Putting Computational Musicology into Reverse

Frans Wiering
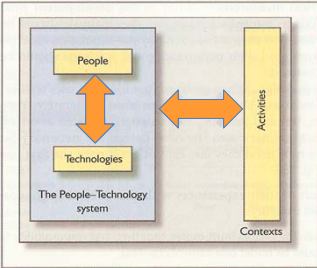
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Teaching interactive systems design

- David Benyon, *Designing Interactive Systems.* 2nd ed., 2010
- human-centred design
  - aim: people-technology system
- PACT analysis of domain

Designing Interactive Systems
A comprehensive guide to HCI and interaction design
David Benyon

People

Technologies

Activities

Contexts

The People–Technology system

interactive systems are everywhere

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Work of art or interactive technology?

- source as surviving half of a people-technology system
- opportunities for contextualisation

- ms. displays best practices of IS design
  - minimalist design (Nielsen 1994)
  - invite users to mobilise their expertise

International Musicological Society
Study Group on Musical Data and Computer Applications

IMS Study Group: Study Group on Digital Musicology

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Naming the interdisciplinary area

computational musicology

music information retrieval

computer applications in musicology

music informatics

music information research

e-musicology

data science of music

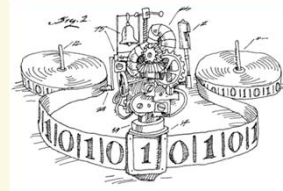digital musicology

computer science

musicology

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Computer science paradigms

- algorithmic paradigm
  - emphasis on computability, mathematical proof
  - 'autistic' behaviour in closed world

- interactive paradigm
  - interaction with real world, sense of history
  - only partial, empirical proof of computational properties

- Peter Wegner. Why interaction is more powerful than algorithms. *Communications of the ACM* 40/5, 1997

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Computational Musicology

- roots in the 50/60's
- core
  - design of encoding schemes for music notation
  - corpus building
  - automatic processing
    - printing
    - indexing
    - analysis
    - pattern discovery and searching
    - stylistics…

- algorithmically oriented
- isolated subdiscipline within musicology
  - but strongly connected to *Music Information Retrieval* since late 1990s
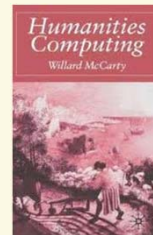
Arthur Mendel

www.ccarh.org

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Elsewhere in the humanities

- mass digitisation of cultural heritage
- Internet as a scholarly resource

- Digital Humanities
  - interoperability
  - digital media studies
  - builds on 'normal' digital literacy
  - end users become end makers (Willard McCarty 2005)

- much more serious about interactive paradigm

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Digital Musicology

- similar re-orientation possible for Musicology?
  - exploit the Internet
  - creative use of existing technologies
  - not primarily about notation data processing
  - support musicological work processes
  - interactive paradigm

- digital musicology = computational musicology in reverse
  - human-centred design rather than closed systems

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Where is this happening?

- (some) emerging topics of digital musicology
  - folk song research
  - performance research
  - digital critical editions
  - lute music research

- each characterised by
  - sizeable community
  - fairly high level of computer literacy

FsAC
Essen Associative Code and Folksong Database

MUSIC ENCODING
MEI
INITIATIVE

THE
. C . M . E .
PROJECT   computerized mensural music editing

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Example: lute music research

- not a profitable market for publishers
  - early adoption of technology

- community-driven developments
  - home-made software and encodings
  - online publication and distribution
- top-down initiatives
  - digital preservation
  - ECOLM (www.ecolm.org)
- collaboration in crowd-sourcing
- emerging requirements
  - improving transcription
  - version alignment
  - searching

- **continuum between digital musicology as a *skill* and a *subdiscipline***

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Designing search

- seems so simple, but...

- requires understanding of a complex human problem
  - what motivates the search?
  - what is a search pattern?
  - what is a good result?
  - how many results needed?
- selecting suitable technology
  - many solutions exist
  - each comes with limitations
  - design new methods?
- creating an interface
  - maximum functionality
  - simple and intuitive
- usefulness
  - effective
  - produces new understanding
  - enables creative misuse?

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Digital Musicology

- as a subdiscipline
  - investigate work practices and needs
  - envision interactive solutions
  - incremental design with user feedback
  - build on available technologies
  - create new algorithms as a last resort

- as a skill
  - driven by work practices
  - building on digital literacy
  - end-making, using variety of means
  - mobilise rich data richness to reinforce musicological argument

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Thought in progress…

- much potentially useful technology
  - but: demand driven approach
- opportunities exist
  - digitally literate research communities
  - data richness
  - extending evidence base
  - modelling of complex information
  - sustainable research infrastructures
- weaknesses
  - non-musical data
  - contextualisation
  - integration in musicological discourse
- Digital Musicology Study Group's task to address both

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