber Orchestra**

#### **Blind Lemon**

1,1,1,1/1,1,1,0/arpa,pno,1perc/1,1,1,1,1 (2013)

## **Layers of Earth**

oboe solo, int-comp, 15 percussion (2011/12)

## **Tears of Dionysius**

reciter, film and sinfonietta ensemble (2001/08)

## **Book of Changes**

solo wind player and sinfonietta (2001/02)

## **Book of Motion**

solo percussion and sinfonietta (1998)

## Body, Legs, Head.

1,1,1,1/1,1,1,0/pno,perc/1,1,1,1 (1996)

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## **Double Image**

fl and guit solo with string orchestra (1994)

#### The Circle and the Web

1,1,1,1/1,1,1,0/pno,perc/2,1,1,1 (1992)

#### **Triple Concerto**

fl, ob, hp solo with string orchestra (1991)

## Ophelia in the Garden

solo harp and string orchestra (1989)

## 1/10/2

woodwind and string quintet (1984)

#### **Chamber Music**

#### **Tompkins**

clarinet in Bb and piano (2013)

#### **Three Places**

fl, cl, perc, pno, vln, vcl (2011)

#### **Touchdown**

four-handed harp (2011)

#### Walk

8-12 players and interactive computer (2011)

#### **Bloom**

flute, clarinet and piano (2010/11)

## **Ubsent Entrards**

1,1,1,1/1,1,1,0/pno,perc/2,1,1,1 (2008)

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#### Plunge

fl, cl, trb, perc, pno, vla, vcl (2005)

#### Blue Collusion and Entourage

solo b-cl and fl, ob, hn, mba, vln, vla, vcl, db (2004)

#### Three Etudes for Piano

piano solo (2004)

#### Time Flakes

viola solo (2004)

## Donde el Amor te Lleve

choir and harp (2003/04)

#### Membrana Tympanus

soprano and piano (2003/04)

## **Smeared**

solo acc and cl, pno, perc, vln, vla, vcl, d-b (2003)

## **Flocking**

recorder quartet and optional vibraphone (2003)

## **Squeeze and Reveal**

bass clarinet and piano (2003)

## Round

guitar solo (2003)

#### **Shattered Glass**

fl, cl, pno, vln, vcl (2003)

## **Undercurrents**

fl, cl, vla, pno (2002)

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#### **Grand Duo**

four-handed piano (2002)

## **Peaks and Streams**

violin and percussion (2002)

## **Stretch & Conceal**

piano solo (2002)

#### **Dislocated**

vln, hn, pno (2001/02)

#### Cantos de la Madrugada

alto voice, cl, vln, vcl, pno (2001)

#### **Incursions**

flute and percussion (2001)

## **Grind**

accordion and recorder (2001)

## **Spheres to Spikes**

accordion solo (2000/01)

## **Damned Be You**

Soprano and flute (2000)

## Two Of A Kind

six double-basses (2000)

## **Break & Enter**

fl, cl, cmb, pno (2000)

## **Echo and Bounce**

flute and four marimbas (1999)

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## Warp

four double-basses (1999)

## Traps & Lies

four saxophones (1999)

#### Flesh Echoes

two violas (1999)

## Frenzy!

clarinet solo (1999)

#### Tanguíssimo!

guitar solo (1999)

## **Fractured Waves**

cl, b-cl, bar, bsx, tba, mba, acc, vln, vla, vcl (1998)

## **Crouching Hands**

a-sx, hp organ (1998)

## **Lashed Capacities**

two guitars (1998)

## **Related Hands**

bass clarinet and harp (1998)

## **Contracting Paths**

b-cl, perc, int-comp (1998)

## <u>Itch</u>

guitar solo (1998)

## **Traces and Splinters**

fl, vn, vla, vcl (1997/98)

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## Dream; Then Talk

woodwind quintet (1996/98)

## Juices of Pith

flute and piano (1996/98)

#### fer cum paciencia:

baritone and organ (1997)

#### Hum

bass clarinet and interactive computer (1997)

## -Where is Tanzania?

girl's choir, children's choir (S), fl, cl, 4 perc (1997)

#### **Fleeting Tarry**

fl, ob, bsn (1996)

## **Ice Tong**

fl, vla, guit (1996)

## **Calling Angels**

clarinet solo (1995/96)

## **Black Walls**

fl, cl, pno, vln, vcl (1995)

## **Tongues Enrobed**

b-fl, guit, pno, timp, vln, vcl (1995)

#### **Broken Grammar**

harpsichord and fl, cl, bsn, vln, vla, vcl (1995)

## bright, hard, yellow; sad

fl, ob, bsn, hpsd/organ (1995)

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## **Playing with Dead Things**

fl, b-cl, pno (1995)

#### **Torso**

piano solo (1995)

#### **Earth Rooms**

woodwind guintet and piano (1994/95)

#### **Elations**

fl, cl, bsn (1994/95)

## **Solitaire**

solo bass trombone (1993/95)

#### **Tempest**

5 accordions and marimba (1994)

## Scenen – Handlingen

mixed choir (1994)

## **Double Image**

fl and guit solo with string orchestra (1994)

## **Torch**

wind band and big band (1993/94)

## Je Ne Vous Demande Plus

mixed choir and brass quintet(1993)

#### **Concerto**

bass trombone and 4 percussion (1993)

## **Dawn Descending**

fl, cl, hp, 2 vln, vla, vcl (1993)

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## Seven Summerscapes

2 ob, 2 cl, 2 hn, 2 bsn (1993)

#### Lora

sop, recit, b-trb, 4 perc (1993)

#### Rose-Dèclic

violin and piano (1992)

#### Pillars to the Heavens

sop, barit, choir, brass band, hp, organ (1991/92)

## River and Leaf

violin solo and [1,0,1,1/pno,perc/1,0,1,1,0] (1991/92)

## Reflections upon la-mi-re

organ solo (1991)

## Marche de Printemps et d'Automne

any number of brass players (1991)

#### **Summer Gardens**

guitar and harpsichord (1990)

#### Marcia e Grido

marimba solo (1990)

#### **Three Dances**

brass band (1990)

#### Trio

fl, vla, hp (1989/90)

#### **Timid Souls**

flute and tape (1989/90)

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## Five Ruba'iyat

Five Ruba'iyat (1989)

#### **Displays**

2 trumpets, horn, 2 trombones and percussion (1989)

#### **Arioso**

harp and organ (1989)

## **Beginnings Beending**

violin and harp (1989)

## **Encircled**

cl, vla, pno (1988)

#### **Bone Diagram**

2 violins, 2 violas and 2 cellos (1987)

## Quattro Fatti al Rallenti

string quartet (1987)

## **Precept and Deviation**

vln, bsn, hn (1987)

## One Bass Hit

double-bass and piano (1987)

## **Night Rain**

reciter and ensemble (1987/92, rev. 1996)

#### A Una Nariz

mezzo soprano and organ (1986)

## **Music for Nine**

1,1,1,1/1,1,1,0/1pno,1perc/0,0,0,0,0 (1986)

