Sensory robotics

Lecture 01.

i.) Requirements, thematics

György Cserey
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How can you reach us?

Meet us or email us.

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Thematics

- Sensors, general properties: distance measurement sensors, sensors for localization and navigation, inpact, touch, pressure and force measurement, temperature and measuring internal state
- Sensor arrays and sensor networks, visual perception – machine vision, depth cameras, motion tracking systems;
- Sensorfusion, connection of human and machine sensing;
- Sensors of a mobile robot, sensors of a humanoid robot, medical robots, remotely controlled robotics;
- The sensors and measurement methods of Curiosity rover on Mars

Lecture

Monday 11h-13h, online: Teams

Óra kezdete	Óra vége	Termek
2021. 02. 08. 11:15:00	2021. 02. 08. 13:00:00	ITK ONLINE
2021. 02. 08. 11:15:00	2021. 02. 08. 13:00:00	ITK ONLINE
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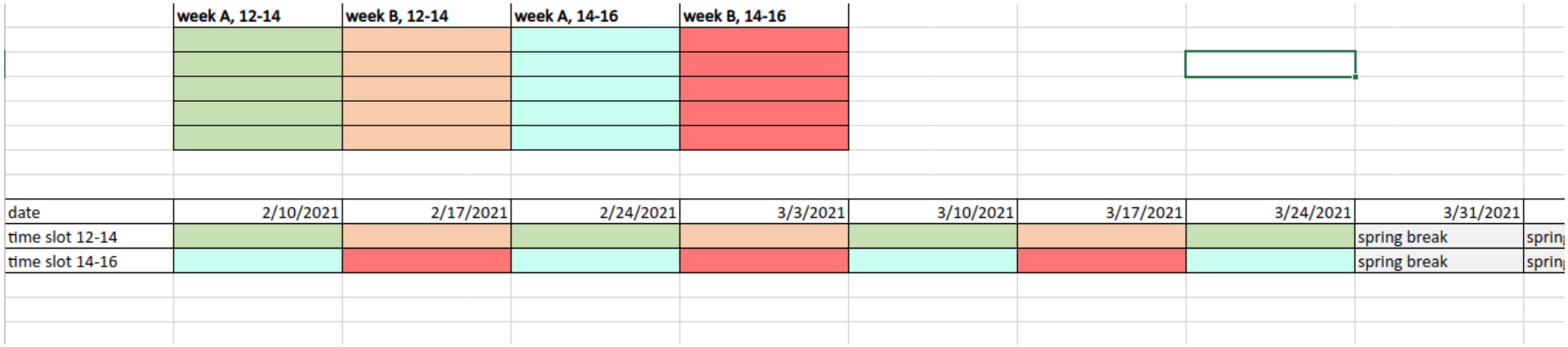
2021. 04. 26. 11:15:00	2021. 04. 26. 13:00:00	ITK ONLINE
2021. 04. 26. 11:15:00	2021. 04. 26. 13:00:00	ITK ONLINE
2021. 05. 03. 11:15:00	2021. 05. 03. 13:00:00	ITK ONLINE
2021. 05. 03. 11:15:00	2021. 05. 03. 13:00:00	ITK ONLINE

written exam

Frequently asked questions

- **Lectures per week:** 2 hour lectures, 1 hour laboratory exercises (administratively)
- **Laboratory work:** Wednesday 12h-14h or 14h-16h
- **Two groups per occasion**, 2-2 hours on odd and even weeks
  (the color cells below will be filled up with name-pairs)



date	2/10/2021	2/17/2021	2/24/2021	3/3/2021	3/10/2021	3/17/2021	3/24/2021	3/31/2021	
time slot 12-14								spring break	sprin
time slot 14-16								spring break	sprin

- **Place:**
  - during online education
    - lecture: online
    - labs: online
  - after the pandemic
    - lecture: online
    - labs: Lab. 340
- **Credit value: 4**

Requirements I.

- Lectures:
  - please follow the lectures on a regular basis, the videos will be published in Moodle and tavoktatas.ppke.hu.
- Laboratories:
  - on Wednesday, 12:15-14:00 and 14:15:16:00; during online education period: MS Teams, if the pandemic ended: in Lab 340/Robotics Lab;
  - laboratory work should be done in pairs (on the first lecture (8th of February) we will form the measurement pairs);
  - 5 different measurements: infra, depth-camera, optoforce, scanner, ultrasound;
  - there will be a schedule for each measurement pair:
    - in the given time-interval you have to be present in MS Teams, you have to start your solution and you can ask the practice leader;
    - the deadline for the measurement report to send is the midnight before your next measurement occasion;
    - during the next measurement occasion I will ask questions regarding your previous report;
    - the last reports should be finalized within one week, and we will have the necessary discussion about it on the next week's Wednesday (in lab time).

Requirements II.

- Requirements of the instructor’s signature: 5 accepted laboratory reports (there is no midterm).
- Exam in the examination period includes the entire course material.
- There is no restriction in relation with the last exam occasion (on the final week of the exam period (aka. 'retake exam week') you can participate on it as your first Sensory Robotics exam).
- The final grade is solely based on the result of the exam:
  - 0 < exam points <= 40 -> unsatisfactory
  - 40 < exam points <= 55 -> satisfactory
  - 55 < exam points <= 70 -> average
  - 70 < exam points <= 85 -> good
  - 85 < exam points <= 100 -> excellent.
- The exam has a written part and an optional oral part.

Additional materials

- Presentations (slides), laboratory sylabus and background materials will be uploaded to this website: Moodle
- Fraden, Jacob. "Handbook of modern sensors." (2006).

- Online news:
  - Sensors Magazine
  - Circuit Cellar
  - NASA Tech Briefs
  - Test and Measurement
- Other sources:
  - New on MIT Technology Review
  - Nature
  - Science
  - New Scientist
  - Artificial Intelligence News
  - Slashdot
  - ArXiv
  - instructables.com

Requirements of the measurement reports

- The report should contain:
  - Date, time of the measurement, names of the members of the measurement group;
  - The exact description of the measurement task, the used equipment, the description of the measurement process or method;
  - The description of what you have learnt from the measurement;
  - The results of the measurement (with units), the plots (if asked);
  - The evaluation of the measurement results;
  - It is not allowed to copy each other's measurement results.

End of Lecture 01.

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