

Učení

robotů



# Outline of the course

Teachers, schedule, credits, grades, ...

Karel Zimmermann

<https://cw.fel.cvut.cz/b231/courses/b3b33urob/start>

# Outline

- Introduction of the VIR-team
- Outline of the course - lectures
- Outline of the course - labs
- Organization (homework, tests, semestral work)





- **Karel Zimmermann** (associate professor at CTU)
- main lecturer



- **Patrik Vacek (PhD student)**
- head of the labs



- **Aleš Kučera (MSc student)**
- labs tutor



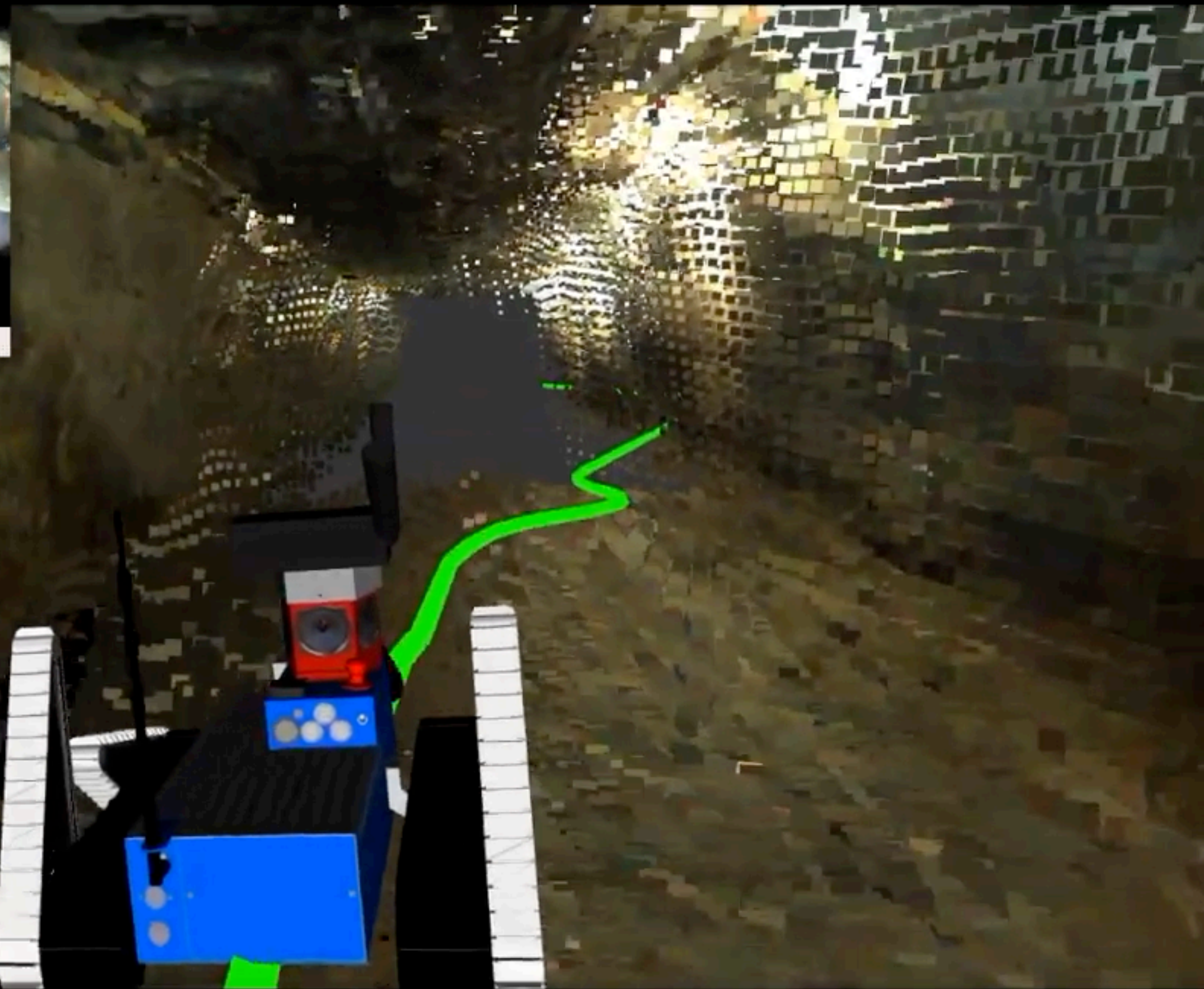
- **Jan Vlček (MSc student)**
- labs tutor

