EPFL
Cultural
Heritage
& Innovation
Center

MONTREUX JAZZ DIGITAL PROJECT

EPFL

Montreux Jazz Festival

Claude Nobs' vision

Record the concerts :

- In the highest quality
- To broadcast the festival

“It’s the most important testimonial to the history of music, covering jazz, blues and rock”

Quincy Jones

- Digitization Project launched in 2007
- Creation of the Claude Nobs Foundation
- Registration to UNESCO in 2013

United Nations
Educational, Scientific and
Cultural Organization

The Montreux Jazz Festival Legacy
Inscribed on the international register in 2013
Memory of the World

The Archive in numbers

- 6000 concerts
- 14’000 Master tapes, covering 1966 – 2023
- 25 different audio & video tape formats
- Video: 11’000 hours of recordings, in HD already in 1991 !
- Audio: 6000 hours of recordings, including multi-tracks
- Pictures: > 100’000 photos (60’000 digitized at EPFL)

Storage on S3 hard drive based System

Montreux Jazz Digital Project - Objectives

- Digitize, preserve, add value

  to the audio, audiovisual, pictures and related collections

- Research, innovate, educate

  with the archives as a research infrastructure

WITH SUPPORT OF THE FOLLOWING PARTNERS

AUDEMARS PIGUET
Le Brassus

Western Digital®

ERNST GÖHNER STIFTUNG

logitech®

MEMORIAV
MEMORIAV
MEMORIAV
MEMORIAV
MEMORIAV
MEMORIAV

LOTERIE ROMANDE

Fonoteca nazionale svizzera
Schweizerische Nationalphonothek
Swiss National Sound Archives

Sezione della Biblioteca nazionale svizzera

MILLENNIUM

Cultural Heritage & Innovation Center (2010)

Operational tasks in digitization of audiovisual collections

- Project management and coordination, archiving strategies
- Competences acquired since 2010, 7-12 people
- Inventory, digitization, quality control, documentation, metadata, database ontologies, long-term storage

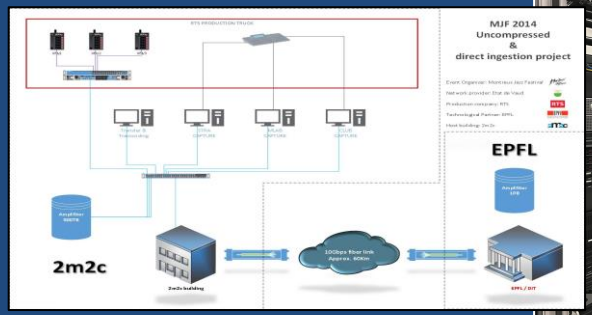
Hub for research & innovation, adding value to the collections:

