The Show Must Go On: Dependable Audio Computing

Jörn Loviscach
Fachhochschule Bielefeld, Germany
(University of Applied Sciences)
An invitation to a virtual unconference

bit.ly/9kIvT

URL will be repeated at the end
What is this about?
SYSTEM ERROR
Computers are dangerous!

Looking for best practices & inventing new ones:

• Live music and multimedia performances
• Recording unique moments

Applications of off-the-shelf products & development of proprietary solutions
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Applications of off-the-shelf products & development of proprietary solutions
Tons of stuff to cover....
Preliminary structure

- Overarching strategy
- Hardware
  - Computers
  - Sensors
  - Audio interfaces
  - Connections
  - ...
- Software
  - Operating systems
  - Parallel processing
  - User Interfaces
  - ...

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Art
Some topics to look into
Overarching strategy (1)

Look at reliability engineering:

- Fault prevention by design
- Fault detection and removal
- Fault tolerance
- Fault forecasting

cf. M.R. Lyu (ed.), Handbook of Software Reliability Engineering
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Art & science of testing (incl. instrumentation)
Overarching strategy (1)

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Bring three computers? Fallbacks in software?

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Overarching strategy (1)

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Overarching strategy (2)

Sophisticated or reliable: Pick one?

- a.k.a. “reduce to the max”
- Needs to be fleshed out in practice!
- Can we achieve a similar artistic effect with less technology?
Hardware: Connections

- Wires may break and may be unplugged
- Can you reinsert them? (noise, software)
- Wireless connections may be flaky or prone to intrusion
Software: operating system

- Task switching time?
- Memory management? (disk swapping; heap size)
- Background processes? (malware scanners, updaters, ...)
  Can you momentarily disable them?
Software: parallel processing

• How to debug multithreaded or multi-process applications?
• Parallel tracks as individual processes, so that no track can crash the others? (cf. Google Chrome)
Software: User Interfaces

- Foolproof interfaces?
  - No record button
  - Never overwrite files
  - Save automatically

- Indicate safe margins for recognition
  - Image
  - Audio
  - Tangible interfaces
Call to action

Let’s build a collection of:

• Tested methods
• Tips & tricks
• Pitfalls to be aware of
• Lessons painfully learned

And let’s come up with great new research!
Meet you at:
bit.ly/9kIv1T

Jörn Loviscach
www.j3L7h.de