0. ORGANIZATION
1. DIGITAL TECHNOLOGIES
2. SENSORS
3. ACTUATORS
4. COMPUTER VISION
5. GENERATIVE AI
6. NATURAL LANGUAGE PROCESSING
7. USER INTERFACES
8. CLOUD SERVICES
9. DATABASES

The slides are meant as visual support for the lecture.
They are neither a documentation nor a script.

Please do not print the slides.

Comments and feedback at n.meseth@hs-osnabrueck.de

ORGANIZATION

ILIAS
Microsoft Teams

sessions

group work

examination

working environment

visual studio code
python
tinkerforge
git

DIGITAL TECHNOLOGIES

a model for solving problems

cyber physical systems

artificial intelligence

software prototyping

cyber physical systems

sensors

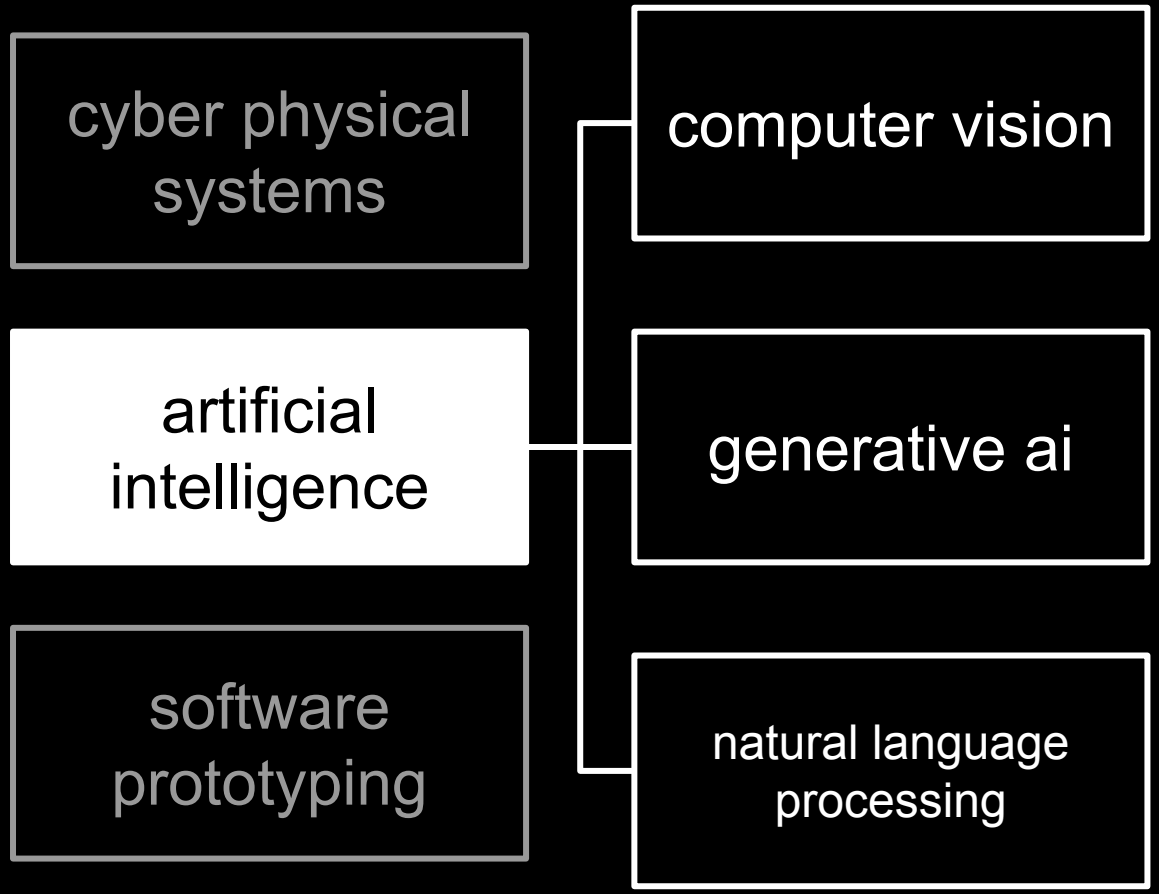
actuators

