

## DOCTORAL THESIS

### A portfolio of compositions and an investigation into electroacoustic compositional techniques and aesthetics in cinematic film

Seidel, Sebastian Martin

*Date of Award:*  
2014

[Link to publication](#)

#### General rights

Copyright and intellectual property rights for the publications made accessible in HKBU Scholars are retained by the authors and/or other copyright owners. In addition to the restrictions prescribed by the Copyright Ordinance of Hong Kong, all users and readers must also observe the following terms of use:

- Users may download and print one copy of any publication from HKBU Scholars for the purpose of private study or research
- Users cannot further distribute the material or use it for any profit-making activity or commercial gain
- To share publications in HKBU Scholars with others, users are welcome to freely distribute the permanent URL assigned to the publication

## ABSTRACT

The purpose of this study is to investigate the occurrences of electroacoustic content in and its relation to cinematic film. Key research questions include: What pioneering techniques and aesthetic positions used by creators of early electroacoustic music have found their way into mainstream cinema? Where and when have they been developed? In which films do they appear, and how are they distributed among film genres?

The findings of this study assert the idea that many techniques that are part of sound design of contemporary cinematic film (the process and result of mixing and manipulating sounds) come directly from pioneers of electroacoustic music. Electroacoustic techniques and aesthetics play an important role in the history of sound film in making fundamental contributions to production processes, the relation between directors and sound makers, and film sound theory. On an aesthetic level, electroacoustic music in film has reformed the role of sound in film: a film score can contain 'noise', while speech and sound effects can actually serve as music.

The findings also assert that electroacoustic techniques and aesthetics can be found in cinematic film from the beginning of sound film in the late 1920s. Once established, techniques have largely remained the same, regardless of the carrier media and their transformation from analog to digital: modern, digital techniques are refinements of their analog predecessors. Aesthetics have developed along with techniques, albeit much slower; their potential and exploration is far from being exhausted. The use of electroacoustic content for a particular element of film sound is not unusual and often genre-specific (for example in science fiction and thriller). However fully electroacoustic scores are rare.

A portfolio of selected original compositions by the author complements this study. Acoustic and electroacoustic pieces for film and multimedia highlight different aesthetics, techniques and practices of film sound and film music.

## ACKNOWLEDGMENTS

Thanks go first and foremost to my supervisor Prof. Christopher Keyes whose support has been fundamental; his guidance and criticism have been inspiring me throughout the years of my doctorate. Co-supervisor Dr. Christopher Coleman has provided helpful comments and insight, and pointed me to relevant films; I am grateful for the time he spent listening to and commenting on my compositions.

These thanks are extended to other staff of Hong Kong Baptist University, namely: Prof. Douglas Robinson, Dr. David Urrows; my fellow PhD candidates Vanessa Law, Jeannie Liu and Florence Cheng; Brian Chan and Daisy Wu; Joe Chan and Ken Che; Iris Kam from Graduate School; and the library staff. Last but not least in this list are Music Department's BA2 students (Years 2010/11, 2011/12 and 2012/13) who have been a pleasure to teach.

The following people have given significant support and advice: Almut and Heinz Seidel, Irma Amuriza, Elaine Young, Peter Benz, Cornelia Erdmann, Florian Woehrl, Kim Lau and Cedric Maridet.

I am grateful to the following Hong Kong filmmakers for allowing me to experiment on and with the sound of their works: Marco Sparmberg, Simon Young, Bill Chiu, Patrick Ho, Angie Chen, Pamela Lay and Simon Chung. Thanks also to other professionals including (in no particular order) Magdalen Wong, Lars Mai and Jan Brueggemeier, Uli Aumueller, Michael Jarrett, Jeff Chippewa, George Budd, Andrew Hill, Volker Bernius, Olivier Darnay, Brad Garton, Douglas Repetto.

A final mention goes to the following friends in Hong Kong: Sandro and Michelle Cagnin; Alice Ho; Paul Kember, Seems Tsang, David Boyce, Phillip Meyer, Anton and Oskar Erdmann Benz; Ricardo Santos Barbero and Marta Catalán Eraso; and members of HKOCC.

*Sebastian Seidel*  
*Hong Kong, March 2014*

## Table of Contents

Author background.....	1
Introduction to the dissertation.....	1
<b>1. Portfolio of compositions.....</b>	<b>3</b>
<i>Portrait</i> .....	4
<i>Snowflakes</i> .....	6
<i>26 Happiness Road</i> .....	8
<i>Speechless</i> .....	9
<i>Haexagon</i> .....	10
<i>Kanpaiak</i> .....	11
<i>Scharmuetzel</i> .....	12
<i>The Armadillo</i> .....	12
<b>2. Investigation into Electroacoustic Compositional Techniques and Aesthetics in Cinematic Film</b>	
Background and Methodology.....	13
Objectives and Scope.....	18
Terminology.....	19
Electroacoustic Content in Contemporary Cinema.....	30
Experimental Non-Cinematic Time-Based Audiovisual Media.....	31
<b>TECHNIQUES AND AESTHETICS</b>	
2.1 Synthesis.....	34
Optical Synthesis (non-real time).....	35
Background: Optical Sound Recording.....	36
Electronic Synthesis.....	38
<i>Theremin</i> .....	39
<i>Ondes Martenot</i> .....	44
<i>Trautonium</i> .....	45
<i>Hammond Novachord</i> .....	48
ANS.....	50
Synthesizers and the Synth Score Genre.....	54
Handmade Circuit Building.....	55
2.2 Tape Manipulation.....	60
Musique Concrète.....	65
Techniques.....	69
Cut and Splice.....	69
Looping.....	72
Playback Speed Manipulation.....	73
Reversal.....	77
2.3 Signal Processing.....	79
Dynamics Manipulation.....	80
Filtering.....	83
Reverberation.....	84
Delay.....	86
Acoustic Signal Processing.....	87
2.4 Multichannel Sound and Sound Spatialization.....	90
2.5 Findings: The Potential of Electroacoustic Music as a Language of Sound in Cinematic Film.....	96
New Sounds, Old Melodies.....	99
Electroacoustic Music and Film Genre.....	101
Music or Sound Effect? Interdiegetic Sound.....	103
Collaboration and Creativity, Production and Workflow.....	105
Conclusion.....	107

### 3. Appendices

Works Cited.....	110
Body of research.....	116
Portfolio DVD 1: Multimedia, Films, Compositions.....	119
<i>Portrait</i> Example Video (video, 1:51), Commentary (video, 1:53)	
<i>Snowflakes</i> Example Video (video, 1:52), Commentary (video, 1:40)	
<i>26 Happiness Road</i> (Excerpt, video 3:28)	
<i>Speechless</i> (Excerpt, video 2:08)	
<i>Haexagon</i> (Excerpt, video 1:28)	
<i>Kanpaiaak</i> (audio, 7:30)	
<i>Scharmuetzel</i> (audio, 3:25)	
<i>The Armadillo</i> (audio, 4:58)	
Portfolio DVD 2: Films.....	119
<i>26 Happiness Road</i> Full movie (video, 1:28:45), Trailer (video, 1:17)	
<i>Speechless</i> Full movie (video, 1:32:19), Trailer (video, 1:09)	
<i>Haexagon</i> Full movie (video, 15:40), Trailer (video, 1:00)	
Score: <i>Scharmuetzel</i> .....	120
Score: <i>The Armadillo</i> .....	130
Curriculum Vitae.....	135