

Computational Intelligence

Winter Term 2025/26

Prof. Dr. Günter Rudolph

Computational Intelligence

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, Computational Intelligence

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

Lectures	Wednesday from 15-Oct-2025	10:15-11:45	OH 14 / E23	weekly
Tutorials	<u>either</u> Tuesday	10:15-11:45	OH 12 / 1.054	bi-weekly
	<u>or</u> Wednesday	12:15-13:45	OH 14 / 1.04	bi-weekly
	<u>or</u> Thursday	14:15-15:45	OH 12 / 1.054	bi-weekly
Tutors	Andreas Roth, M.Sc. N.N., B.Sc.			

Information (web pages & moodle)

<http://ls11-www.cs.tu-dortmund.de/people/rudolph/teaching/lectures/CI/WS2025-26/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!**

new: success in tutorial is valid forever (no renewal necessary)

Basic knowledge about

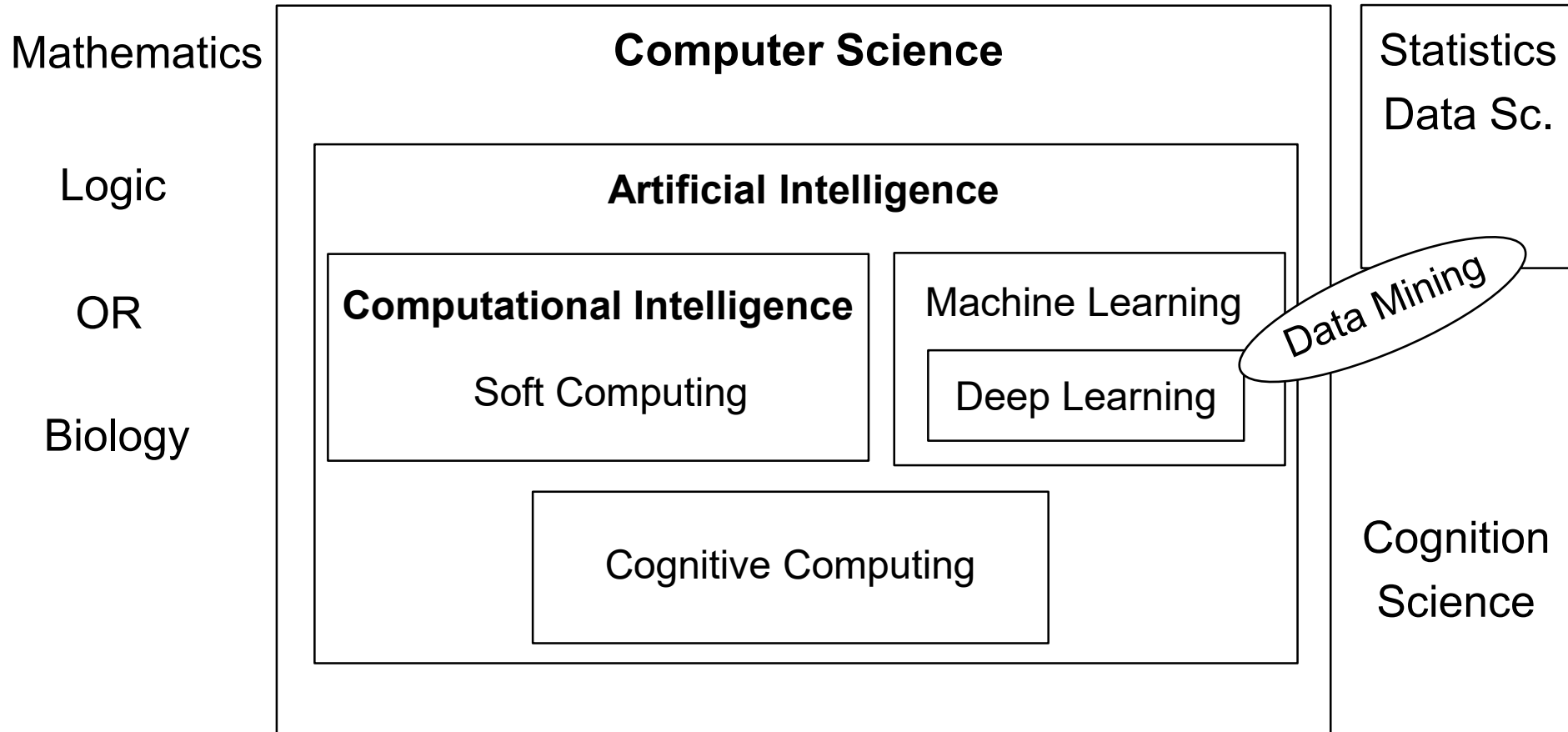
- mathematics,
- programming,
- logic

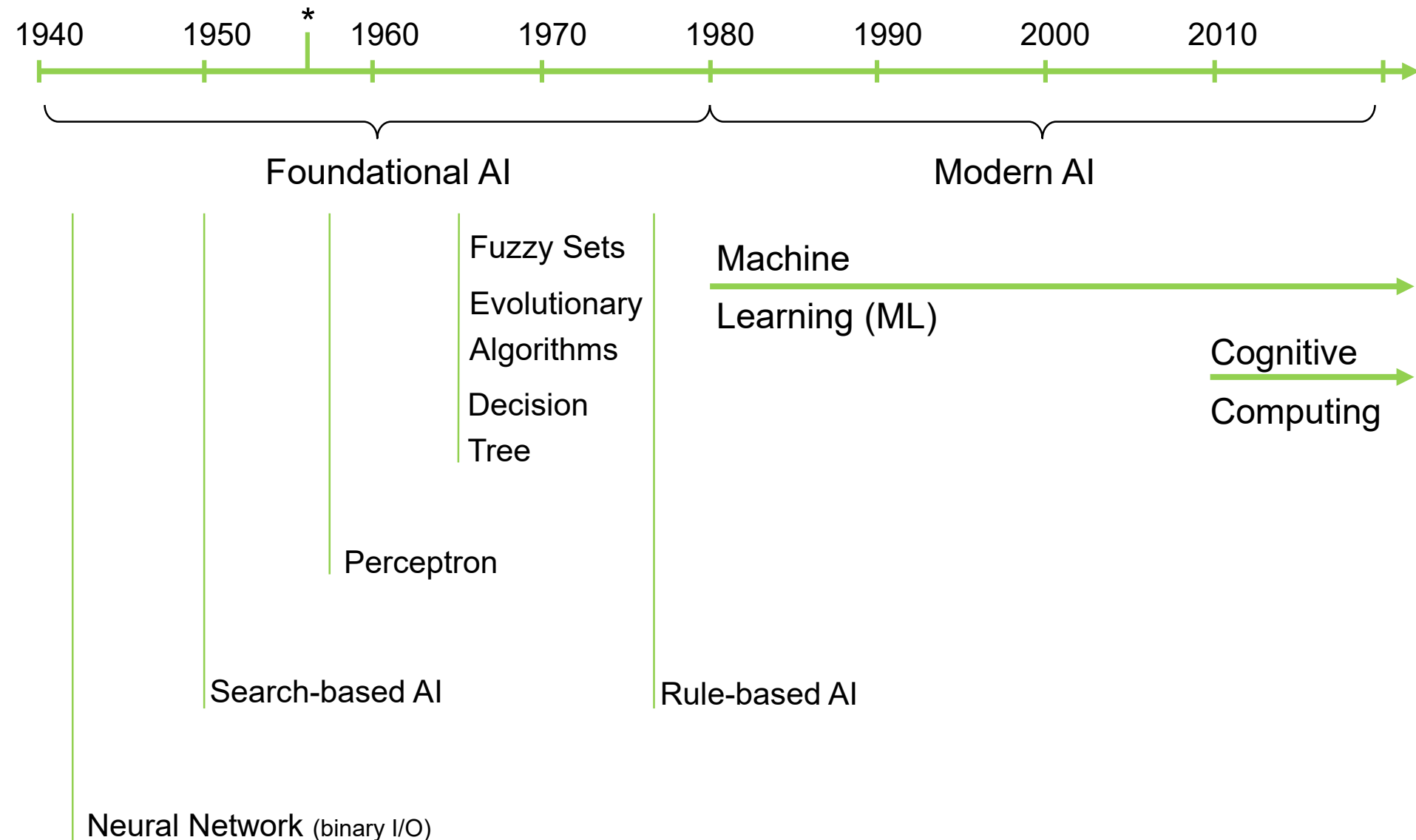
is helpful.