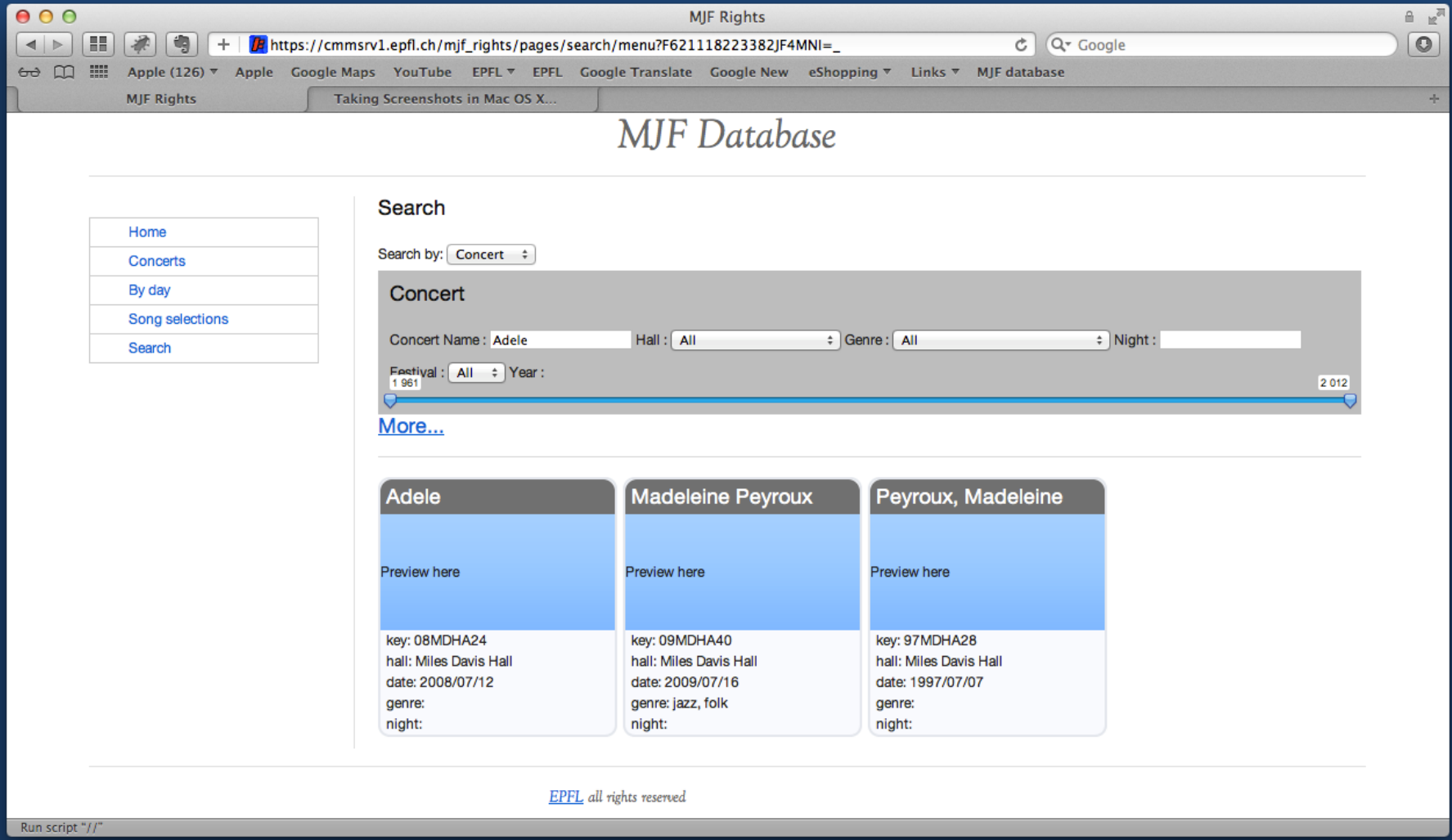
- in acoustics, signal processing, artificial intelligence, musicology, museology, archiving, design, architecture, neurosciences, social & human sciences, performing arts, …

LTO Library
Active
Archive
Unit

Live Archiving at the Festival

- Live recording of the concert streams onto files
- Storage on Server
- Transcoding in subformats for public platforms
- Song indexing and segmentation
- Check of author's rights
- Public availability during the festival




MJF Rights
https://cmmsrv1.epfl.ch/mjf_rights/pages/search/menu?F621118223382JF4MNI=_
Google
Apple (126)
Apple
Google Maps
YouTube
EPFL
EPFL
Google Translate
Google New
eShopping
Links
MJF database
MJF Rights
Taking Screenshots in Mac OS X...
MJF Database
Home
Concerts
By day
Song selections
Search
Search
Search by: Concert
Concert
Concert Name : Adele
Hall : All
Genre : All
Night :
Festival : All
Year :
1 961
2 012
More...
Adele
Preview here
key: 08MDHA24
hall: Miles Davis Hall
date: 2008/07/12
genre:
night:
Madeleine Peyroux
Preview here
key: 09MDHA40
hall: Miles Davis Hall
date: 2009/07/16
genre: jazz, folk
night:
Peyroux, Madeleine
Preview here
key: 97MDHA28
hall: Miles Davis Hall
date: 1997/07/07
genre:
night:
EPFL all rights reserved
Run script "//"