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4x



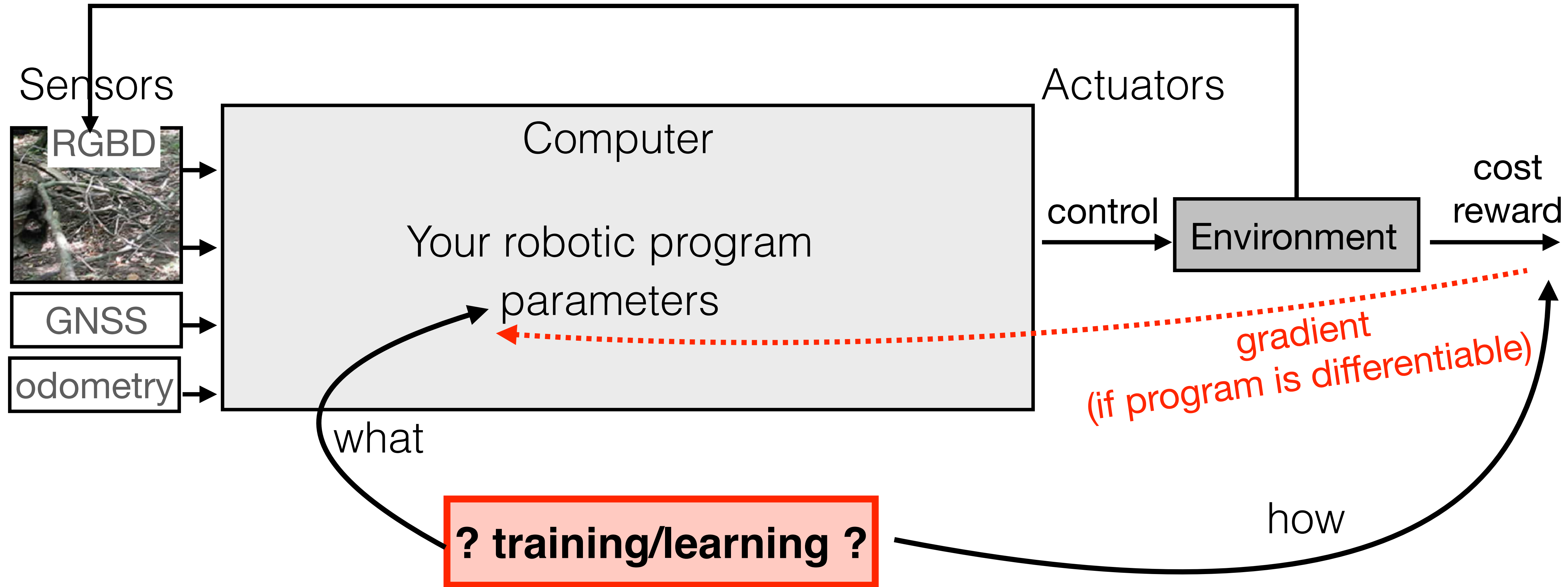