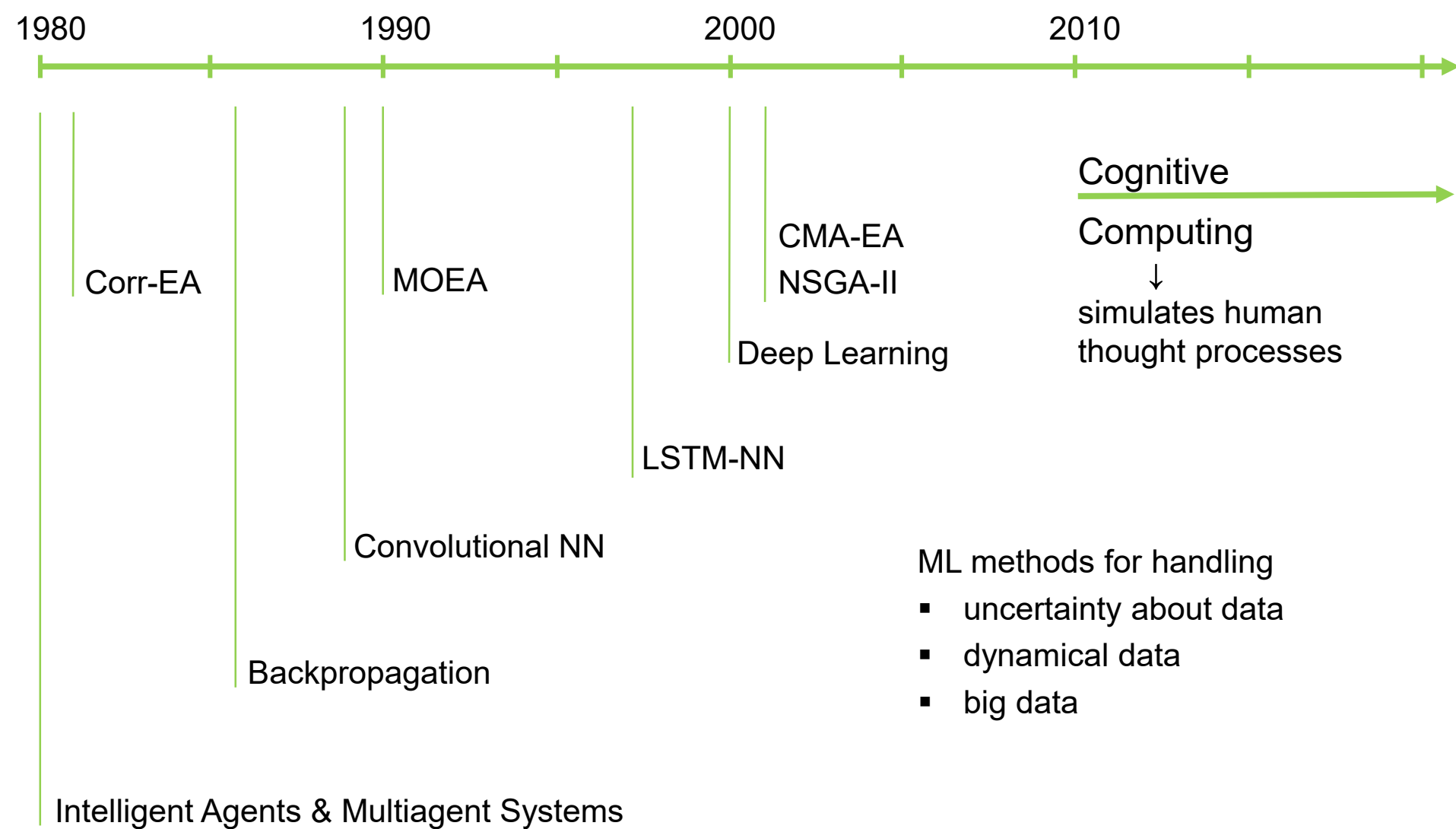
But what if something is unknown to me?

- 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!