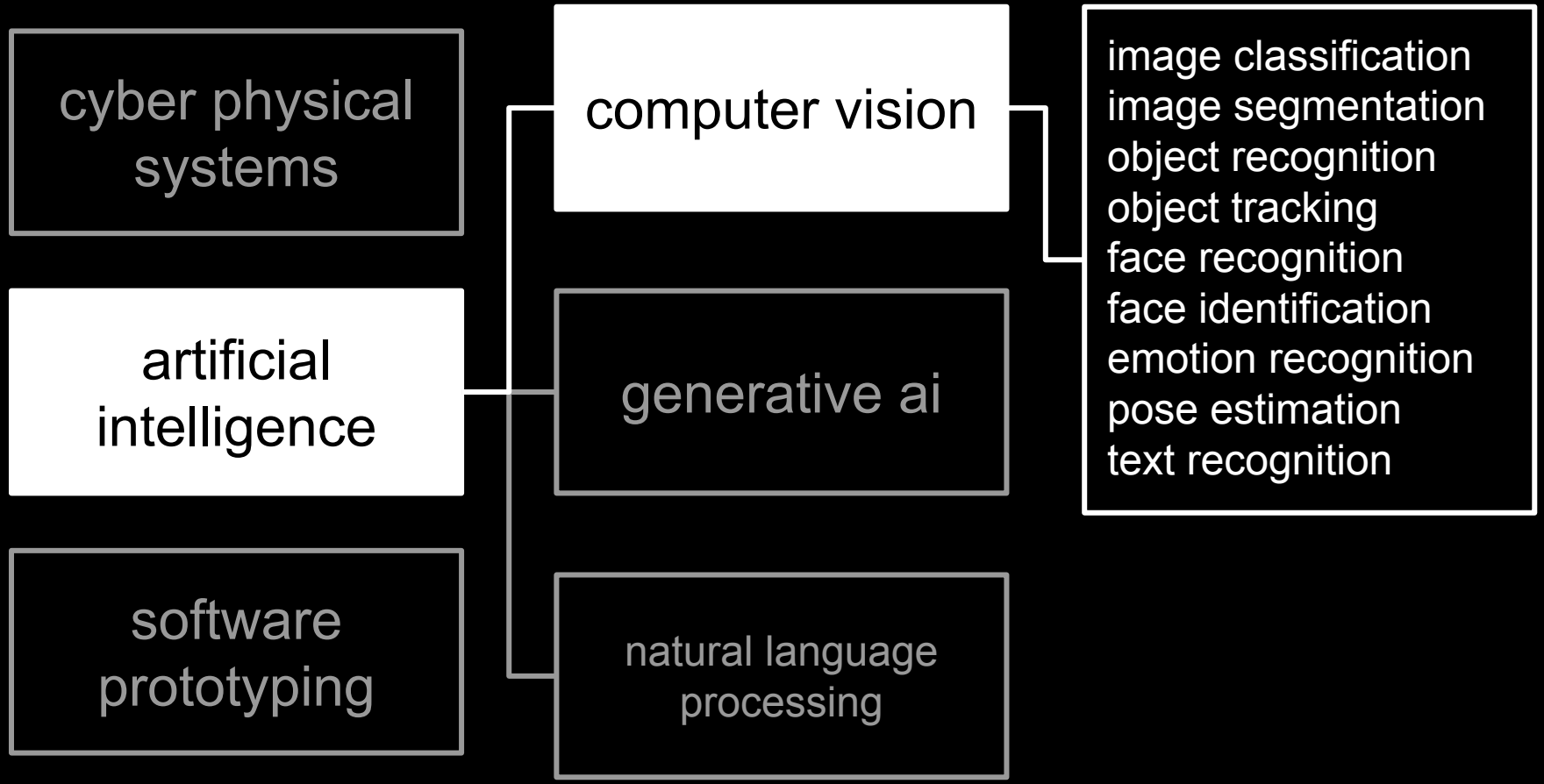
artificial intelligence

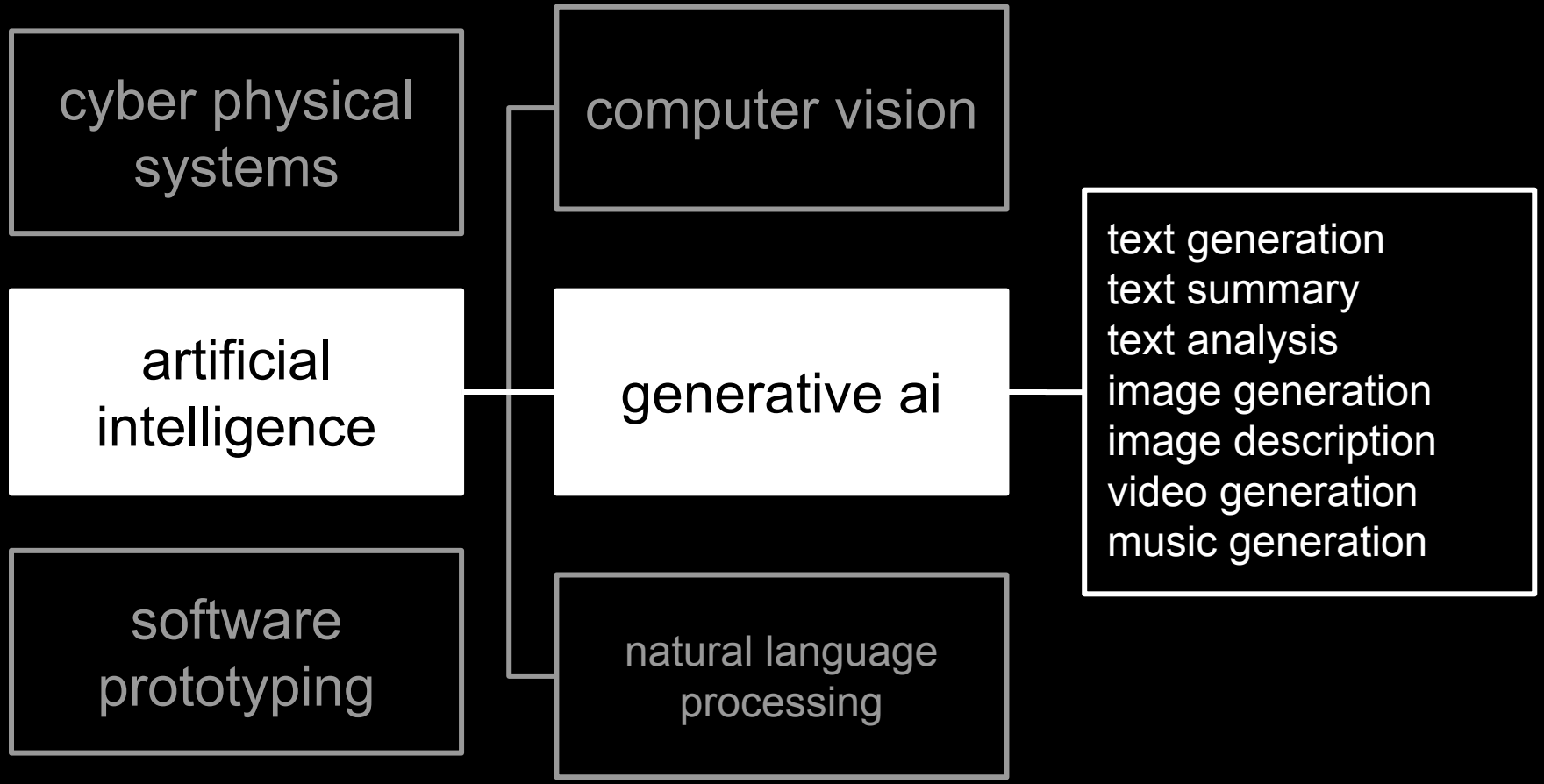
software prototyping

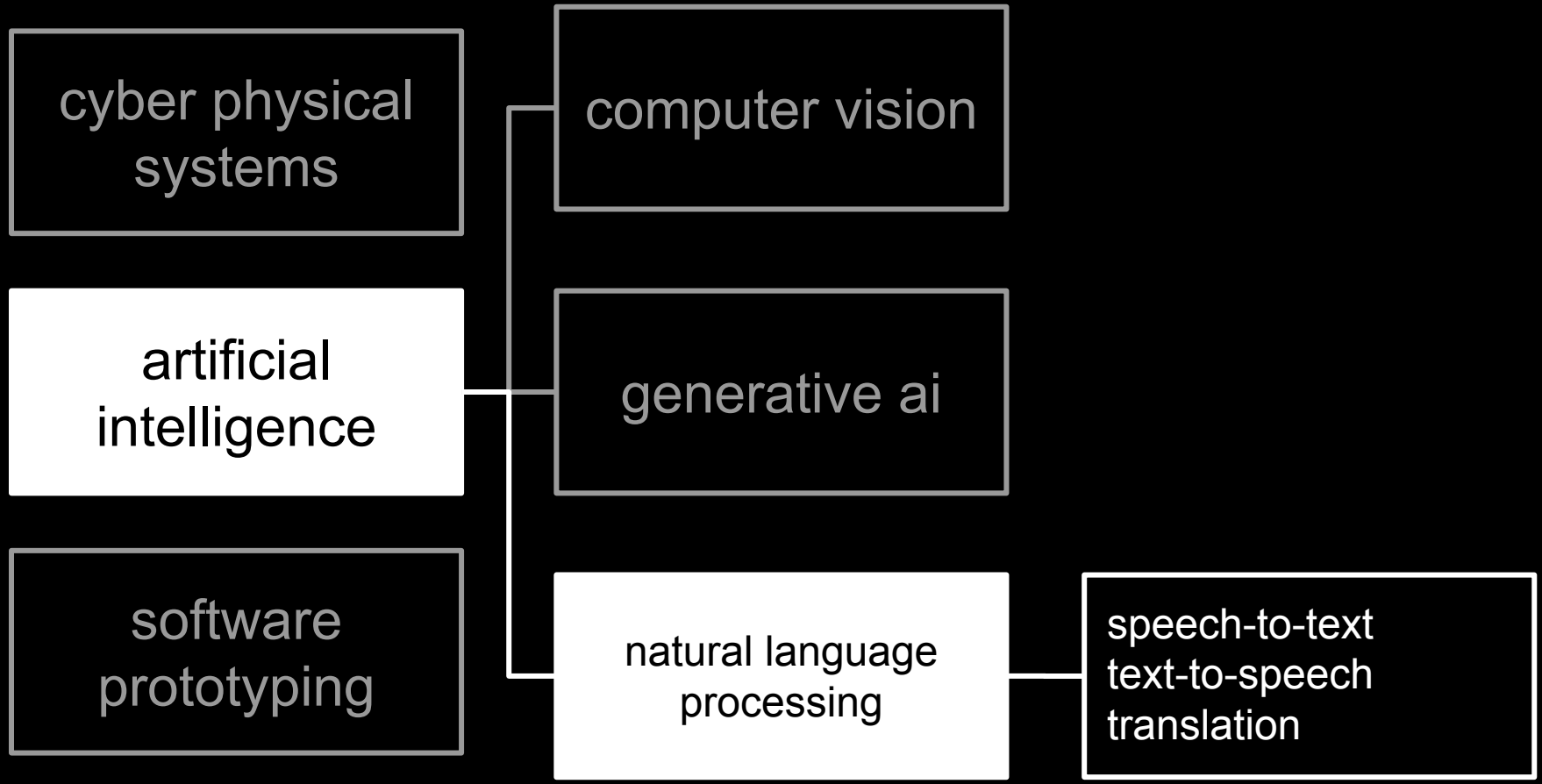
temperature
humidity
co2
uv light
ambient light
sound pressure
thermal image
camera
...