ON AIR
EPFL
La collection du Montreux Jazz
La mémoire du festival
Le Montreux Jazz Digital Project a été créé par l'EPFL et la Fondation Claude Nobs, pour numériser la collection audiovisuelle du festival et l'enrichir au travers de projets d'innovation technologique. Inscrite au Registre de la Mémoire du monde de l'UNESCO en 2013, cette collection rassemble 5000 heures d'histoire de la musique. Développé dans la foulée, Montreux Jazz Memories est un projet d'histoire publique dédié à la sauvegarde et à la mise en valeur de la mémoire du festival. Une plateforme collaborative développée avec la FONSART attend nos contributions :
www.montreuxjazzmemories.ch
Le Montreux Jazz Memories Studio présenté ici suit deux objectifs. Il s'agit de donner accès aux archives audiovisuelles du festival et de collecter les mémoires des personnes qui, depuis 1967, s'engagent dans l'événement. En tant que bénévoles, techniciens, festivaliers, artistes, ces personnes ont produit cet événement devenu aujourd'hui incontournable dans le paysage culturel.
En charge du Montreux Jazz Digital Project depuis 2010, le Cultural Heritage and Innovation Center (CHIC) de l'École Polytechnique Fédérale de Lausanne est un centre de compétences dédié à l'innovation dans le domaine des patrimoines culturels. Présenté ici également, l'un des nouveaux projets auxquels il participe concerne les nouvelles technologies de stockage de données sur ADN.

Sound Dots by Hidacs

Casino Kursaal Revival

Montreux Jazz Heritage Lab

EPFL+ECAL LAB

MJHL 1

- Specific to digital heritage
- Immersion with every formats
- Main image never touched
- Browsing as part of immersion
- Materiality of the environment
- Social interaction
- Inside / outside relation

