



Contemporary C++ in Action

Daniela Engert

Outline

- Prologue
- Motivation
- The Experiment
- Demo
- My Conclusion
- Epilogue



ABOUT ME

- Electrical engineer
- Build computers and create software for 40 years
- Develop hardware and software in the field of applied digital signal processing for 30 years
- Member of the C++ committee (learning novice) for 3 years (EWG, SG15)

- employed by



Motivation



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- The committee is a bureaucratic bunch of morons detached from reality



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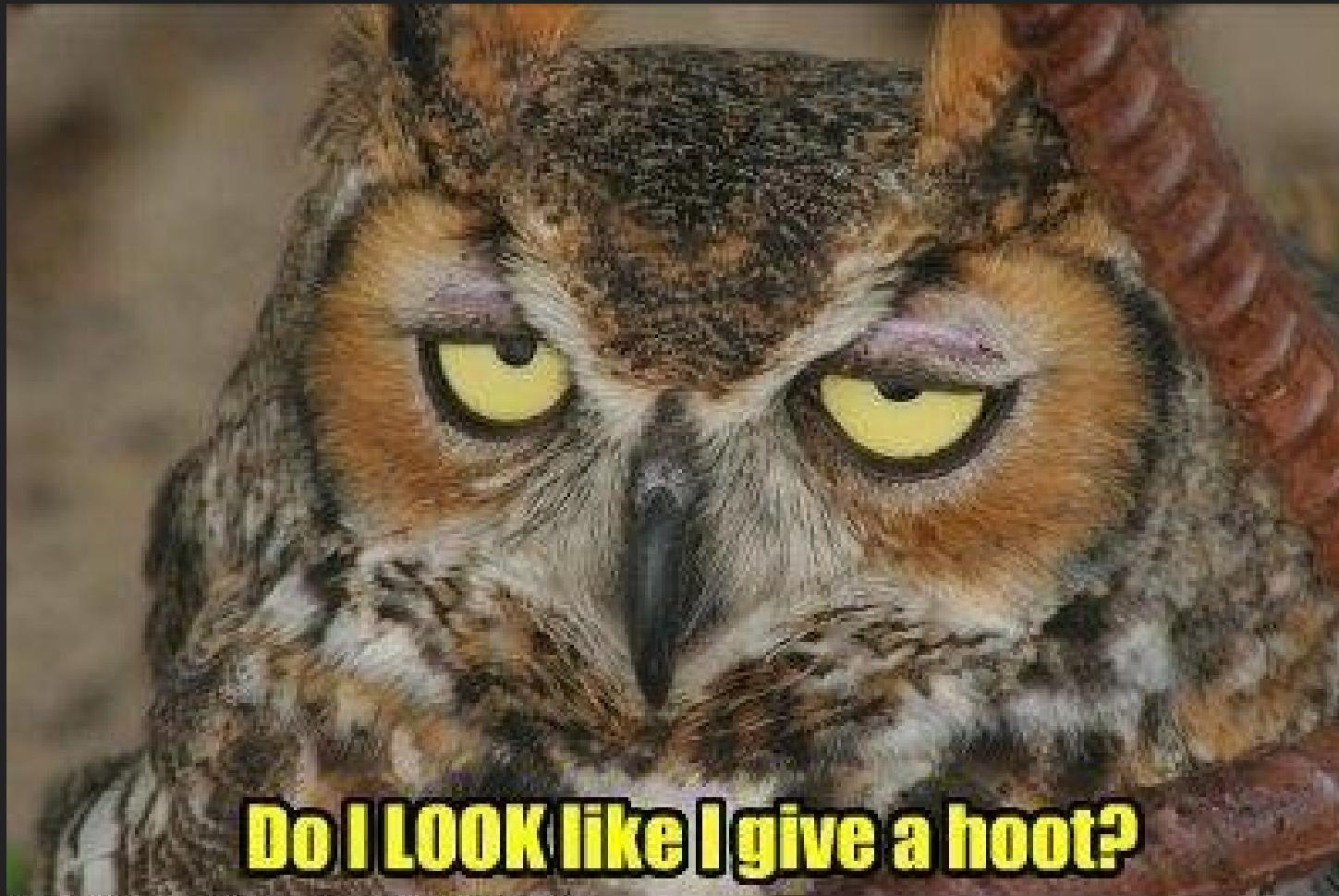
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- The committee is a bureaucratic bunch of morons detached from reality
- C++ 03 is all you need. Everything beyond that is just syntactic sugar



IS THIS REALLY TRUE?