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## Jeu de la Nuit

fl, trp, trb, hn (1986)

## Trio no. 2

vln, vcl, pno (1986)

#### Lento

harp solo (1986)

## Chiamare

harpsichord solo (1986)

## **Transformations**

b-cl, bsn, vla, vcl (1985)

## Descension/Ascension

flute and harp (1985)

## A Due

flute and guitar (1985)

## Per Organo

organ solo (1985)

## Five Views From Here

guitar solo (1985)

## **Modern Times**

flute solo (1985)

## **Three Psalms**

even voices (SSA) (1985)

## Three Settings for Choir a Capella

even voices (SSA) (1985)

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#### **Between Two**

viola and piano (1984/85)

## **Clarinet Quintet**

Clarinet Quintet (1984)

#### Trio

fl, vcl, hpsd (1984)

## Trio no. 1

vln, vcl, pno (1984)

#### Sonata for Flute and Harpsichord

flute and harpsichord (1984)

#### A Piano Piece

piano solo (1984)

## **Chamber Cantata**

soprano, flute and harpsichord (1983)

#### **Three Songs**

alto voice and piano (1986)

## **Suite for String Quartet**

string quartet (1983)

#### Three Tone-Row Pieces

piano solo (1983)

#### Sonata for Guitar

guitar solo (1983)

#### Alla Marcia

wind band (1983)

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## Concerto for Flute and Brass Band

flute solo and brass band (1983)

## Four Movements for Mixed Choir

mixed choir (1982)

#### **Fantasia**

flute and harp (1982)

#### El Pozo

baritone voice and harp (1982)

#### Solo instrument

## Three Etudes for Piano

piano solo (2004)

#### **Time Flakes**

viola solo (2004)

#### Round

guitar solo (2003)

## **Stretch & Conceal**

piano solo (2002)

#### Spheres to Spikes

accordion solo (2000/01)

#### Frenzy!

clarinet solo (1999)

## Tanguíssimo!

guitar solo (1999)

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## Itch

guitar solo (1998)

## **Calling Angels**

clarinet solo (1995/96)

#### Torso

piano solo (1995)

#### Solitaire

solo bass trombone (1993/95)

## Reflections upon la-mi-re

organ solo (1991)

## Marcia e Grido

marimba solo (1990)

## <u>Lento</u>

harp solo (1986)

#### Chiamare

harpsichord solo (1986)

#### Per Organo

organ solo (1985)

## **Five Views From Here**

guitar solo (1985)

#### **Modern Times**

flute solo (1985)

#### A Piano Piece

piano solo (1984)

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## Three Tone-Row Pieces

piano solo (1983)

#### Sonata for Guitar

guitar solo (1983)

#### **Opera**

## Trenes de Marzo

chamber opera; countertenor and interactive computer (2006)

#### La Quintrala

chamber opera; five singers and interactive computer (2003/04)

#### Stop/Go

performance; variable no. of musicians and actors with interactive computer (2002)

#### The Escape

chamber opera; five singers and interactive computer (2001/02)

## **The Crime**

full scale opera; cast, choir and orchestra (1999)

#### Lora

chamber opera; soprano, recitor, bass-trb, 4 perc (1993)

#### Vocal

#### Babilu Volati

voice and interactive computer (2008)

#### Trenes de Marzo

countertenor and interactive computer (2006)

## Donde el Amor te Lleve

choir and harp (2003/04)

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## **Membrana Tympanus**

soprano and piano (2003/04)

#### Cantos de la Madrugada

alto voice, cl, vln, vcl, pno (2001)

#### Damned Be You

Damned Be You (2000)

## fer cum paciencia:

baritone and organ (1997)

#### Je Ne Vous Demande Plus

mixed choir and brass quintet (1993)

#### Five Ruba'iyat

sop, fl, guit, hp (1989)

## A Una Nariz

mezzo soprano and organ (1986)

#### **Chamber Cantata**

soprano, flute and harpsichord (1983)

## **Three Songs**

alto voice and piano (1986)

## El Pozo

baritone voice and harp (1982)

#### Four Movements for Mixed Choir

mixed choir (1982)

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## Electronics with instrument and/or voice

#### Layers of Earth

oboe solo, int-comp, 15 percussion (2011/12)

#### Walk

8-12 players and interactive computer (2011)

#### **Palpitations**

piano and interactive computer (2011)

## **Quiet Voice**

clarinet and interactive computer (2010)

#### **Sparks and Feathers**

violin and interactive computer (2010)

#### Defun

fl, cl, vcl, pno, hp, int-comp (2010)

#### Versus

installation (2009)

## **Sound Shapes**

harp and interactive computer (2008)

## Babilu Volati

voice and interactive computer (2008)

## **Deep South**

b-fl, guit, pno, timp, vln, vcl, int-comp (2007)

## **Thieves**

cello and interactive computer (2006)

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## Trenes de Marzo

chamber opera for countertenor and interactive computer (2006)

#### **Gestures You Made**

oboe and interactive computer (2005/06)

## Three Pieces: Before – Projection – After

double-bass and interactive computer (2005)

#### La Quintrala

chamber opera for five singers and interactive computer (2003/04)

#### **Behind Your Hands**

accordion and interactive computer (2003)

#### Speak My Mind

tenor recorder and interactive computer (2003)

## **Concealed Behaviours**

bass clarinet and interactive computer (2002/03)

#### doors, windows; handles

flute and interactive computer (2002)

## Stop/Go

variable musicians and actors, and interactive computer (2002)

#### The Escape

chamber opera for five singers and interactive computer (2001/02)

#### RECORDERS

three recorders, int-comp (2000/01)

#### **TIMPANI**

timpani and interactive computer (2000/01)

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#### **GUITAR**

guitar and interactive computer (2000/01)

## **Contracting Paths**

b-cl, perc, int-comp (1998)

## Square & June

piano and tape (1997/98)

#### Hum

bass clarinet and interactive computer (1997)

#### **Tongues Enrobed**

b-fl, guit, pno, timp, vln, vcl (1995)

#### **Incrustations**

harp and tape (1994)

#### Reflections

guitar and interactive computer (1991)

#### **Timid Souls**

flute and tape (1989/90)

## **Performative pieces**

## The Yurodny Files

laptop and ensemble (2013)

## **Fact Machine**

laptop and piano (2012)

#### <u>nvmbr</u>

laptop and electric guitar (2012)

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#### Downstream

laptop, flutes and ensemble (2012)

## We Should Have Turned Left Earlier

laptop and ensemble (2012)

## Walk

8-12 players and interactive computer (2011)

#### **Thieves**

cello and interactive computer (2006)

#### Stop/Go

variable musicians and actors, and interactive computer (2002)

## Installations, media art

#### Versus

installation (2009)

#### Babilu Volati

voice and interactive computer (2008)

#### The Sound Glove II

installation (2005)

#### The Living Room

installation (1993)

#### The Sound Glove

1installation (1993)

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# **Lars Graugaard – Select Discography**

Lars has recorded extensively both as flute performer, electronic musician and composer. As flutist he recorded the sonatas for flute and harpsichord by Johann Sebastian Bach as well as chamber music by Beethoven, Reger, Rossini and fellow Danish composer Carl Nielsen, as well as contemporary works by Philippe Manoury and others. His recordings as electronic performer centers around his performances with improvising instrumental soloists such as Jean-Michel Pilc, and Robert Dick.