EPFL+ECAL LAB

MJHL 2

Visual augmentation

Audio augmentation

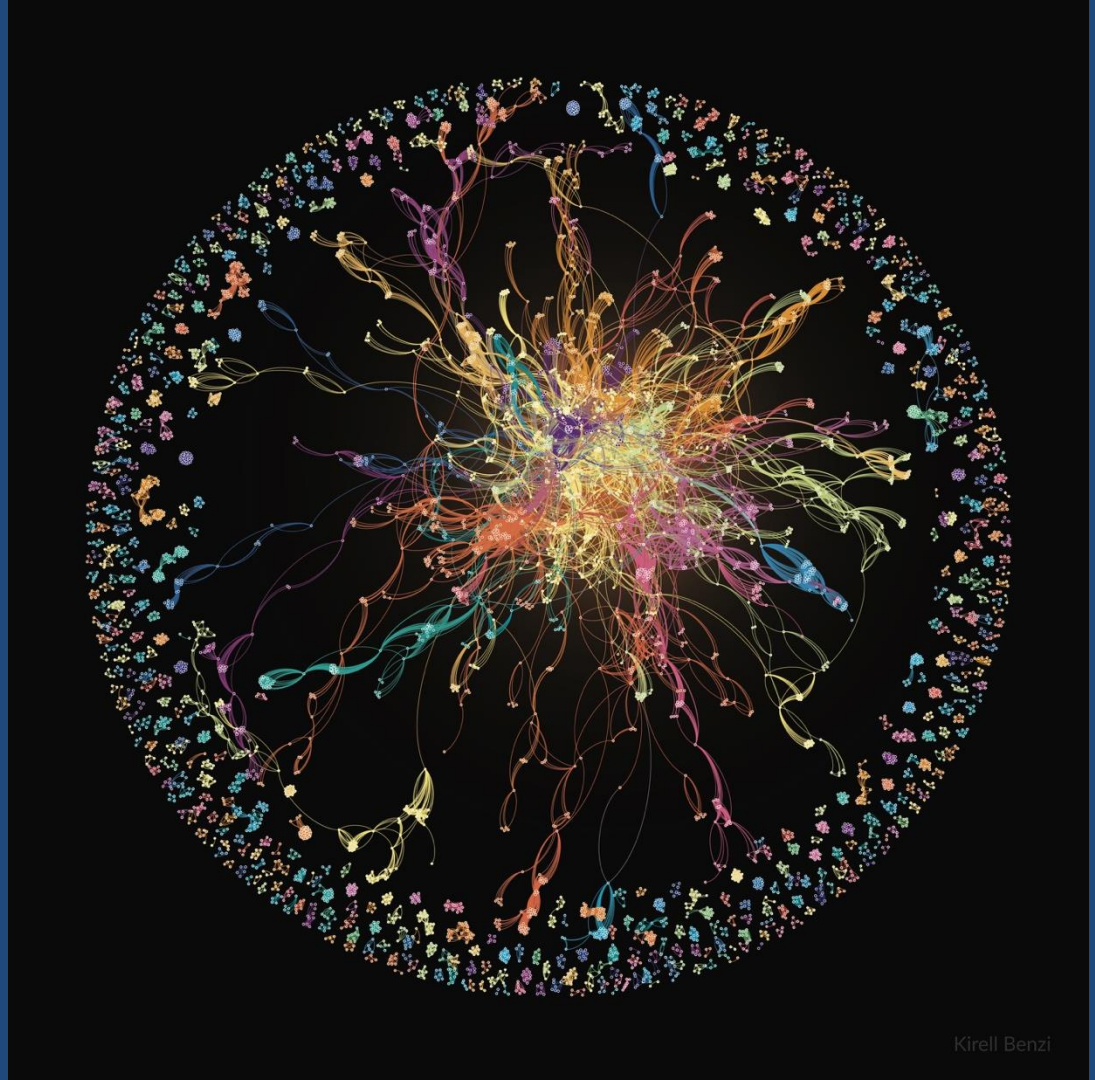
Content augmentation

New screen materiality

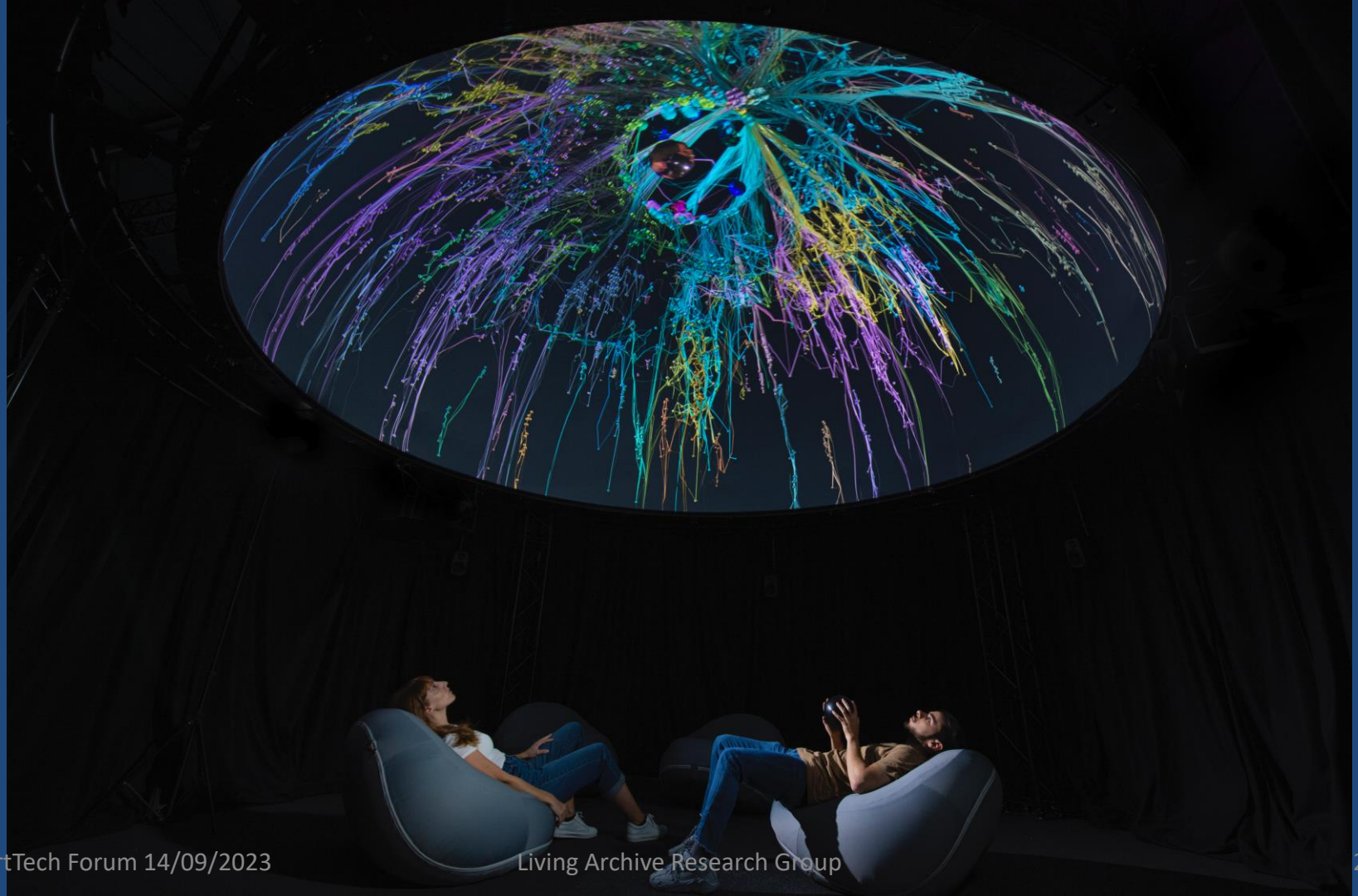