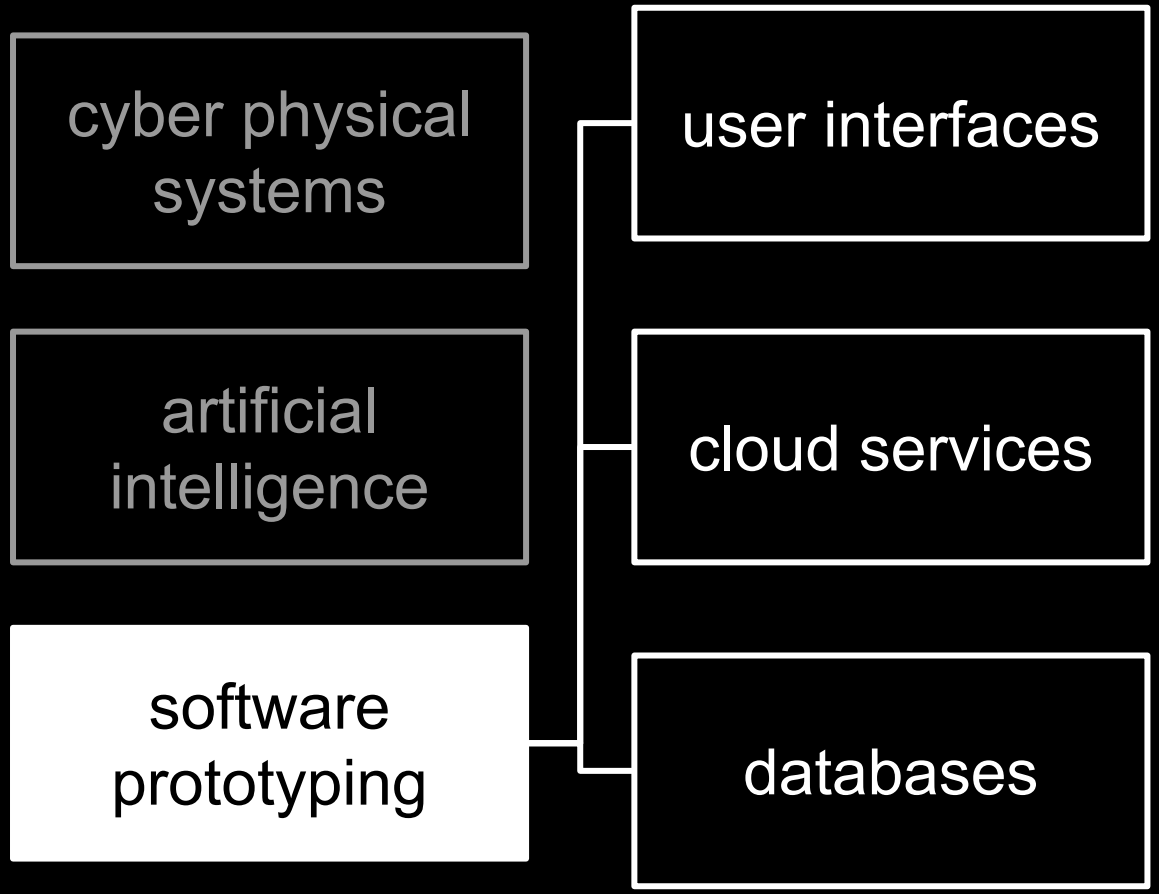
led
speaker
display
motor
…


cyber physical systems
artificial intelligence
software prototyping
computer vision
generative ai
natural language processing


cyber physical systems
artificial intelligence
software prototyping
computer vision
generative ai
natural language processing
image classification
image segmentation
object recognition
object tracking
face recognition
face identification
emotion recognition
pose estimation
text recognition


cyber physical systems
artificial intelligence
software prototyping
computer vision
generative ai
natural language processing
text generation
text summary
text analysis
image generation
image description
video generation
music generation


cyber physical systems
artificial intelligence
software prototyping
computer vision
generative ai
natural language processing
speech-to-text
text-to-speech
translation


cyber physical systems
artificial intelligence
software prototyping
user interfaces
cloud services
databases

introductory example

visual studio code
programs
python

LEDs

large language models

speech-to-text

user interface

SENSORS

temperature

ACTUATORS

temperature

COMPUTER VISION

GENERATIVE AI

NATURAL LANGUAGE PROCESSING

USER INTERFACES

streamlit

let’s build

CLOUD SERVICES

DATABASES