

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

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Guenther.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

Lectures Wednesday 10:15-11:45 OH 14 / E23 weekly

from 12-Oct-2022

Tutorials either Wednesday 12:15-13:45 OH 14 / 104 bi-weekly
or Thursday 12:15-13:45 OH 14 / 104 bi-weekly
or Friday 14:15-15:45 OH 12 / 1.056 bi-weekly

from 19-Oct-2022 (groups 1-3) / 26-Oct-2022 (group 4-6)

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
Slides

see [moodle](#)

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

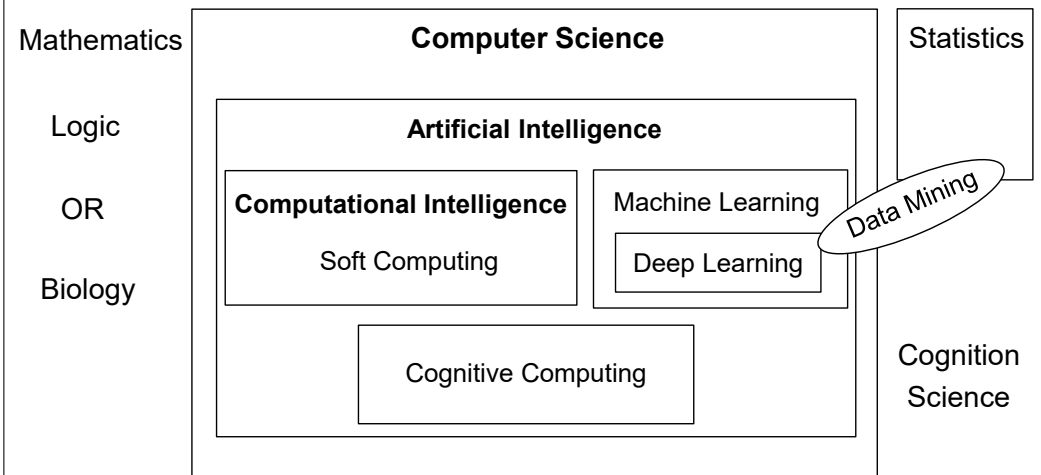
- mathematics,
- programming,
- logic

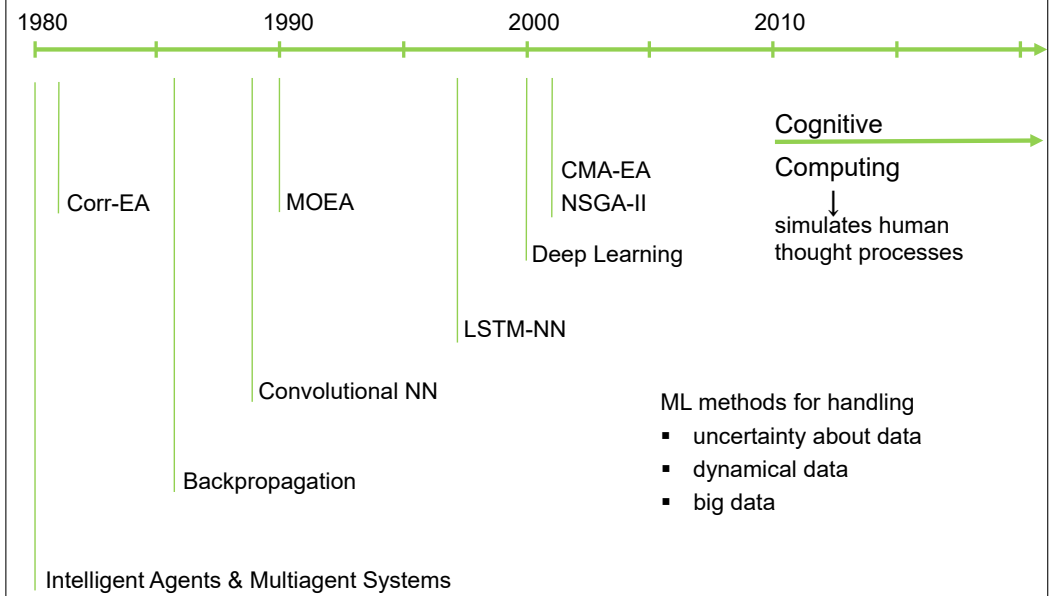
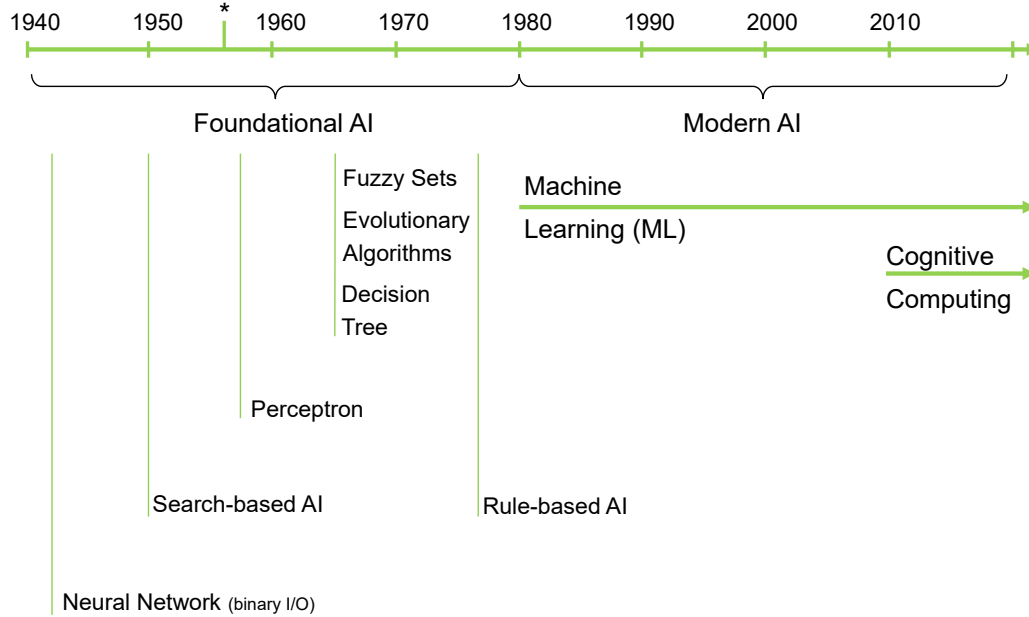
is helpful.

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!