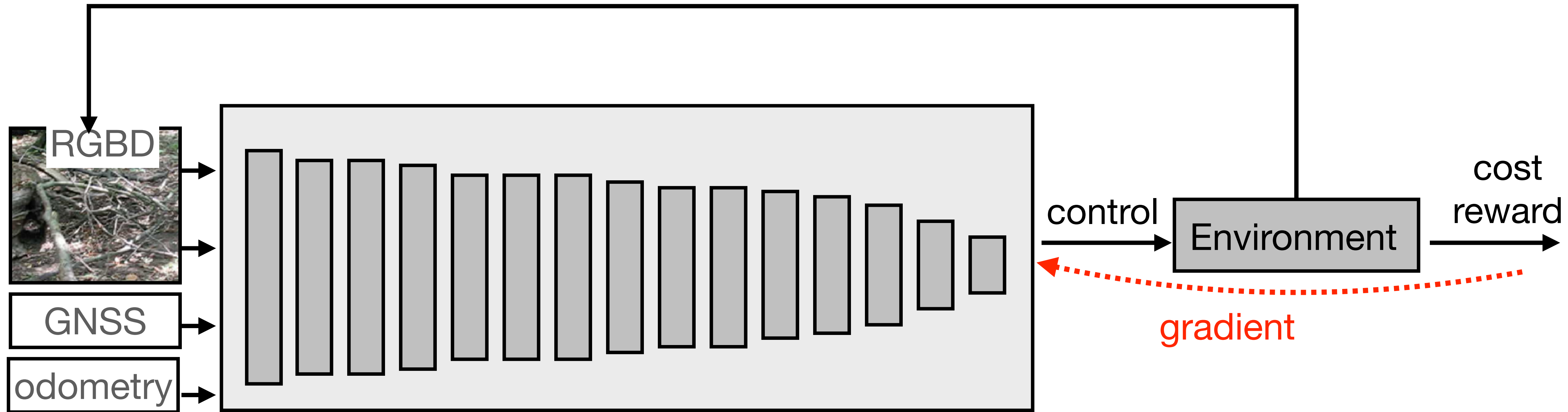


Robot = computer equipped by sensors and actuators