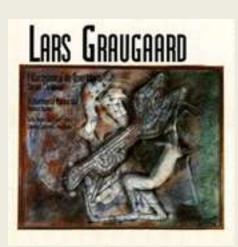
Lars has furthermore produced recordings of Edgar Varese's Ionisations and George Crumb's Music for A Summer Evening.

#### **COMPOSER**

Odense Symphony Orchestra

- 1 Your Shadow, Passing By
- 2 To Forget You Is To Forget My Name
- 3 This Is My Blood

Andras Adorjan, flute – Jan Wagner, conductor Classico CLASSCD341 – order it



Filarmonica de Queretaro Filarmonia Pomorska

- 1 Four Songs of Desire and Sadness
- 2 Sated Bodies
- 3 Ophelia in the Garden

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#### Lars Graugaard - Select Discography

#### 4 - The Hand, Unveiled

#### 5 - Resound

Sofia Asunción Claro, harp – Simona Saturova, soprano Sergio Cardenas, conductor – Zigmunt Rychert, conductor Classico CLASSCD187 – order it



Tears of Dionysius CAPUT Ensemble

Tears of Dionysius

Stina Ekblad – narrator, Gudni Franzson – conductor Concept – Thomas Hejlesen, Willie Flindt and Lars Graugaard re-new001– order it

**Tears of Dionysius** is an ambitious, innovative and provocative artwork that combines the modern musical language of Lars Graugaard's score for 18 players and reciter with Thomas Hejlesen's film of edited, long forgotten erotic scenes. The text is poetic settings of key concepts from Friedrich Nietzsche's *Geburt der Tragödie*.

The work treats in 13 scenes the history and destined nature of modern man's sexuality. Present society has a growing obsession with sexuality and its integration into all kinds of commercial and everyday contexts. This suggests a liberation of ideals and manners in a radical act of self-realization, which is nevertheless false and contrived. Tears of Dionysius is a reaction to this fact.

**Lars Graugaard – Select Discography** 

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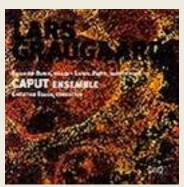
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The DVD version – which can be ordered from the composer's website – (www.l--l.dk) differs from the live version, even though the music and narrated texts are the same.

Music – Lars Graugaard
Film – Thomas Hejlesen
Narrator – Stina Ekblad
Conductor – Gudni Franzson
Performers – CAPUT Ensemble
Concept – Thomas Hejlesen, Willie Flindt and Lars Graugaard
Assistant – Ninna Steen
Producer – von Heiduck

This production is supported by the Danish Composers' Society's Production Pool/KODA's Fund for Social and Cultural Purposes and KODA's Collective Blank Tape Remuneration. Source material for the film consists of anonymous black and white movies from 1920 to 1940. The video material contains graphic images that may seem offensive.



CAPUT Ensemble

- 1 Body, Legs, Head
- 2 Tongues Enrobed
- 3 River and Leaf
- 4 Black Walls
- 5 Broken Grammar

#### **Lars Graugaard – Select Discography**

#### 6 - The Circle and the Web

Christian Eggen, conductor – Lionel Party, harpsichord – Zbigniew Dubik, violin Classico CLASSCD189 – <u>order it</u>



Pillars to the Heavens

- 1 Never did I want
- 2 The bird is free in the sky
- 3 Oh heavenly death
- 4 Oh, these mists
- 5 Solenne
- 6 Make use of every minute of your life
- 7 Our day is over
- 8 Will always
- 9 New flowers light up/If I were
- 10 Remember, man: You must die!
- 11 Life carries a drum
- 12 Adagio
- 13 If only there were occasion for repose
- 14 Let me, world, alas, in peace

Brass band, choir, organ and harp

Jesper Grove Jørgensen – conductor

Lille Muko, Concorde Brass Band

Christine Marstrand – soprano, Lars Thodberg Bertelsen – baritone

Sofia Claro – harp, Jens E. Christensen – organ

Helikon HCD1018 - order it

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## **PERFORMER - ELECTRONICS**



Ngelo Mikkel Ploug & Lars Graugaard

#### clang017

- 1 My African Mother; dur. 04:12
- 2 39 Steps to Heaven; dur. 06:49
- 3 Ngelo; dur. 03:56
- 4 Modern Courtesy; dur. 07:52
- 5 Nooremac; dur. 06:37
- 6 More to Come (bonus); dur. 04:40



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LA: 310-254-7149 Skype: pricerubent



# The Yurodny Files Lars Graugaard

#### clang006

1 - <u>Coming In</u>; dur. 02:44

2 - <u>Going Over</u>; dur. 08:35

3 - Article 26; dur. 09:03

4 - Turning Around; dur. 05:21

5 - <u>Receding</u>; dur. 04:04



<u>Fact Machine</u> Lars Graugaard & Jean-Michel Pilc

clang003

## Fact Machine – new album with pianist Jean-Michel Pilc available on i-Tunes

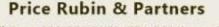
1 - <u>Drip</u>; dur. 07:39

2 - Crackle; dur. 08:28

3 - Mohammed Aziz; dur. 05:20

4 - <u>Trickle</u>; dur. 03:07

5 - Bounce; dur. 07:07



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#### **Lars Graugaard – Select Discography**



nvmbr Lars Graugaard & Keisuke Matsuno

## clang002

1 - Drift; dur. 02:16

2 - 4th Street Workaround; dur. 05:50

3 - <u>Slide</u>; dur. 02:32

4 - <u>Division Day</u>; dur. 03:05

5 - <u>Stray</u>; dur. 02:35

6 - Point and Catch; dur. 03:47

7 - Carmen Dolz (bonus); dur. 04:25

8 - <u>Isabel Villalonga</u> (bonus); dur. 02:25

9 - Dolores Linares (bonus); dur. 12:09

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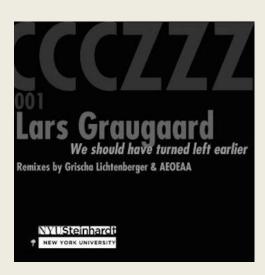


#### **Lars Graugaard – Select Discography**



Lars Grauaard, Robert Dick and NYU Improvisers' Ensemble Downstream ccczzz002

- 1 Piece of Wood; dur. 03:10
- 2 <u>Upstream</u>; dur. 02:53
- 3 Piece of Metal; dur. 06:59
- 4 Downstream; dur. 04:49
- 5 Piece of Glass; dur. 06:08



Lars Graugaard and NYU Jazz Composers' Ensemble We Should Have Turned Left Earlier ccczzz001

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#### Lars Graugaard - Select Discography