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THE REALITY CHECK

I can't deny my age and the experience that may come from that.

But I can try to disadvantage myself as much as possible by starting an application from scratch and implement something non-trivial using as many

- core language features
- standard library features
- 3rd-party libraries

that I've never used before (or for the first time just recently).

And make them work together as smoothly as possible.

HENCE THE TITLE OF MY TALK

Contemporary C++ in Action

CONTEMPORARY C++?

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ancient
C++98 and
C++03 ?



CONTEMPORARY C++?

renaissance
C++11 and
C++14?



CONTEMPORARY C++?

industrial
C++17?



CONTEMPORARY C++?

big bang
C++20 and
C++23?



CONTEMPORARY C++ !

C++23 and
C++20 and
C++17 and
C++14 and
C++11



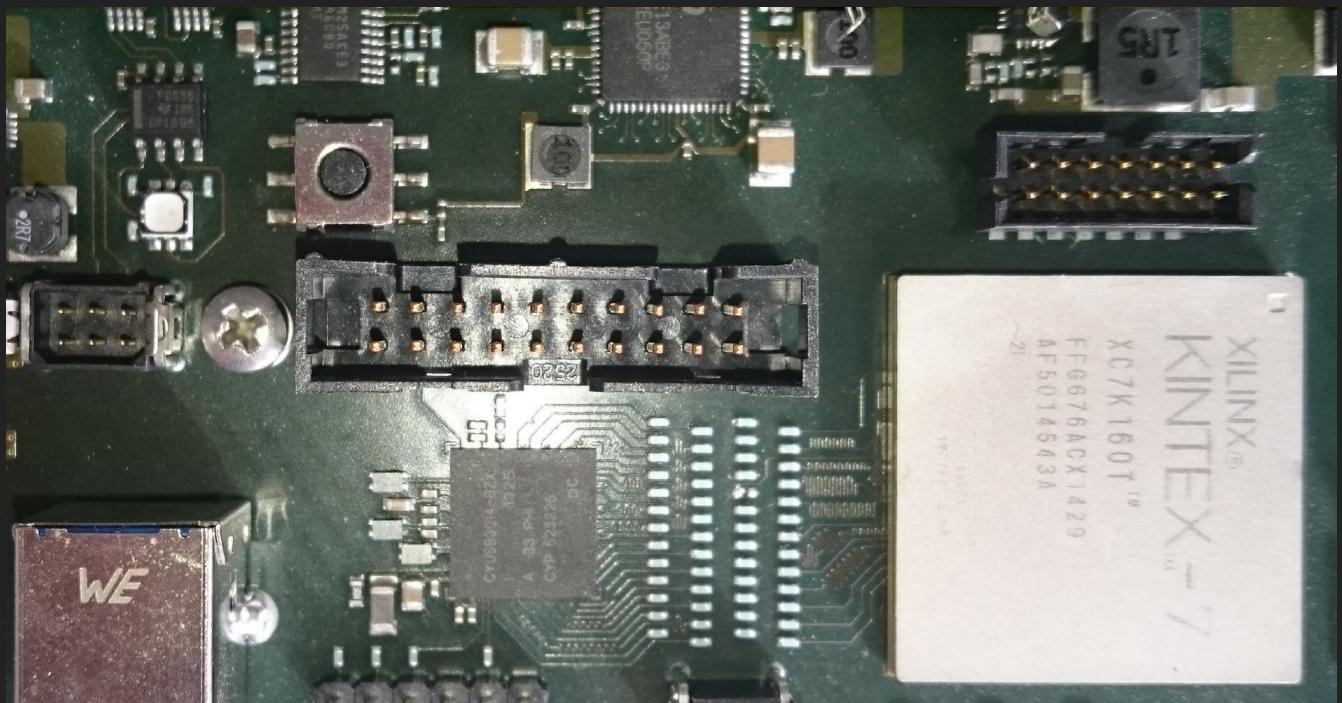
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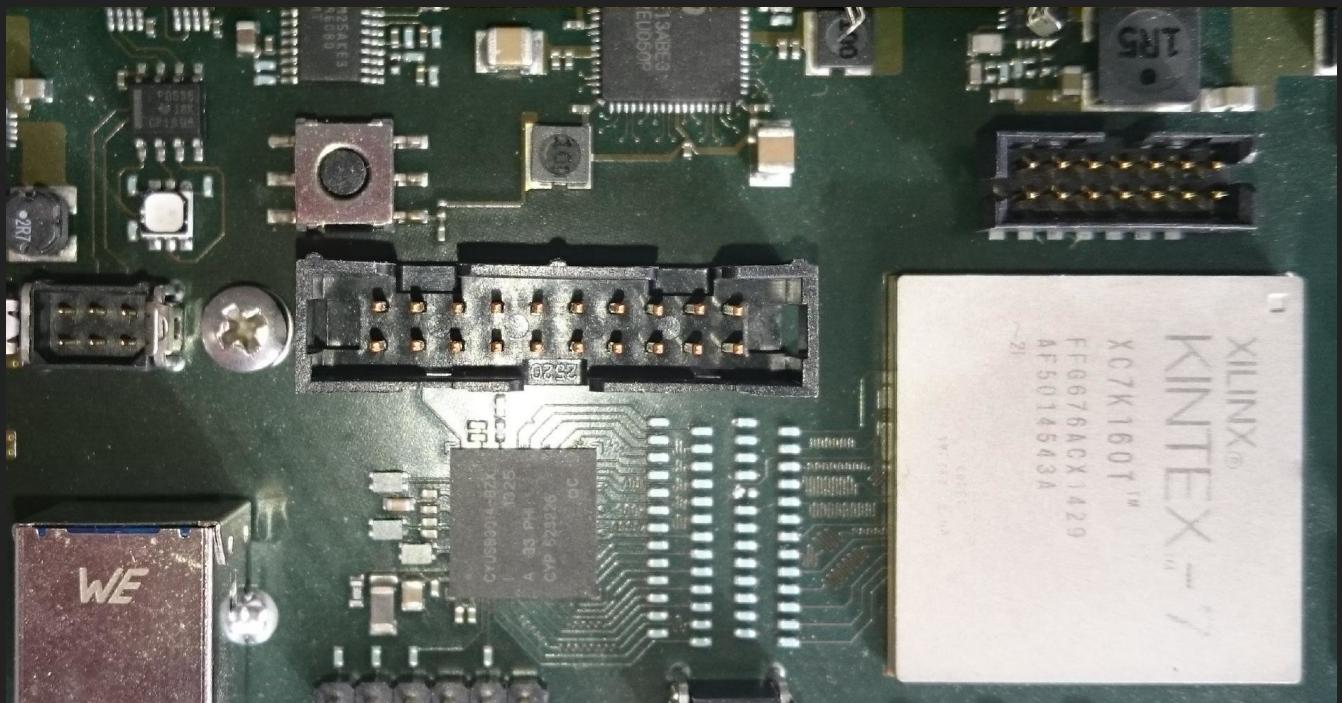
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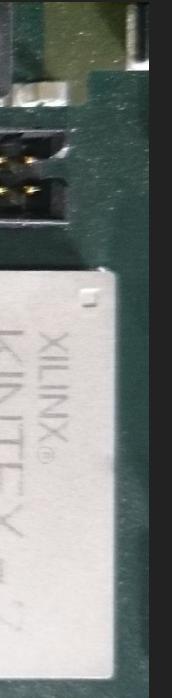
- data collection
- data processing
- data visualization
- near realtime networking



