

# Computational Intelligence

Winter Term 2022/23

Prof. Dr. Günter Rudolph

Lehrstuhl für Algorithm Engineering (LS 11)

Fakultät für Informatik

TU Dortmund

- ▶ **Organization (Lectures / Tutorials)**
- ▶ **Disambiguation: *Computational Intelligence***

## Who are you?

either

studying “**Automation and Robotics**” (Master of Science)

or

studying “**Informatics**” (Bachelor of Science)

or

studying “**Data Science**” (Master of Science)

or

... let me know!

## Who am I ?

### Günter Rudolph

Fakultät für Informatik, LS 11

Guenter.Rudolph@tu-dortmund.de  
OH-14, Room 2.32

← best way to contact me

← if you want to see me

office hours:

Tuesday, 10:30–11:30am

and by appointment

<b>Lectures</b>	Wednesday from 12-Oct-2022	10:15-11:45	OH 14 / E23	weekly
<b>Tutorials</b>	<u>either</u> Wednesday <u>or</u> Thursday <u>or</u> Friday from 19-Oct-2022 (groups 1-3) / 26-Oct-2022 (group 4-6)	12:15-13:45 12:15-13:45 14:15-15:45	OH 14 / 104 OH 14 / 104 OH 12 / 1.056	bi-weekly bi-weekly bi-weekly

**Tutor** Marius Bommert, MSc  
Alexander van der Staay, BSc  
Gero Grünh, cand. BSc

## Information (web pages & moodle)

<http://ls11-www.cs.tu-dortmund.de/people/rudolph/teaching/lectures/CI/WS2022-23/lecture.jsp>

**Tutorial info** see [moodle](#)  
**Slides** see [web page](#)

### Exams

Effective since winter term 2014/15: written exam (not oral)

- Informatik, Bachelor: Module → written exam (90 min)
- Automation & Robotics, Master: Module → written exam (90 min)
- Data Science / Statistics, Master: Module → written exam (90 min)
- whoever else ... → written exam (90 min)

