

Image Based Digital Restoration of Optical Soundtracks

Reto Kromer • AV Preservation by reto.ch

On the Materiality of Audio-Visual Heritage

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1

Basics

3

Agenda

- Sources, Partners and History
- Different Flavours of Workflow – Their Advantages and Disadvantages
- The Digital Nightmare

2

Sources

- Anil C. Kokaram: Motion Picture Restoration. Digital Algorithms for Artefact Suppression in Degraded Motion Picture Film and Video. Springer, London 1998
- Patrick Streule: Digital Image Based Restoration of Optical Movie Sound Track. Swiss Federal Institute of Technology, Zürich 1999

4

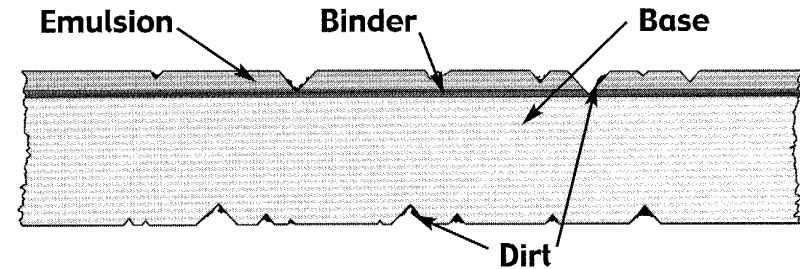
What is Cinema?

Cinema is a very popular entertainment of the 20th century that needs:

- the correct projection of a film
- in a theatre
- on the screen
- to an audience

5

What is a Film?



6



7

Printing Defects

- sound on wrong side
- sound backwards
- sound out of synchronisation

8

Sound Defects

- too low
- distortion
- sibilance noise
- high background noise

9

Methods

10

Printing

- vintage negative soundtrack
- release copy with optical soundtrack

11

Filtering

- vintage negative soundtrack
- **band-pass filtered sound**
- restored negative soundtrack
- release copy with optical soundtrack

12

Grading

- vintage negative soundtrack
- **graded positive soundtrack**
- band-pass filtered sound
- restored negative soundtrack
- release copy with optical soundtrack

13

Digital Intermediate (1)

- vintage negative soundtrack
- graded positive soundtrack
- **digital intermediate soundtrack**
- band-pass filtered sound
- restored negative soundtrack
- release copy with optical soundtrack

14

Digital Intermediate (2)

- vintage negative soundtrack
- graded positive soundtrack
- **digital intermediate soundtrack**
- restored negative soundtrack
- release copy with optical soundtrack

15

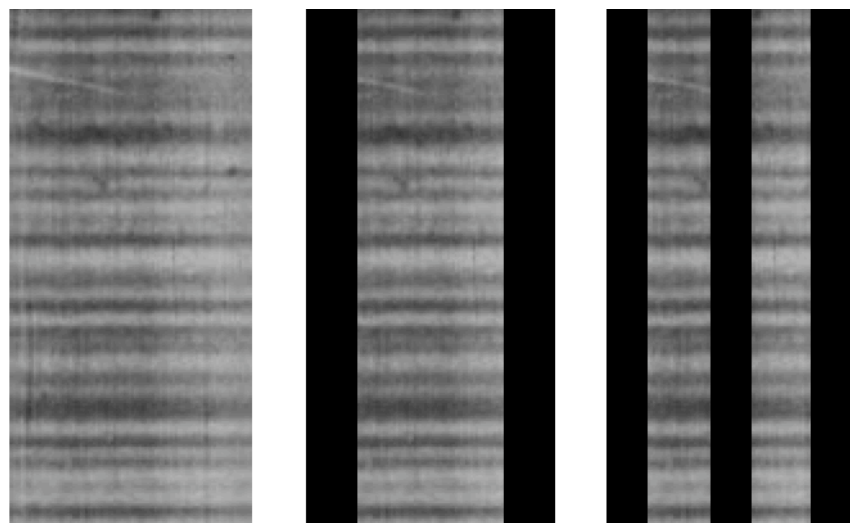
Digital Intermediate (3)

