



Digital AV Media Damage Prevention and Repair

Workshop on

Digital Video Damage in Archives: Understand, Prevent, Detect, and Repair

Introduction

Peter Schallauer, JOANNEUM RESEARCH

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Motivation

- Vast amount of new digital AV content
 - ~8 mil. hrs professional content over last decade in Europe [1]
- Digital storage is not perfect
 - Digital video tape based
 - Magnetic tape degradation
 - Digital file based
 - Corruption can be on bit, sector, block, file, drive, tape.... Level
- File incompatibilities, workflow issues
- How to keep AV content usable in the face of technical obsolescence, media degradation, and failures in the very people, processes and systems engaged to keep AV content safe?



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[1] PrestoPRIME 2009 Audiovisual digital preservation status report, <http://www.prestocentre.org/library/resources/audiovisual-digital-preservation-status-report-1-2009>

Approach

- Research & Development
 - Understand Damage
 - Prevent Damage
 - Detect & Repair Damage
 - Improve Quality
- Prototype Integration and Evaluation
 - in existing Systems
 - as standardised Services
- Standardisation
 - EBU-QC, FIMS-QA, MPEG MP-AF

Challenges/Objectives

- Understanding Damage
 - How does damage occur in digital file and digital video tape based systems?
 - What are the consequences of this damage on the ability to make use of audiovisual content?
- Preventing Damage
 - How can effective risk management and quality assurance techniques be built into preservation systems so that the systems themselves become more robust and resilient?

DAVID Challenges/Objectives

■ Detecting & Repairing Damage

- How can this damage be efficiently monitored and detected?

Format Compatibility Analysis...

DigiBETA Dropout

- Accepting that damage will occur, how can content be repaired to enable re-use?

Digital Sensor Noise,
DigiBETA Dropout

- How can all this be done at scale and at speed for large audiovisual collections?

Format Compatibility Tools

■ Improving Quality

- How can the technical quality of content be improved beyond the original state to satisfy requirements of new use channels?

GP GPU based Acceleration

Super Resolution

■ R&D

- JOANNEUM RESEARCH Forschungsgesellschaft mbH (JRS)
- University of Southampton - IT Innovation Centre (ITInnov)



■ Industry

- Cube-Tec International GmbH (CTI)
- HS-ART Digital Service GmbH (HSA)



■ Archives

- Institut National de l'Audiovisuel (INA)
- Österreichischer Rundfunk (ORF)



Workshop Outline

- The Damage Problem (INA, ORF)
- Detect and Repair Damage, Improve Content
 - Format Compatibility - MXF damage detection and repair (CTI)
 - Video essence damage detection and repair (JRS)
 - Digital BETACAM dropouts detection&repair (JRS)
 - Noise repair (JRS, HSA)
 - Field defects detection and repair (HSA, JRS)
 - De-Blurring and Super-Resolution (INA)
- Prevent Damage in the Future
 - Managing the risk of digital AV media damage (ITInnov, presented by JRS)
- Q&A

Contact

david-preservation.eu



Peter Schallauer

peter.schallauer@joanneum.at

- Evaluate the DAVID tools and discuss your needs
- Tools under test
 - MXF D10 File Repair (operational ORF workflow)
 - Detection of DigiBETA Dropout, Field Order and Interlaced/Progressive/Pull-Down Errors integrated in the VidiCert Essence QC System
 - Noise and DigiBETA Dropout Repair integrated into DIAMANT-Film Restoration System
 - Advanced Field Processor
 - De-blurring and Super-Resolution of Archive Content
 - Risk Modelling & Management tools for digital damage prevention within archives
- **Registration info at david-preservation.eu/news**