Inside / outside relation

Browsing through history

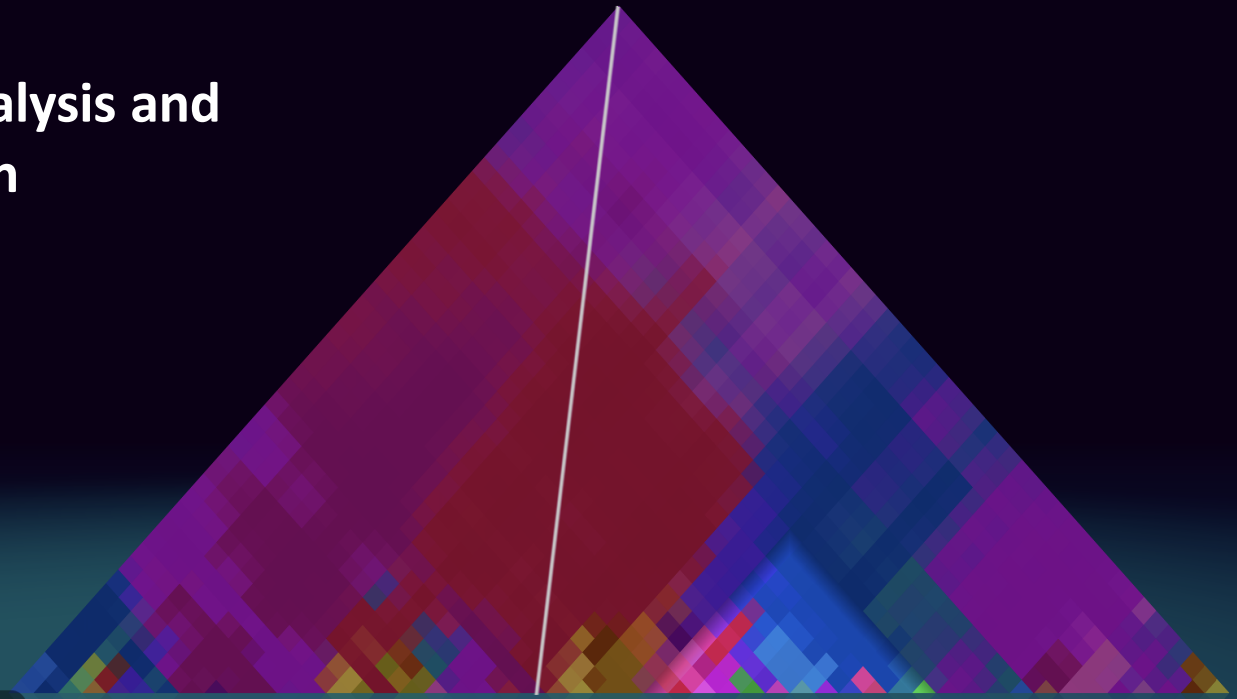
Deep Purple
Smoke On The Water
09/07/1996
Auditorium Stravinski
nina