- vintage negative soundtrack
- **digital intermediate soundtrack**
- restored negative soundtrack
- release copy with optical soundtrack

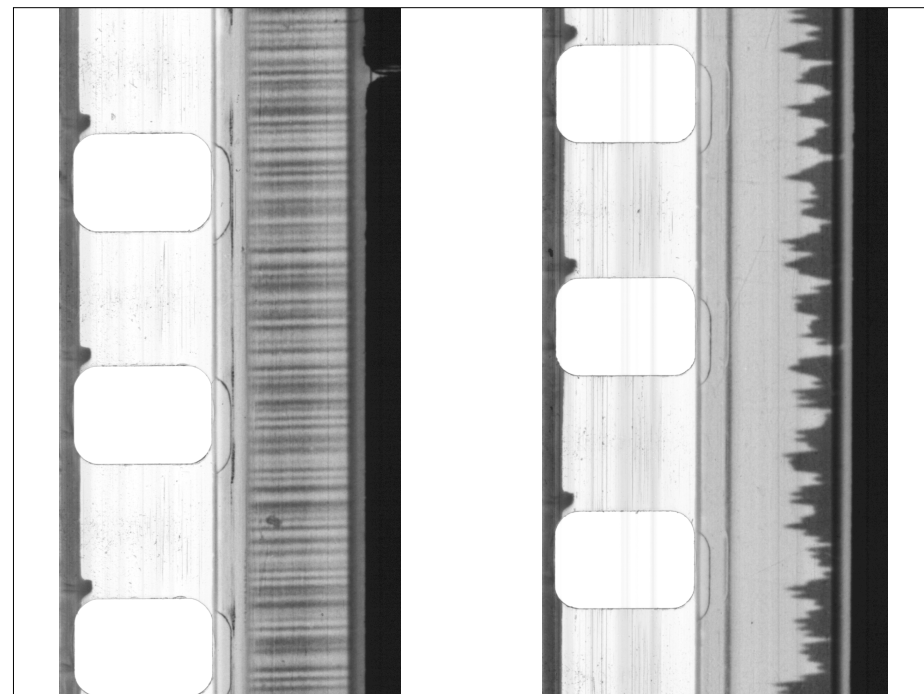
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Details