**mandatory** for registration to written exam: **must pass tutorial!**

## **Basic knowledge** about

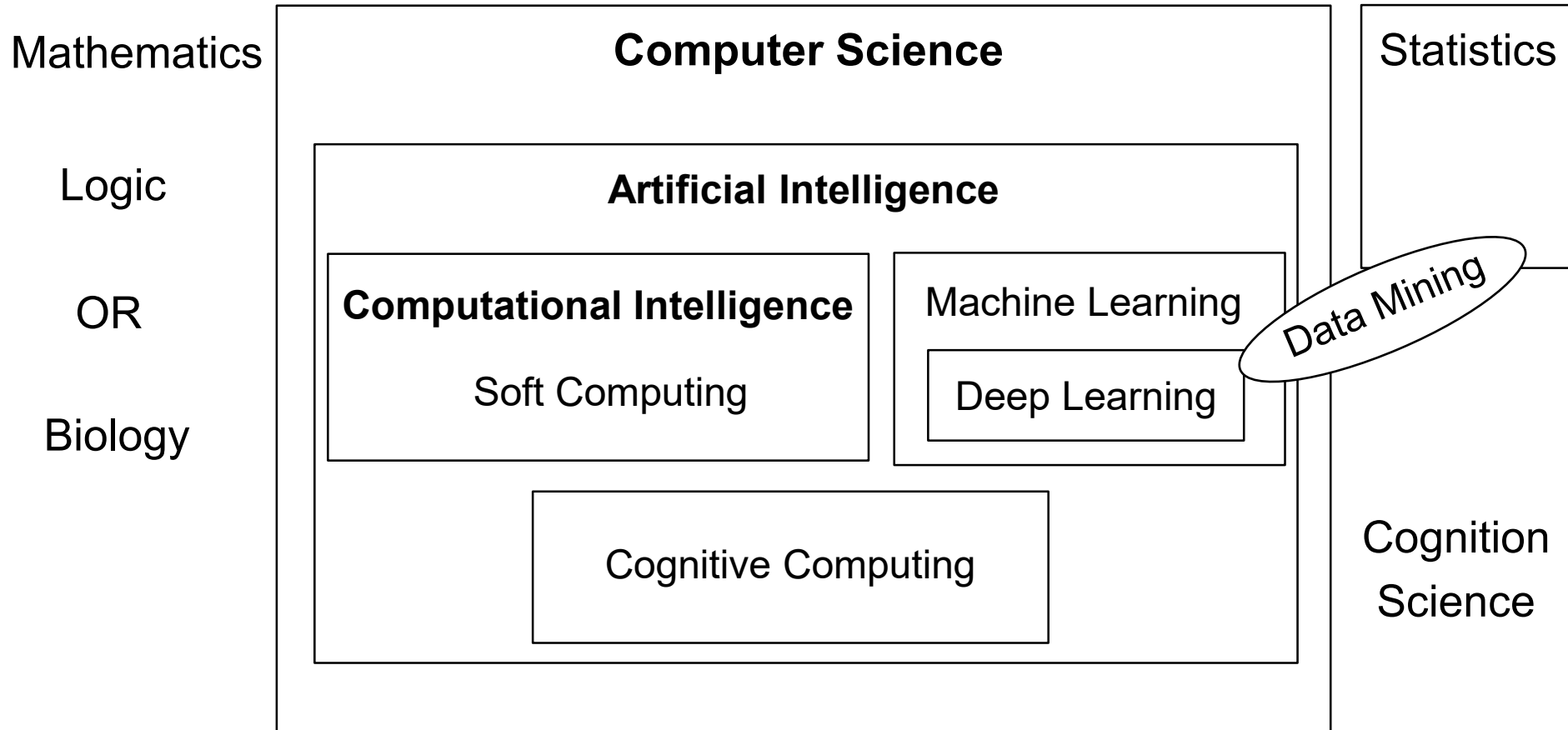
- mathematics,
- programming,
- logic

is helpful.

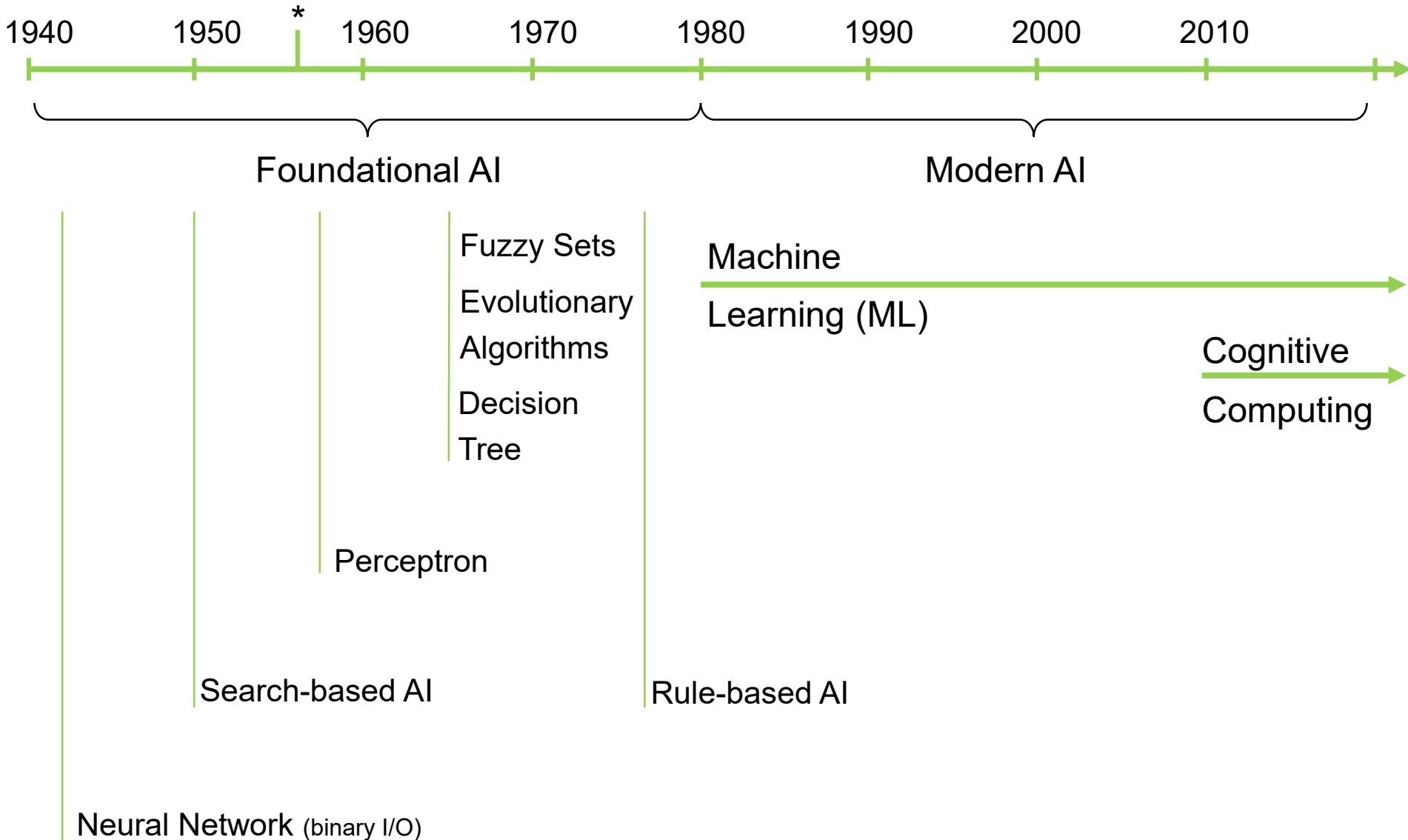
## **But what if something is unknown to me?**