- 1 We Should Have Turned Left Earlier; dur. 05:53
- 2 I Guess David Had a Nice Birthday; dur. 08:42
- 3 We Should Have Turned Left Earlier (aeoeaa remix); dur. 07:09
- 4 We Should Have Turned Left Earlier (Grischa Lichtenberger remix); dur. 04:24

## **PERFORMER – FLUTE**



Johann Sebastian Bach
Flute Sonatas and Partita for Flute
Lars Graugaard, flute; Lionel Party, harpsichord

#### Sonate E-dur BWV 1035

- 1 Adagio ma non tanto
- 2 Allegro
- 3 Siciliano
- 4 Allegro assai

#### Sonate e-moll BWV 1034

- 5 Adagio ma non tanto
- 6 Allegro
- 7 Andante
- 8 Allegro

#### Sonate A-dur BWV 1032

9 - Vivace

10 - Largo e dolce

11 - Allegro

#### Sonate h-moll BWV 1030

12 - Andante

13 - Presto

14 - Largo e dolce

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#### **Lars Graugaard – Select Discography**

#### 15 - Allegro

#### Sonate Es-dur BWV 1031

16 - Allegro moderato

17 - Siciliano

18 - Allegro

## Sonate g-moll BWV 1020

19 - (Allegro)

20 - Adagio

21 - Allegro

#### Sonate C-dur BWV 1033

22 - Andante / Presto

23 - Allegro

24 - Adagio

25 - Menuetto I-II

#### Partita a-moll BWV 1013

26 - Allemande

27 - Courante

28 - Sarabande

29 - Bourrée anglaise

#### Classico CLASSCD – order it

#### Carl Nielsen Quintet

Scandinavian Chamber Players performing works by Danish 20th century composers

Lars Graugaard, flute; Bertil Andersson, clarinet; Jens Tofte-Hansen, bassoon; Henning Hansen, french horn

Carl Nielsen: Wind Quintet op. 43

1 - 1st movement

2 - 2nd movement

3 - 3rd movement

4 - Theme and Variations

5 - Jørgen Bentzon: Racconto no. 1

#### Otto Mortensen: Wind Quintet

6 - 1st movement

7 - 2nd movement

8 - 3rd movement

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#### Lars Graugaard - Select Discography

#### 9 - 4th movement

#### 10 - Carl Nielsen: Serenata - Invano

#### 11 - Flemming Weis: Serenade (Without Honorable Intentions)

Classico CLASSCD184 – order it

Duo Claro

Bach, Spohr, Boccherini and Telemann

Sofia Asunción Claro, harp; Lars Graugaard, flute

- J. S. Bach: Sonata en g minor, BWV 1020
- 1 Allegro
- 2 Adagio
- 3 Allegro

Luigi Boccherini: Sonata in C major

- 4 Allegro spirito
- 5 Largo
- 6 Tempo di Minuetto

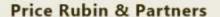
Georg Philipp Telemann: Sonata in F major

- 7 Vivace
- 8 Largo
- 9 Allegro

Ludwig Spohr: Sonata in c minor

- 10 Adagio / Allegro vivace
- 11 Andante / Allegro / Andante
- J. S. Bach: Sonata en E-flat major, BWV 1031
- 12 Allegro moderato
- 13 Siciliano
- 14 Allegro

Classico CLASSCD238 – order it



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#### Lars Graugaard - Select Discography

Gioacchino Rossini

6 Quartets for wind players

Scandinavian Chamber Players

Lars Graugaard, flute; Ole-Henrik Dahl, oboe; Hans Christian Bræin, clarinet; Jens Tofte-Hansen, bassoon; Henning Hansen, french horn; Per Egholm, alto saxophone; Carsten Tagmose, cello; Michael Dabelsteen, double-bass

Quartet No. 1, F major

- 1 Allegro moderato
- 2 Andante
- 3 Rondo Allegro

Quartet No. 2, G major

- 4 Moderato
- 5 Andante
- 6 Allegro

Quartet No. 3, F major

- 7 Allegro
- 8 Andante
- 9 Allegretto

Quartet No. 4, B-flat major

10 - Allegro vivace

- 11 Andante
- 12 Rondo Allegretto

Quartet No. 5, D major

- 13 Allegro spiritoso
- 14 Andante assai
- 15 Rondo

Quartet No. 6, F major

16 - Andante

17 - Thema (Allegretto) - Finale

Trio Scandinavo

Lars Graugaard, flute; Øivind Nussle, violin; Gunnar Lychou, viola Ludvig van Beethoven and Max Reger

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# **Lars Graugaard – Select Discography**

Ludwig van Beethoven: Serenade in D major op. 2

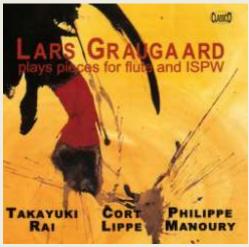
- 1 Entrata
- 2 Tempo ordinario d'un menuetto
- 3 Allegro molto
- 4 Andante con variazione
- 5 Allegro scherzando e vivace
- 6 Adagio Allegro vivace e disinvolto

Max Reger: Serenade in D major op. 77a

- 7 Allegro
- 8 Andante semplice con variazioni
- 9 Presto

Max Reger: Serenade in G major op. 141a

10 - Vivace 11 - Larghetto 12 - Presto



Flute and ISPW Lars Graugaard, flute Works by Cort Lippe, Takayuki Rai and Philippe Manoury

- 1 Takayuki Rai: Seven Refractions
- 2 Cort Lippe: Music for Flute and ISPW
- 3 Philippe Manoury: Jupiter

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# **Lars Graugaard – Select Discography**

# Babilu Volati

Babilu Volati is an audio-visual stage performance immersing the singer into particles of voice.



While the performer sings (poems and original text), visual particles are emitted on the screen as the speech is pronounced. If the particles have enough energy, they will attain and form a central structure, while if they do not possess enough energy, the particles will not reach the central structure, but instead disappear. The interpretation of the visuals has several possibilities. One is related to the Tower of Babel in which all speech is contained, and that the singer is building when singing and speaking. As we all know, the immensity of the tower of Babel made communication impossible, and in Babilu all the particles gathered in the tower cannot 'understand' each other anymore. While the speech particles are more and more easily assimilated by the tower, the process shows the incomprehension and lack of accumulation of signification.

The spectator is offered both a concert and a poetic vision of voice as the building material of an imaginary matter made of words and thoughts.



Holding a PhD in interactive music, Lars' publications and PhD dissertation are listed below in reverse chronological order. On the website http://www.l--l.dk you can download the entire publication as a PDF document.

Lars has always been interested in the scientific basis of music in the areas of listening, performing and composing. His research evolves around the aptness of music composition strategies, and he uses the latest findings in music cognition to create a unified and artistic vision of musical structures and their emotion impact.

Lars uses the research when he programs the software used for his interactive works and real-time electronica performances. His aim is that the discoveries will permit him to shape score compositions and real-time electronic music in common emotion labels, such as those used by for instance the KTH rule system, a set of rules that accounts for all aspects of common, cross-cultural appreciation of music in listening and performance.