Kirell Benzi

Winged
drones



Musical Analysis and visualization



Michel Petrucciani, Jim Hall and Wayne Shorter
Limbo

Keyscale

shuffle

f

00:00:000

Thumbnail Generation for each Song – IVRL lab

MONTREUX JAZZ
ODYSSEY
JOUER
RÉGLAGES
QUITTER

LIVING ARCHIVE

RESEARCH GROUP

EDHEA, Ecole de Design et Haute Ecole d'Art du Valais
Uni Genève, Centre Interdisciplinaire de Sciences Affectives
ZHdK, Artists in Lab
EPFL

https://livingarchivegroup.org

Sound Choregraphy

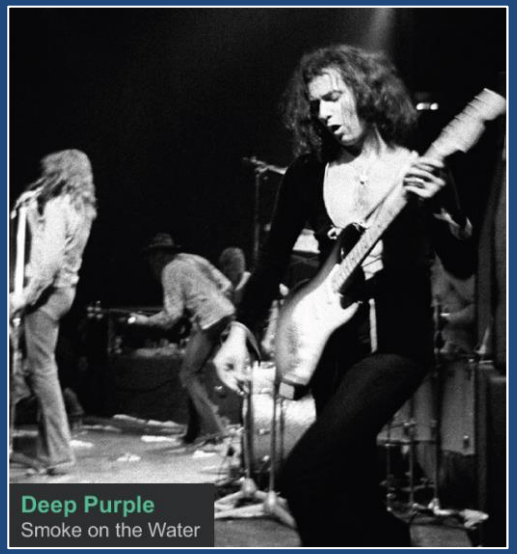
Wikimedia-CH GLAM on Tour in Montreux, November 2022

MONTREUX JAZZ MEMORIES

MONTREUX JAZZ MEMORIES

Long-Term Storage on Synthetic DNA

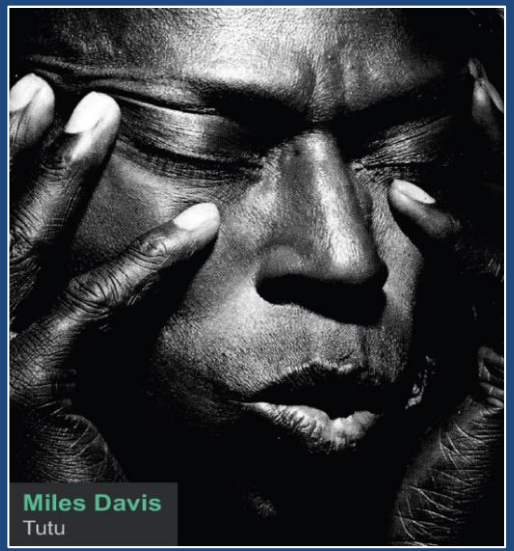
Iconic Performances of Deep Purple and Miles Davis at Montreux stored on DNA for the first time in September 2017