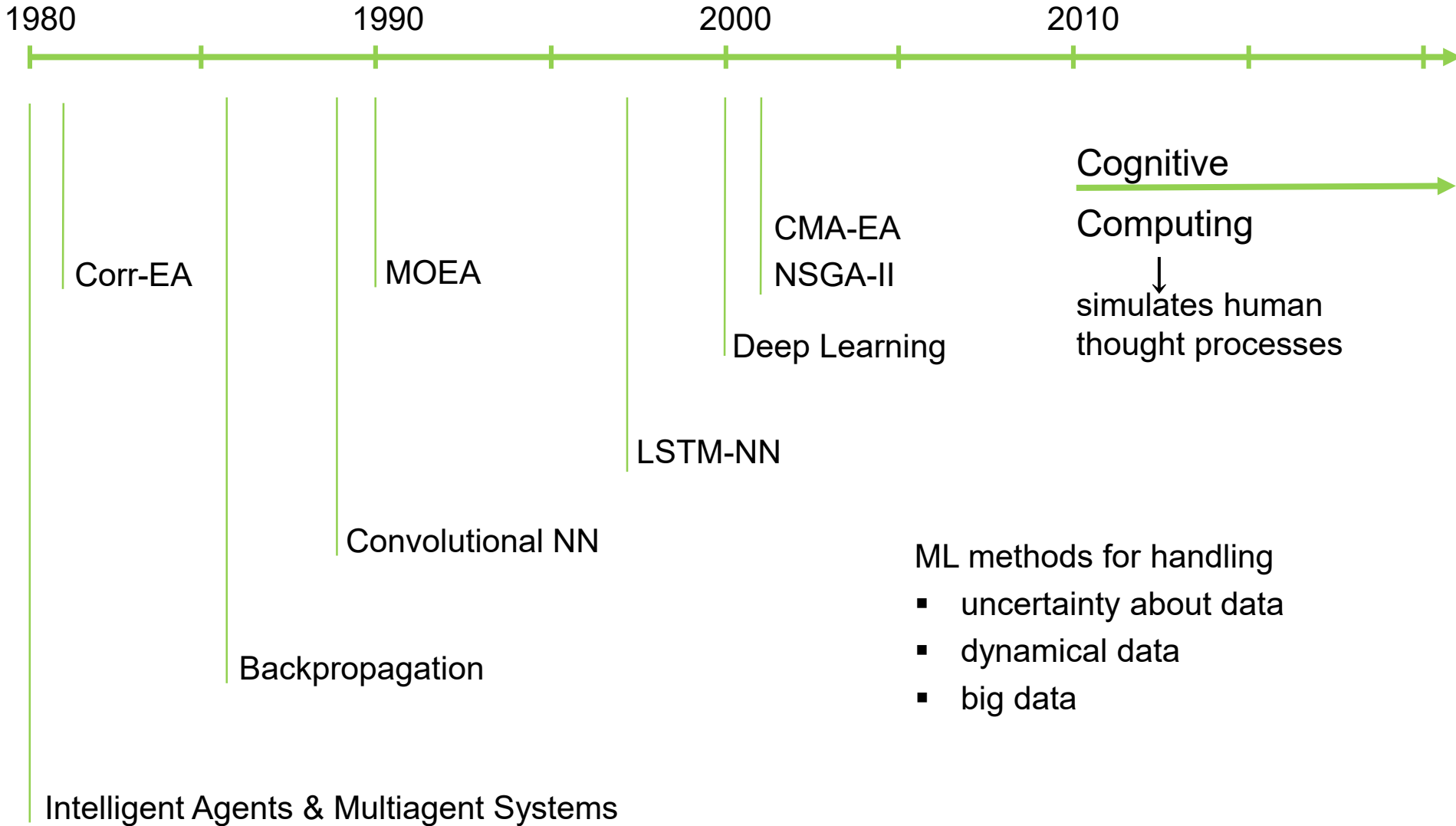
- covered in the lecture
- pointers to literature

**... and don't hesitate to ask!**









What is CI ?

⇒ umbrella term for computational methods inspired by nature

- artificial neural networks
- evolutionary algorithms
- fuzzy systems
- swarm intelligence
- artificial immune systems
- growth processes in trees
- ...

historical backbone

newer developments

- term „computational intelligence“ made popular by John Bezdek (FL, USA)
- originally intended as a demarcation line
  - ⇒ establish border between artificial and computational intelligence
- nowadays: blurring border → current widespread perception:  $CI \subset AI$

### **our goals:**

1. know what CI methods are good for!
2. know when refrain from CI methods!
3. know why they work at all!
4. know how to apply and adjust CI methods to your problem!