Several recordings show Lars' use of these techniques, both in pure score compositions, in interactive compositions and in real-time performances.

At this moment Lars is preparing articles with Anders Friberg (Royal Technical University, Stockholm) on probabilistic melody generation. The work is partly based on David Temperley's earlier probabilistic model of melody perception, and inspired by Marc Leman and David Huron's work on musical cognition.

# **Sonification of Emotion State In Family-Run Businesses** Paper (2008)

"I report on an application that makes use of auditory display of data that represents an individual's appreciation of his situation in the specific collaborative context of a family owned company. The auditory display is an emotion mapping of the company-family structure, and thereby transmits the emotional impact of possible future scenarios if no intervention takes place. The structural parameters 'family complexity', 'company complexity', 'company structure' and 'structural risk' are mapped to structural aspects of the auditory

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display that contain sufficient similarity to be readily appreciable with minimal preparation. The result is that the implicit emotional state of the analysis subject – a member of the family – is represented in the audio stream. This facilitates other family members' empathy, because it circumvents subjective semantic interpretations and potential rejection of a purely verbal interpretation of the data. The technique is general and may be applied to other collaborative situations where a self-learning approach is preferred." Funded by Danish Center for Design Research

http://l--l.dk/wp-

<u>content/uploads/Graugaard08 SonificationOfEmotionStateInFamily-</u>RunBusinesses.pdf

# **Visualizing Structures of Speech Expressiveness**

Paper (2008)

"Speech is both beautiful and informative. In this work, a conceptual study going through the myth of the tower of Babel and hypothesis on the apparition of articulated language is undertaken in order to create an artistic work investigating the nature of speech. Our interpretation is that a system able to recognize archetypal phonemes through vowels and consonants could be used with several languages to extract the expressive part of speech independently from the meaning of words. A conversion of speech energy into visual particles that form complex visual structures provides us with a mean to represent this expressiveness of speech into a visual mode. This system is presented in an artwork whose scenario is inspired from various artistic and poetic works. The performance was presented at the re-new festival in May 2008."

Funded by Aalborg University and Danish Center for Design Research.

http://l--l.dk/wp-

 $\frac{content/uploads/Graugaard08\ \ VisualizingStructuresOfSpeechExpressiveness.pd}{f}$ 

# Gesture and Emotion in Interactive Music: Artistic and Technological Challenges

PhD dissertation (2006)

"This dissertation presents a new and expanded context for interactive music based on Moore's model for computer music (Moore 1990) and contextualizes

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its findings using Lesaffre's taxonomy for musical feature extraction and analysis (Lesaffre et al. 2003). In doing so, the dissertation examines music as an expressive art-form where musically significant data is present not only in the audio signal but also in human gestures and in physiological data. The dissertation shows the model's foundation in human perception of music as a performed art, and points to the relevance and feasibility of including expression and emotion as a high-level signal processing means for bridging man and machine. The resulting model is multi-level (physical, sensorial, perceptual, formal, expressive) and multi-modal (sound, human gesture, physiological) which makes it applicable to purely musical contexts, as well as intermodal contexts where music is combined with visual and/or physiological data.

The model implies evaluating an interactive music system as a musical instrument design. Several properties are examined during the course of the dissertation and models based on acoustic music instruments have been avoided due to the expanded feature set of interactive music system. A narrowing down of the properties is attempted in the dissertation's conclusion together with a preliminary model circumscription. In particular it is pointed out that high-level features of real-time analysis, data storage and processing, and synthesis makes the system a musical instrument, and that the capability of real-time data storage and processing distinguishes the digital system as an unprecedented instrument, qualitatively different from all previous acoustic music instrument. It is considered that a digital system's particular form of sound synthesis only qualifies it as being of a category parallel to the acoustic instruments categories.

The model is the result of the author's experiences with practical work with interactive systems developed 2001-06 for a body of commissioned works. The systems and their underlying procedures were conceived and developed addressing needs inherent to the artistic ambitions of each work, and have all been thoroughly tested in many performances. The papers forming part of the dissertation describe the artistic and technological problems and their solutions.

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The solutions are readily expandable to similar problems in other contexts, and they all relate to general issues of their particular applicative area."

Dissertation successfully defended at Oxford Brookes University November 2006.

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# **Applying a Performer's Physical Gestures to Sound Synthesis in Real-Time** Paper (2006)

"Motivation and strategies for affecting electronic music through physical gestures are presented and discussed. Two implementations are presented and experience with their use in performance is reported. A concept of sound shaping and sound coloring that connects an instrumental performer's playing and gestures to sound synthesis is used. The results and future possibilities are discussed."

In Proceedings of International Computer Music Conference 2006. New Orleans, Louisiana USA, November 6-11 2006. ISBN: 0-9713192-4-3 http://l--l.dk/wp-

<u>content/uploads/Graugaard06 ApplyingPerformer%E2%80%99sPhysicalGesture</u> sToSoundSynthesisInRealTime.pdf

# Implicit Relevance Feedback in Interactive Music: Issues, Challenges, and Case Studies

Paper (2006)

"This paper presents methods for correlating a human performer and a synthetic accompaniment based on Implicit Relevance Feedback (IRF) using Graugaard's expanded model for interactive music (Graugaard 2006c). The research is the result of experience with practical work with interactive music systems developed 2004-06 for a body of commissioned works and is based on human perception of music as an expressive artform where musically significant data may be present not only in the audio signal but also in human gestures and in physiological data. The relevance and feasibility of expression and emotion as a high-level signal processing means for bridging man and machine is discussed.



The resulting model is multi-level (physical, sensorial, perceptual, formal, expressive) and multi-modal (sound, human gesture, physiological), which makes it applicable to purely musical contexts, as well as intermodal contexts where music is combined with visual and/or physiological data." In Proceedings of the Information Interaction in Context (IIIX) symposium. Copenhagen, Denmark, October 18-20 2006. ISBN: 1-59593-482-0. http://l--l.dk/wp-content/uploads/Graugaard06 ImplicitRelevanceFeedback.pdf

# **Sound Synthesis Affected by Physical Gestures in Real-Time** Poster (2006)

"Motivation and strategies for affecting electronic music through physical gestures are presented and discussed. Two implementations are presented and experience with their use in performance is reported. A concept of sound shaping and sound coloring that connects an instrumental performer's playing and gestures to sound synthesis is used. The results and future possibilities are discussed."

In Proceedings of International Computer Music Conference 2006. New Orleans, Louisiana USA, November 6-11 2006. ISBN: 0-9713192-4-3

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<u>content/uploads/Graugaard06 SoundSynthesisAffectedByPhysicalGesturesInReal-time.pdf</u>

# **Mood Mapping Technologies within Hybrid Audio Design**

Poster (2006)

with Jens Arnspang.

"Contemporary audio design and performance systems aim at creating a world by using technology for immersion beyond the state of art of virtual reality. Based on our interactive designs and ongoing European projects we report research of this type."