AI = program running on the computer

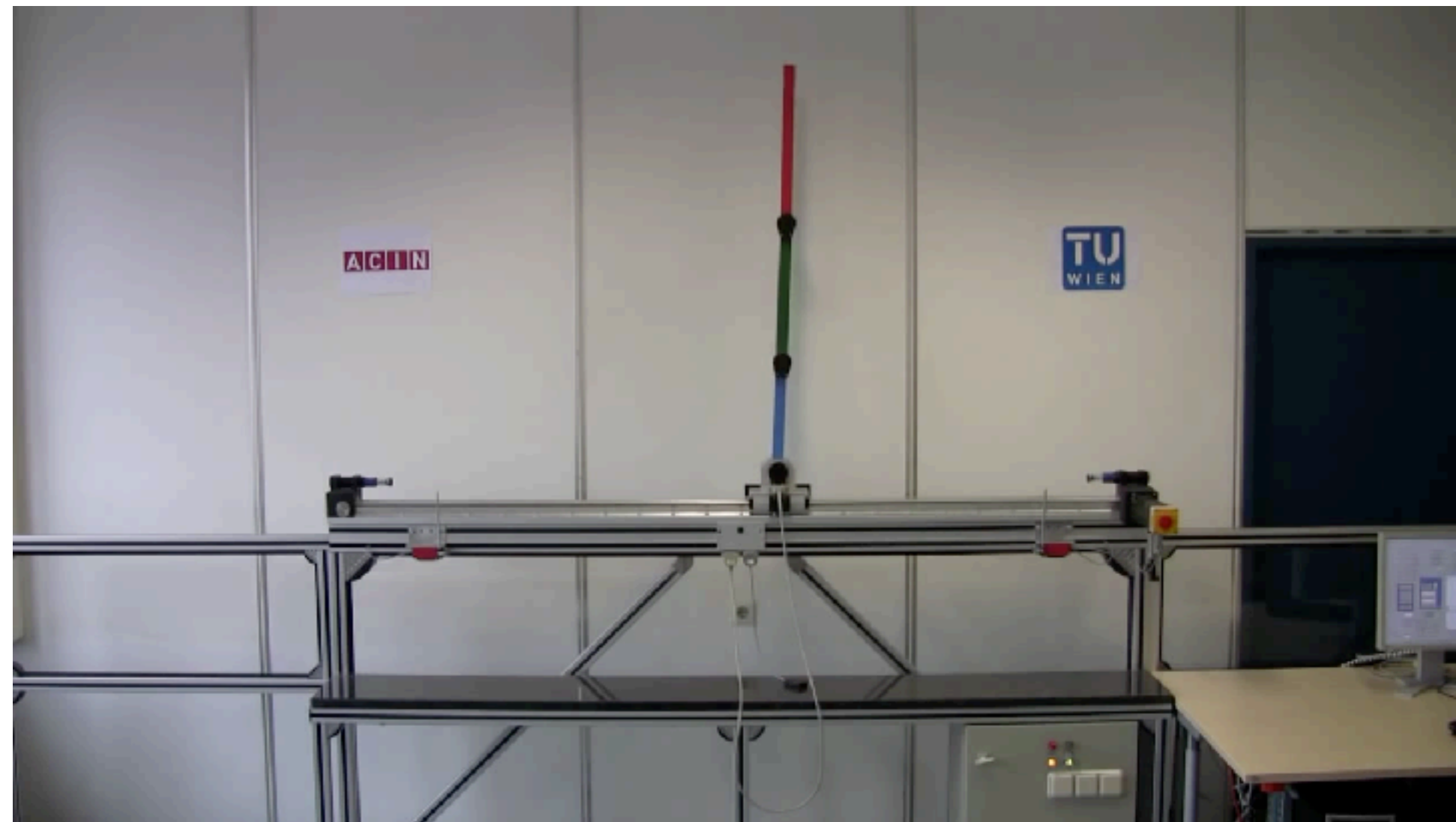
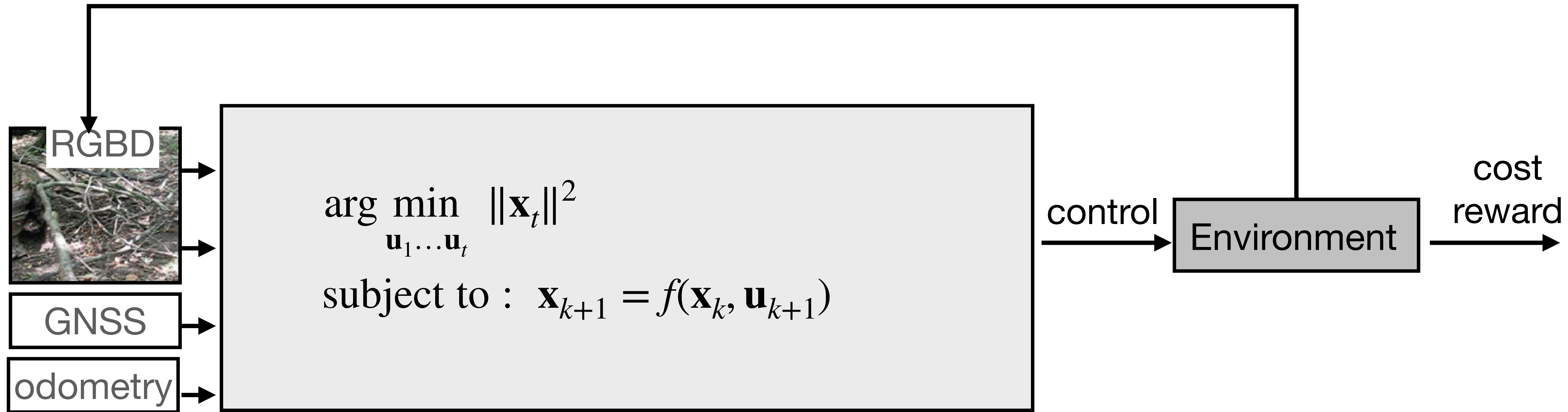


