

Realtime Analysis of Dynamic Shaping

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Presented by:  
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ISE575b - Spring 2006

Presentation Overview

- Introduction and Motives
- Methodology
- Results
- Conclusion

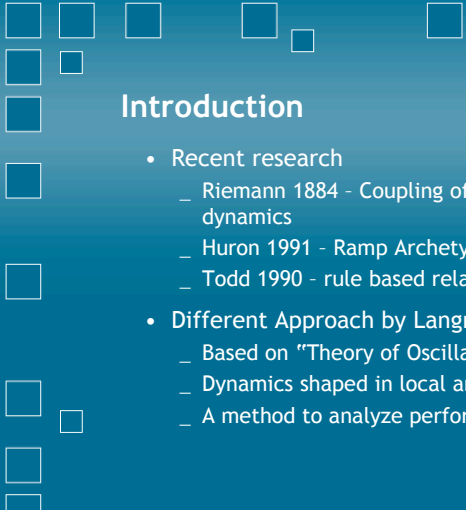
Jorg Langner



- Music Scientist & Composer
- Humboldt University of Berlin
- Main areas of research
  - \_ Rhythm
  - \_ Performance Research
  - \_ Tone Quality
  - \_ Visualization of Music
  - \_ Applications for musical and music-education practice

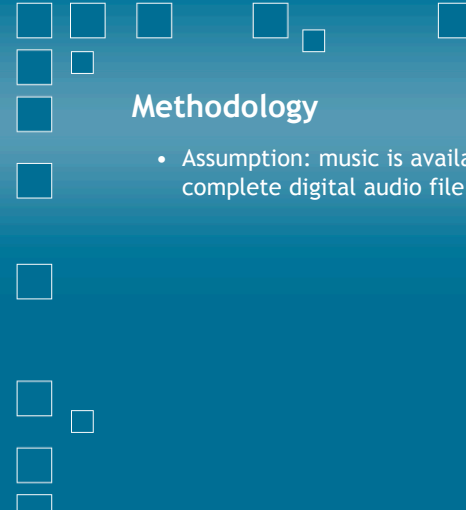
Introduction

- Dynamics research limited
- Important research topics
  - \_ Relationship between musical form and dynamics
  - \_ Relationship between timing and dynamics
  - \_ Methods of research and analysis



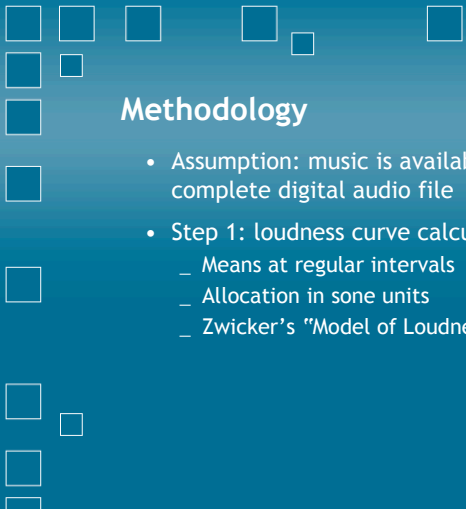
## Introduction

- Recent research
  - \_ Riemann 1884 - Coupling of rubato & dynamics
  - \_ Huron 1991 - Ramp Archetypes
  - \_ Todd 1990 - rule based relationships
- Different Approach by Langner
  - \_ Based on "Theory of Oscillating Systems"
  - \_ Dynamics shaped in local and global layers
  - \_ A method to analyze performance



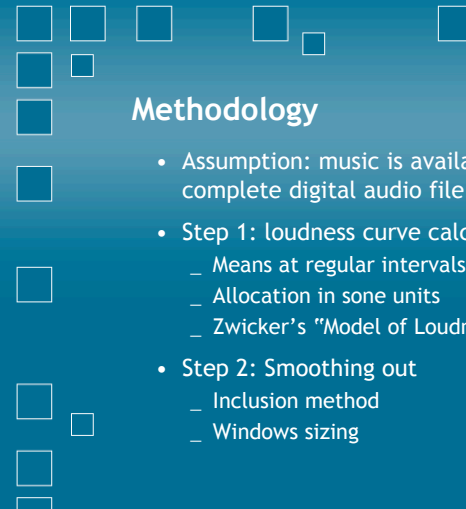
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- Step 2: Smoothing out
  - \_ Inclusion method
  - \_ Windows sizing

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- Visualization onto Dynagrams
- Real-time Considerations
  - \_ Signal recording
  - \_ "Looking into the future"
  - \_ Diagonal axis

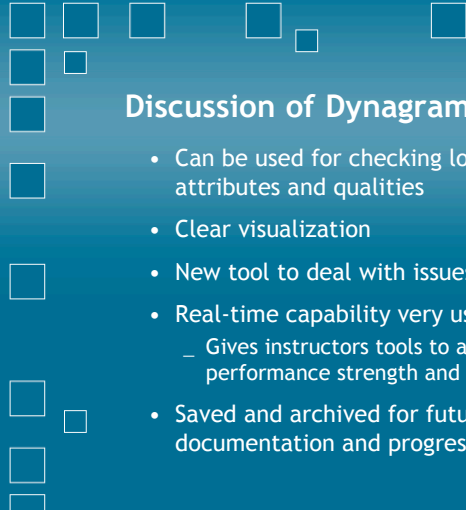
**Results**

[http://hurl.content.loudeye.com/scripts/hurl\\_eye?clipid=00743190209000e900a&cid=600005](http://hurl.content.loudeye.com/scripts/hurl_eye?clipid=00743190209000e900a&cid=600005)




## Results

- General Trends
  - \_ Professional player → proper crescendo & decrescendo
  - \_ Less clear with non-professional player
  - \_ Note greater intensities



## Discussion of Dynagrams

- Can be used for checking loudness attributes and qualities
- Clear visualization
- New tool to deal with issues raised
- Real-time capability very useful
  - \_ Gives instructors tools to access performance strength and weaknesses
- Saved and archived for future documentation and progress check



## The End.