In Proceedings of International Computer Music Conference 2006. New Orleans, Louisiana USA, November 6-11 2006. ISBN: 0-9713192-4-3

http://l--I.dk/wp-

<u>content/uploads/Graugaard06 MoodMappingTechnologiesWithinHybridAudio</u> <u>Design.pdf</u>

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# **Providing Rhythm Patterns in Sound Synthesis**

Paper (2006)

"A parameterized periodic synthesis update model for applying organized rhythm and periodicity to sound synthesis is described. An event pattern is combined with a distance pattern to create a dynamic pattern in a normalized space, which is used for parameter update according to distance to the subsequent parameter value. The model has been tested with linear and non-linear synthesis techniques, and it has been used in performance of interactive music."

In Proceedings of International Computer Music Conference 2006. New Orleans, Louisiana USA, November 6-11 2006. ISBN: 0-9713192-4-3 http://l--l.dk/wp-

content/uploads/Graugaard06 ProvidingRhythmPatternsInSoundSynthesis.pdf

# **Unifying Performer and Accompaniment**

Paper (2006)

"A unique real time system for correlating a vocal, musical performance to an electronic accompaniment is presented. The system has been implemented and tested extensively in performance in the author's opera 'La Quintrala', and experience with its use in practice is presented. Furthermore, the system's functionality is outlined, it is put into current research perspective, and its possibilities for further development and other usages is discussed. The system correlates voice analysis to an underlying chord structure, stored in computer memory. This chord structure defines the primary supportive pitches, and links the notated and electronic score together, addressing the needs of the singer for tonal 'indicators' at any given moment. A computer-generated note is initiated by a combination of the singer – by the onset of a note, or by some element in the continuous spectrum of the singing – and the computer through an accompaniment algorithm. The evolution of this relationship between singer and computer is predefined in the application according to the structural intentions of the score, and is affected by the musical and expressive efforts of the singer. The combination of singer and computer influencing the execution of the accompaniment creates a dynamic, musical interplay between singer and computer, and is a very fertile musical area for a composer's combined computer programming and score writing."

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In Proceedings of the Third International Symposium on Computer Music Modeling and Retrieval, CMMR 2005. Pisa, Italy, September 26-28 2005. Lecture Notes in Computer Science Volume 3902 / 2006, pp. 169-184. Title: Computer Music Modeling and Retrieval: Third International Symposium, CMMR 2005, Pisa, Italy, September 26-28, 2005. Revised Papers. Editors: Richard Kronland-Martinet, Thierry Voinier, Sølvi Ystad. ISBN: 3-540-34027-0. Publisher: Springer Berlin / Heidelberg / New York

http://l--l.dk/wp-

content/uploads/Graugaard05 UnifyingPerformerAndAccompaniment.pdf

# The SoundGlove II: Using sEMG Data for Intuitive Audio and Video Affecting in Real Time

Paper (2005)

"The SoundGlove II is a real time system for generating and affecting music and visuals through surface electromyograph (sEMG) muscular electrical activity sensing. The system is at public display September 30th – December 18th at the Museum of Contemporary Art in Roskilde, Denmark. The system's aim, aesthetics and functionality is outlined, it is put into perspective of related work, and user response and possibilities for further development and other usages is discussed."

In Proceedings of The Third Annual Conference in Computer Game Design and Technology. November 8-9 2005, Liverpool, UK.

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content/uploads/Graugaard05 UnifyingPerformerAndAccompaniment.pdf

# **Open and Closed Form in Interactive Music**

Paper (2005)

"Performing music includes substantial listening skills on part of the performer. Performing with an interactive computer requires the performer to interact with the computer and intuitively and consciously include this information in the responsiveness of his playing. The interaction can be expanded to include the performer's high-level decisions typical of open-form notation. These decisions can be used for defining and re-defining the computer's role in the further development of the piece. In this paper I describe how such an open-form notation is used in the interactive man / machine performance environment of

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my composition 'GUITAR' for acoustic guitar and interactive computer. The performance environment functions as a perception-based multi-parameter space where the performer's score provides means for exploring this space. The open-form notation emphasizes the interactive functionality of the space, and a performance becomes one of many possible explorations of the space." In Proceedings of the Second International Symposium on Computer Music Modeling and Retrieval, CMMR 2004. Esbjerg, Denmark, May 26-29 2004. Lecture Notes in Computer Science Volume 3902 / 2006, pp. 149-157. Title: Computer Music Modeling and Retrieval: Second International Symposium, CMMR 2004, Esbjerg, Denmark, May 26-29, 2004. Revised Papers. Editor: Uffe Wiil Kock. Publisher: Springer Verlag Berlin / Heidelberg / New York. ISBN: 3-540-244858-1

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content/uploads/Graugaard05 UnifyingPerformerAndAccompaniment.pdf

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# **Lars Graugaard – Sample Blog**

# Music, emotion and modernism

In an **interview in El Pais of June 19, 2013** the French composer, conductor and organizer Pierre Boulez speaks about how new emotions are being transmitted by contemporary music. This is very questionable statement and Boulez is not able to explain what these new emotions are, nor substantiate that they are at all present in his music. In fact it seems that, to the contrary, no emotion at all is being expressed in contemporary music of the strict, modernistic tradition that he has formulated himself within.

The problem is that emotions detection is a central element in human evolution and therefore develops extremely slowly and over many generations. Suggesting that within less than a century music has developed new emotions in people is to neither understand the nature of emotion nor the meaning, purpose and appreciation of music.

What contemporary music *can* do – and indeed should do – is shroud those emotions we are capable of discerning, and complex emotions of subjective nature in novel sonic surfaces. This casts new understanding into our emotional apparatus and reach for new insights by means of our present capacity. This is the hallmark of music and may even be used systematically in the composition process (and even applied in the performance step). In my composition **Three Places** from 2011 I have attempted to do just that.

The composition is distributed in three parts and the musical material undergoes slow transformations, which in turn is delimited by a systematic approach to score and performance features as they correlate to identifiable emotion labels. The narrative and compositional levels are hereby addressed simultaneously, with the resultant exchange between structure (composition) and surface (emotion).

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#### Lars Graugaard - Sample Blog, continued

The first and second sections constantly jump between 'potent' and 'tense' respectively 'heavy' and 'tense', while the third and last section is dominated by a tender feeling, albeit with a momentary flashback to aspects of the first section. Present throughout the two first sections is that edgy character of a charged anxiety which is the work's dominant feature, articulated by extreme staccato and large skips. This accentuates the harmonic and rhythmic complexity, as irregular formal properties and absence of melody dominate.

The contrast which the second section's darker sonorities and heavy articulation provide is pronounced, and very important for the work's overall profile. This is where the bass clarinet and alto flute are introduced, in a writing which points towards the last section's use of eased harmonic relations. When the last section finally materializes, the music takes on moments of tenderness and warmth, emphasized by the dovetailed voicing in strings and woodwind. The mood has become contained and very intimate: a slow pace of predominant legato in a playing style of steady, soft loudness and round attacks. Combined with large yet relaxed duration contrast, it sets of a gentle and somewhat dark sonority where each player is independent in phrasing though coordinated in aim.