UNIVERSITY of WASHINGTON

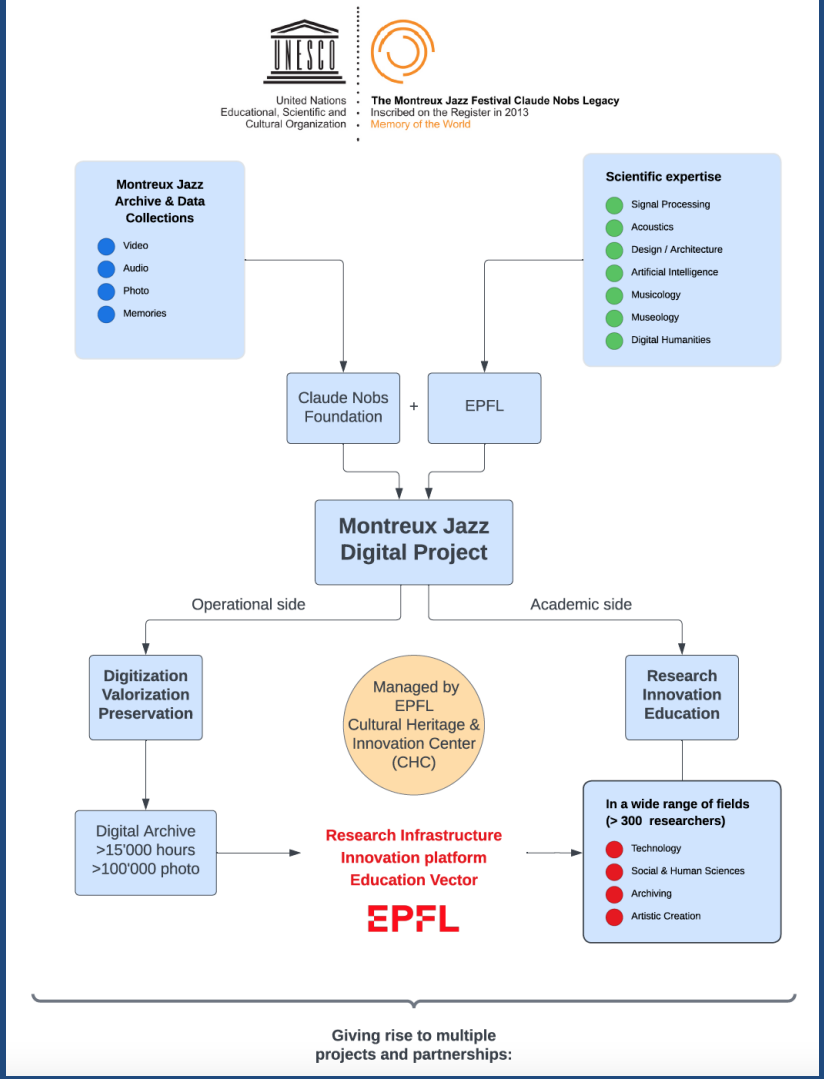
TWIST BIOSCIENCE

Microsoft Research



CHC Platform

Concept



Cultural Heritage & Innovation Center (CHC)

How research and innovation can help digitize, preserve and add value to cultural heritage

Extending the concept to other collections

EPFL
ECOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

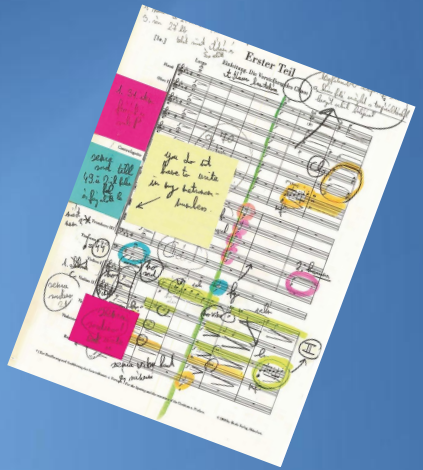
EPFL

((echo))