# Example of **black-box** architecture



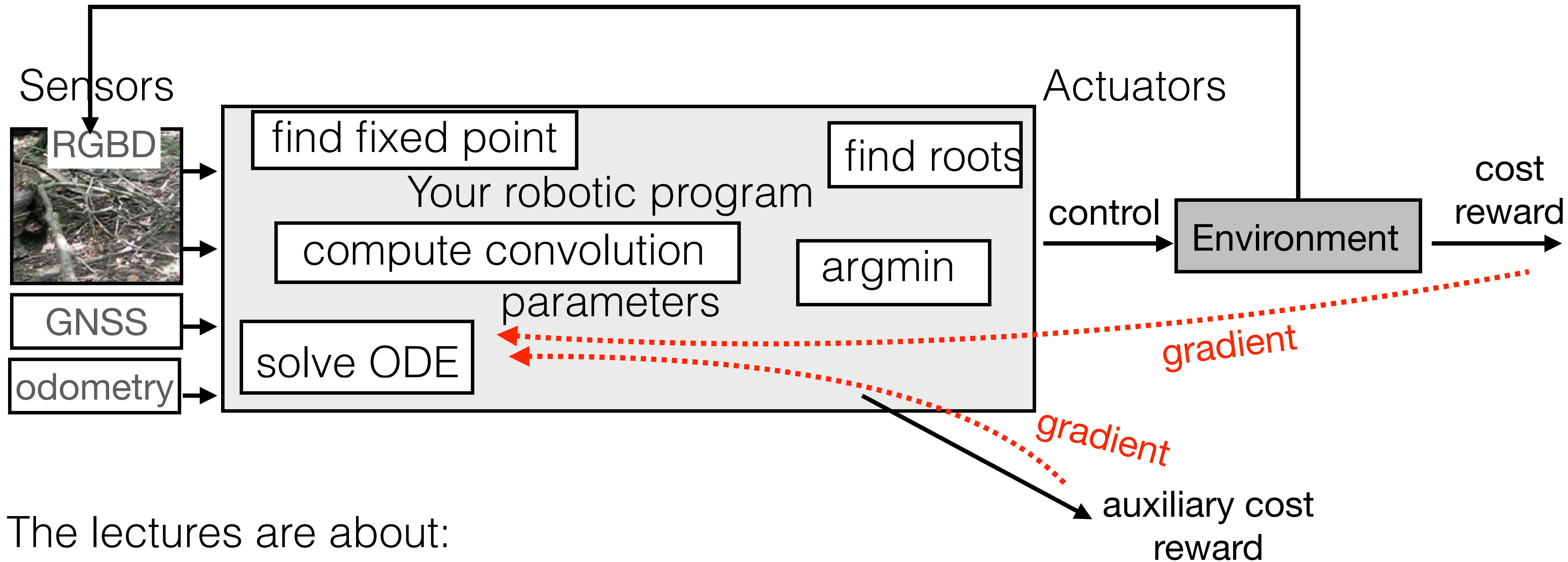


# Example of **white-box** architecture





# Ultimate goal: end-to-end differentiable **grey-box** architecture



The lectures are about:

- statistical/optimization issues of the training process
- automatic differentiation of explicit and implicit layers
- architectures known to work bad/well for specific sub-problems



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# Labs

- Head of the labs is Patrik Vacek
- You can use personal / school computers
- You will use Python, Numpy, PyTorch, Pycharm (consider install it in advance)

```
import numpy as np
```

<http://www.numpy.org>

```
import torch
```

<https://pytorch.org/>

<https://www.jetbrains.com/pycharm/>



<https://colab.research.google.com/>



GPUs available: <https://cyber.felk.cvut.cz/cs/study/gpu-servers/>

- **cantor.felk.cvut.cz**

- 16 jader / 32 threadu,
- 256GB RAM, 500GB SSD,
- 8 x NVIDIA GTX 1080Ti

- **taylor.felk.cvut.cz**

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## Credit requirements and point summary

- **60 points** from homeworks (HW1,...,HW4)
  - automatic evaluation
  - competitive setting if applicable
  - in well justified cases HW can be replaced by SW:
    - SW evaluation based on students and lecturers voting
    - result will correspond to at least 3 credits (~90 hours of work)
- **40 points** from test (T1, ET)
  - midterm test 20b
  - exam test 20b
- **minimum credit requirements** is:
  - at least 1 point from each homework (or SW)
  - at least 1 point from each test

# Final grade

- final grade determined by the total number of points

No of points	Exam assessment
0-49	F
50- 59	E
60-69	D
70-79	C
80-89	B
90-100	A