The work makes use of a **compositional software tool I developed** that frames musical material in named emotions and continuous un-named transitory states. Why give attention to emotion in music, and can it – quite unemotionally – be used to inform the compositional process? Well, apart from a subjective motivation, we are told that music is '...the art or science of combining vocal, instrumental or electronic sounds (or all) to produce beauty of form, harmony, and expression of emotion.' If 'beauty' is subjective, then several general things can be said about emotion (just as of form and harmony and their infinite derived disciplines in composition) and models for that role and effect which score and performance features have on emotion qualities can be made.

Using empirical research I began in 2009 to develop a software model on score and performance features' correlation to listeners' identification of emotions in music. This has some obvious limitations because the nature of the music used for the listening experiments is much less experimental (if at all) than the one I

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## Lars Graugaard - Sample Blog, continued

seek to create. But with sufficient care the advantages have been clear from the beginning, as consistent narratives could be constructed that still could contain the compositional methods of my choice.

An interesting observation that is taking prominence is that music's capacity to form gestalts as units of meaning seem inherent to contemporary music's at times unwillingness to form expressions, that is, to express its content on an emotional level. Such absence of emotion expression is of course only a problem if one considers it to be the case. But this tendency towards gestaltness is a real attribute to human perception and could possibly be seen as that third dimension of depth or intensity of emotion which is sometimes added to the common two-dimensional arousal-valence model of affect, which lies behind my model. Since gestaltness is a compound category it is less readily handled in score features, and some effort will go into its implementation into the model.



Lars is a very experienced lecturer and workshop leader, having done so extensively while professor of interactive music at Carl-Nielsen Academy of Music (Denmark) 1996-2002 and Aalborg University's Medialogy Department (Denmark) 2000-2007. He was guest lecturer 2006-9 at Icelandic Arts Academy and he has given lectures at Stanford, UC San Diego, Columbia University, Kunitachi (Japan), to name a few.

His academic background is very solid, with a Diploma in flute performance (1983) and a PhD in interactive music (2006). His recent artistic affiliations are as Visiting Faculty Artist at NYU Steinhardt, and composer in residence with El Grup Instrumental (Valencia, Spain) 2012-2015 and Decoder Ensemble (Hamburg, Germany) 2015-2017.

His areas of expertise include interactive music and generative music both from the composition, performance and programming perspective, human emotion cognition in score and digital music, participative installations and recording and producing electronic music. Lars is the CEO of clang, a Denmark-based record label, that specializes in novel electronic music ranging from ambient to beat based.

Here are a few ideas for workshop themes. The content can combine lectures and hands-on as desired. Hands-on will require more time, but permits practical learning. Academic relevance is warranted, including syllabus and recognized reading lists.

- programming interactive music in max
- using human gestures and other real-time visual information in music
- emotion's commonality and how to use it in score and interactive music
- the computer-musician amalgam in real-time performance



# **Music and Cross Modality in Interactive Media**

# by Lars Graugaard lars@graugaard-music.dk

MCIM 1: Music and Interaction MCIM 2: Music and Cross Modal Perception MCIM 3: Advanced Techniques in Interactive Media Systems	2 3 4		
		MCIM1: Music and Interaction	

# **Purpose**

- To gain introductory knowledge on basic digital signal processing techniques.
- To **comprehend** concepts of human and machine perception, and their modes of interaction.
- To get a basic **understanding** of how to apply the acquired knowledge in the design, development, and test of interactive systems.

#### Content

Music is a performed art, and as such interactive in its nature. Digital systems have the capability to be interactive in ways that make them expressive instruments with a range of possibilities outside the scope of traditional musical instruments. The course presents basic concepts and techniques of digital sound, its storage, and its structuring in software design for purpose of meaningfull interaction with a singer, performer, or a non expert user. During the course the students will get theoretical and practical knowledge to facilitate their future independent work.

# Key topics include:

- Analog-to-digital conversion
- The sampling theorem
- Additiv and subtractive synthesis
- Signal modulation: frequency modulation, amplitude modulation, waveshaping

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- Ecological sound: sampling and simple sample manipulation
- Sound effects: delay, echo, flanger, reverb
- Filtering and sound mixing
- Interaction in multidimensional systems
- Human perception
- User interfaces
- System design and testing

# **Prerequisites**

None

#### **Extent**

30 hours

#### **Placement**

Semester 3/4

# Category

Course

**MCIM 2: Music and Cross Modal Perception** 

## **Purpose**

- To gain introductory **knowledge** of advanced analysis and synthesis techniques.
- To gain introductory **knowledge** of cross perception, and how it can be applied to hybrid systems.
- To gain introductory **knowledge** of narrative structures.
- To get a basic **understanding** of how to combine the aquired knowledge for designing simple, time-based, interactive systems.

#### Content

Humans perceive the world through several parallel sensorial modalities in concurrent processes, to maximize depth-of-information. The course presents advanced sound analysis and synthesis techniques, and methodologies for

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parallel processing of perception data, with the purpose of using such data in time-based narrative structures for humans to interact with. During the course the students will get theoretical and practical knowledge to facilitate their future independent work.

# Key topics include:

- Time and frequency domain
- The Fourier transform
- Convolution
- Filtering by convolution
- Cross-synthesis
- Granular synthesis
- Time stretching and pitch shifting
- Room acoustics and psychoacoustics
- Interactive sonification of image and sensor data
- Narrative interaction
- Applications to multi media

# **Prerequisites**

MCIM1

#### Extent

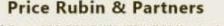
30 hours

# **Placement**

Semester 3/4

# **Category**

Course



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# MCIM 3: Advanced Techniques in Interactive Media Systems

# **Purpose**

- To acquire knowledge about latest development in sound synthesis and 3D sound effects.
- To acquire **knowledge** about sound visualization in different contexts.
- To comprehend concepts of affective computing.
- To understand how computers can extend sonic possibilities of the real world.
- To apply such knowledge in interactive, augmented systems.

#### Content

Emotional intelligence in humans is equally as important as factual intelligence when interacting with the world. An interactive digital system must aim at including processing of emotional and affect state data for the purpose of displaying satisfactory expressive reaction to a human perceptual input. The course combines the latest sound effect and synthesis techniques and methodologies for sound visualization with concepts of affective computing in multimodal interactive systems that display some degree of emotional intelligence. During the course the students will get theoretical and practical knowledge to facilitate their future independent work.

# Key topics include:

- Modal and formant synthesis
- Synthesis by physical modling
- Spatialization and 3D sound
- Sound formats: aiff, au, wav, MP3, MPEG7
- Sound visualization
- The human input: emotion, affect, and expression in the digital systems
- Augmented auditory environments
- Design with interactive tangible and non tangible interfaces
- Applications to interactive media

# **Prerequisites**

MCIM2

#### **Extent**

30 hours

#### **Placement**

Semester 5/6

# Category

Course

# **Realtime Audio-Visual Cross-Media**

by Lars Graugaard lars@graugaard-music.dk

RAVCM1: 30 hours 2
RAVCM2: 18 hours 3

#### RAVCM1: Realtime Audio-Visual Cross-Media

# **Purpose**

- To gain introductory knowledge of basic cross-modal processing techniques.
- To **comprehend** concepts of human and machine perception, and their modes of interaction.
- To comprehend how narratives are constructed in interactive open-form media
- To get introductory **knowledge** of how human emotion can be used in cross-modal media.
- To get a basic **understanding** of how to apply the acquired knowledge in the design and development of interactive audiovisual systems.