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- data processing
- data visualization
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- library usage



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- interface design



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- data visualization
- near realtime networking
- library usage
- library creation
- interface design

taking advantage of whatever this may take.



The Experiment Specification Demo Code



THE SPECIFICATION

The server

- waits for clients to connect at any of a list of given endpoints
- when a client connects, observes a given directory for all files in there, repeats endlessly
- filters all GIF files which contain a video
- decodes each video into individual video frames
- sends each frame at the correct time to the client
- sends filler frames if there happen to be no GIF files to process

The client

- tries to connect to any of a list of given server endpoints
- receives video frames from the network connection
- presents the video frames in a reasonable manner in a GUI window

The application

- performs a clean shutdown from all inputs that the user can interact with
- handles timeouts and errors properly and performs a clean shutdown

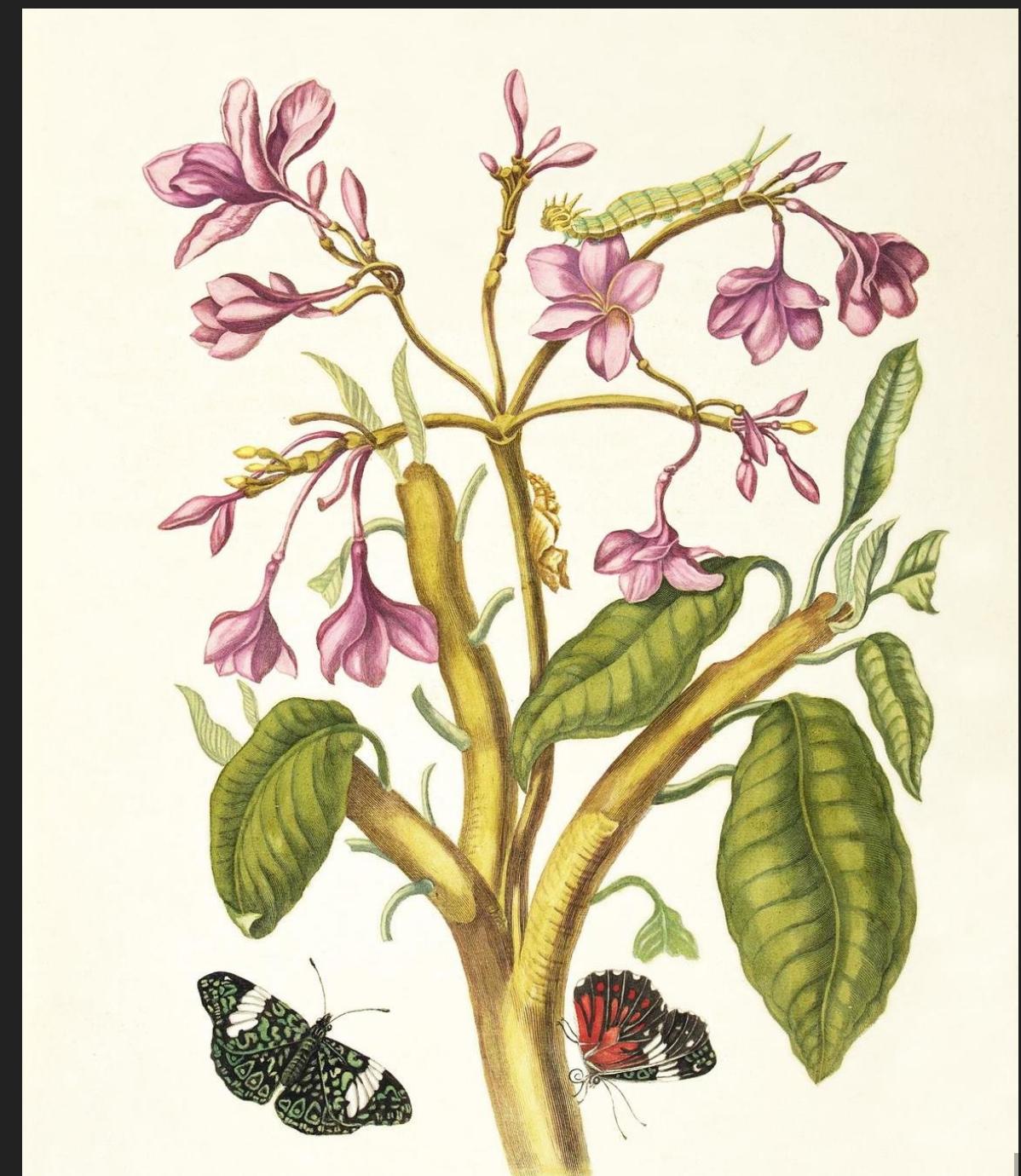
DEMO CODE TIME

Ask me anything during the presentation of the code!
This is *supposed* to be **interactive!**



**Y'ALL GONNA JUST STAND AROUND OR
YOU WANNA ASK ME SOME QUESTIONS?**

My Conclusion



CONTEMPORARY C++ IS



simple

CONTEMPORARY C++ IS

concise



CONTEMPORARY C++ IS



CONTEMPORARY C++ IS



CONTEMPORARY C++ IS



enjoyable

Epilogue



RESOURCES

Links

- Live implementation status of C++23 (compilers and standard libraries)
- C++23 Draft
- Compiler Explorer C++23 playground
- ISO C++ Standards Committee The status and progress of all papers (GitHub)
- All published papers
- Demo code github.com/DanielaE/CppOnSea2022

Contact



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DanielaE



Images: Maria Sibylla Merian (1705)



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