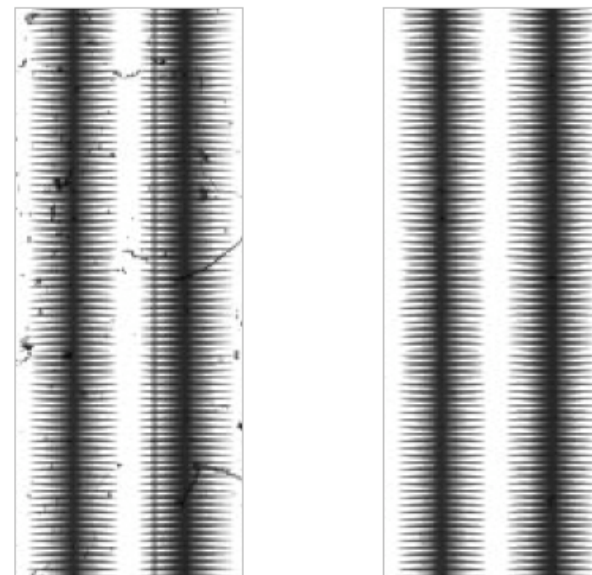
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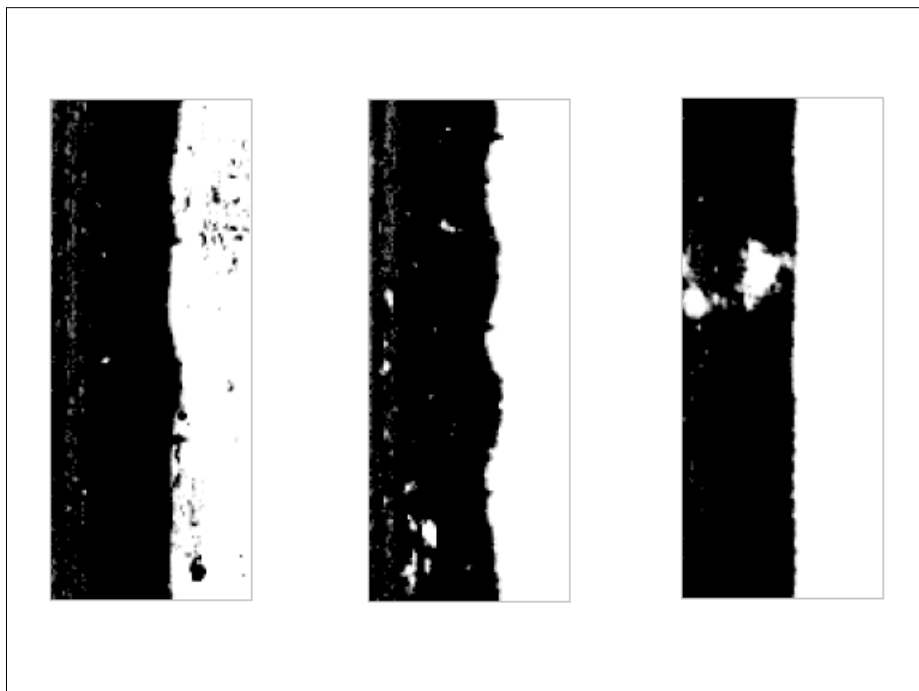
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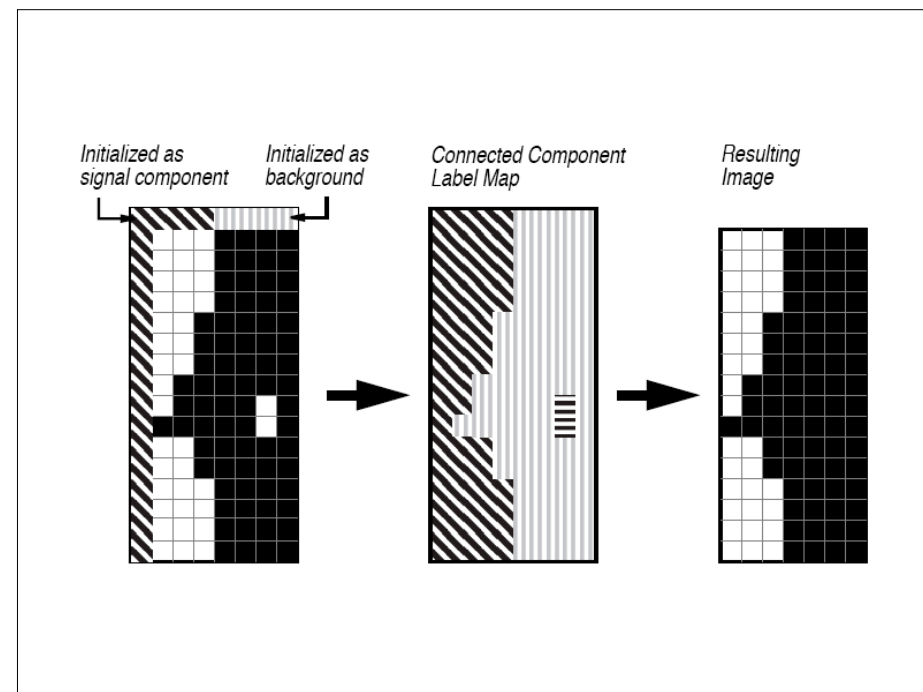
18



20



21



22

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23