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#### Content

To humans there is no separation between sound, vision and emotional impact. Humans perceive the world through several parallel sensorial modalities in a concurrent process to secure fast and thorough comprehension of the environment. The course presents techniques for extracting information from stored or realtime audio and video streams, relating it to human perception, and applying to an output signal founded in a narative discourse with communicative traits. During the course the students will get theoretical and practical knowledge to facilitate their future independent work. The course ends with a public presentation of the students' outcome of the workshop.

# Key topics include:

- Day 1
  - Motion detection
  - Optical flow
- Day 2
  - Sound's subsets of significant features
  - o The ecological-to-organised sound continum
- Day 3
  - Sound visualization
  - Auditory displays
  - o Realtime audio-visual mapping strategies
- Day 4
  - The human factor: emotion, affect, and expression in a digital system
  - o Detecting and synthesizing emotions
- Day 5
  - o Narratives in open-form digital systems
  - o Full-scale interaction in realtime cross-media

#### Final hand-in

Public presentation of each student's result. Stored media.

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# **Prerequisites**

Basic knowledge of digital audio and video. Basic knowledge of max/msp/jitter.

#### **Extent**

30 hours

#### **Placement**

5 consecutive days

# Category

Workshop

RAVCM2: Realtime Audio-Visual Cross-Media

# **Purpose**

- To gain introductory knowledge of basic cross-modal processing techniques.
- To **comprehend** concepts of human and machine perception, and their modes of interaction.
- To get a basic understanding of how to apply the acquired knowledge in the design and development of interactive audiovisual systems.

#### Content

Sound and vision is closely connected in human cognition. Humans perceive the world through several parallel sensorial modalities in a concurrent process to secure fast and thorough comprehension of the environment. The course presents techniques for extracting information from stored or realtime audio and video streams, relating it to human perception, and applying it to an output signal. During the course the students will get theoretical and practical knowledge to facilitate their future independent work. The course will end with a public presentation of the students' outcome of the workshop.



# Key topics include:

- Day 1
  - Motion detection
  - Optical flow
- Day 2
  - Sound's subsets of significant features
  - o The ecological-to-organised sound continum
- Day 3
  - Sound visualization
  - Auditory displays
  - Realtime audio-visual mapping strategies

## Final hand-in

Public presentation of each student's result. Stored media.

# **Prerequisites**

Basic knowledge of digital audio and video. Basic knowledge of max/msp/jitter.

## **Extent**

18 hours

## **Placement**

3 consecutive days

# **Category**

Workshop



# **SOUND AND MEANING**

by lars graugaard - lars@I—I.dk

# **Purpose**

- To get insight into basic sonic structures and their role in human evolutionary perception
- To comprehend sound in an eco-system of creation, appreciation and redundancy.
- To gain a basic understanding of the significance and use of sound in daily life, including
  - o basic knowledge of sonification in product and experience design,
  - comprehension of sound as an auditory probing of architectural space,
  - o comprehension of concepts of cross perception and affect in sound.
- To understand how man-made systems can use and extend sonic possibilities in the real world.
- To apply the knowledge in simple, real world situations, and to explain its application.

#### Content

Humans are equipped with a complex and powerful listening system, capable of identifying sound sources, spoken words and melodies, even under noisy conditions. It appears to work effortlessly but is in fact a supreme pattern recognition capacity that most modern computers are incapable of reproducing. Sound is of vital importance for understanding our surroundings and the task at hand. Sound has endless manifestations, from the seemingly chaotic sounds of nature through descriptive sounds of effort intent, to highly structured forms of complex meanings as we know in music. The course presents basic topics in human sound perception, ecological and man-made sound structures and cases of its use in art, product and public and private space. The knowledge is explored in a workshop setting that concludes in a presentation and an open, moderated discussion of the insights gathered and future applications.

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# **KEY Topics**

- psychoacoustics
- human emotion and embodied sound cognition
- sensuous perception; sonification design and aesthetics
- interactive art and music; the sound-music continuum
- auditory scene analysis
- sonic interaction design
- product sound design
- sound hierarchies in the digital domain
- usability

# **Prerequisites**

None

#### **Extent**

Not defined

# Category

Lecture (40%), workshop (50%) and discussion (10%)

# Workshop

Group work in three parts:

- field recordings
- define and construct a pattern of meanings using the (processed) recordings
- explain your goal and discuss the challenges and the result's strengths and weaknesses.

## Literature

**TBA** 



# **Lars Graugaard – Selected Video Links**

The videos are grouped in classical composition and electronic performances. Further videos of complete operas are at the end of the list, these have each a duration of over 1 hour.

## **CLASSICAL**

Tears of Dionysius
Even If It Was Just A Dream
https://vimeo.com/11761052

You Are In The Arms Of An Angel <a href="https://vimeo.com/11760418">https://vimeo.com/11760418</a>

I Am Blinded By The Light https://vimeo.com/11760713

No More Hunger And Thirst? https://vimeo.com/11760785

When I Close My Eyes <a href="https://vimeo.com/11760927">https://vimeo.com/11760927</a>

#### **Instrument and electronics**

Sparks and Feathers <a href="https://vimeo.com/16696214">https://vimeo.com/16696214</a>

Quiet Voice https://vimeo.com/16671524

Sound Shapes <a href="https://vimeo.com/16665607">https://vimeo.com/16665607</a>

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#### **Lars Graugaard – Selected Video Links**

#### Installations

Sound Glove II https://vimeo.com/12107779

#### **PERFORMER**

# Instruments and electronics

w. Keisuke Matsuno, electric guitar <a href="https://vimeo.com/61415748">https://vimeo.com/61415748</a>

w. NYU Jazz Composers' Ensemble https://vimeo.com/46239998 https://vimeo.com/43969680

w. NYU Improvisers' Ensemble https://vimeo.com/58090995

w. Jean-Michel Pilc, piano videos:

concert excerpt - <a href="http://www.youtube.com/watch?v=0Z5JhA5oeLs">https://www.youtube.com/watch?v=0Z5JhA5oeLs</a>
promo - <a href="https://vimeo.com/102938992">https://vimeo.com/102938992</a>
studio session - <a href="https://vimeo.com/66705477">https://vimeo.com/66705477</a>
videoclip 1 - <a href="https://vimeo.com/69117516">https://vimeo.com/69117516</a>
videoclip 2 - <a href="https://vimeo.com/68897763">https://vimeo.com/68897763</a>

#### **CHAMBER OPERA**

Trenes de Marzo <a href="https://vimeo.com/34075597">https://vimeo.com/34075597</a>

La Quintrala https://vimeo.com/13560345

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