verbierfestival

verbierfestival

en partenariat avec l'EPFL



MARTIN T:SON ENGSTRÖM

Creation of the festival in 1994

A world unique collection

Audio : 30 years of concert recordings : 3’000 hours - 100 TB

Video : Professional recordings from 2007: 1000 hours – 100 TB

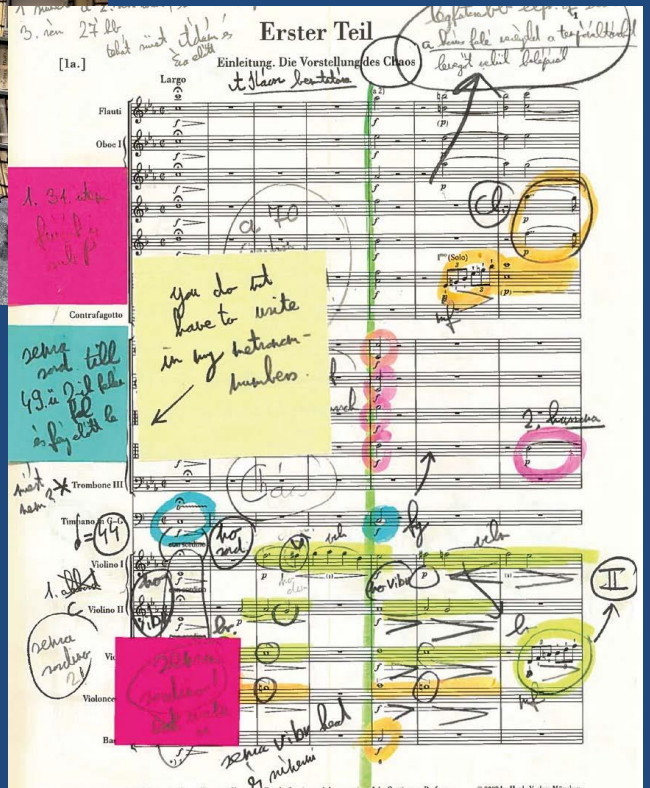
Pictures : + 150’000 artistic shots

Ludwig Van Beethoven, Symphony No. 3 in E-Flat Major, Op. 55 “Eroica”
Verbier Festival Chamber Orchestra, 2014, Conducted by Gábor Takács-Nagy

Aline Paley, © 2018

Annotated Musical Scores

1500 documents!



The treasure: a most precious collection, currently under digitization by the festival's librarian, Juliette Bertrand.

To be further converted to symbolic data for the purpose of analysis and research in musicology

High Fidelity Digitization

- Digitization in uncompressed or native digital format
- Storage on 3 copies: 1x Active Archive + 2x LTOs tapes
- MD5 Digital signature

Original
Master tape

digitization

EPFL S3 Active Archive server

EPFL Storage

Cold storage

LTO tapes

Archive formats

- Uncompressed (level I)
- Broadcast (level II)
- High Quality previews (level III)
- Lower quality version for PC screens
- Protected previews (with time-code)

Security

Data:

- Preservation strategy → Uncompressed data
- Storage Policy → 3 copies: 1x private server + 2x cold
- IT aspects → Private network for media files
  → Controlled access to metadata

Authors' rights:

- Access to researchers → under contract + personal NDAs
- Public platforms → involving kiosk software

Migration on-going, to EPFL central storage units + private server

Emergencies / Critical aspects

Most often :

- Public platforms failing (Montreux Jazz Café)

  ➔ hardware or software issues to be solved

Most critical :

- Discovering original supports in bad shapes (➔ check CD-Rs !)
- Discovering problems with LTOs (➔ re-read just after writing!)

Most sensitive :

- Live archiving during the Montreux Jazz Festival
- Data storage migration (LTO, IT network re-configuration)

Strategy

Redundancies !!

- Copies distributed on different types of supports
- Copies in different file formats
- Use of several approaches in parallel
- Several ways for the signals / file transfers
- Backups and hardware twins (power plug, PCs, …)
- Overlapped competences in team members

Thank you !