Seminar SS 2017

Machine Learning and Artificial Neural Networks in Biomedical Applications
Milestones

- **Today**: kick-off meeting
  - General information
  - Presentation of topics
  - Choose your topics
  - First meeting with supervisor
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- **June 16th:** outlines of presentation and written report

- **July 7th:** first version of report (and rehearsal presentations)

- **July 14th, 21th (Fridays):** presentation sessions

- **August 5th:** final written report

Presentation sessions
14.07. 10:15 c.t. – 13
21.07. 14:15 c.t. – 17
What we expect

- Overall object: learn scientific/academic workflow

- Work independently 20%
  - Research your topic
  - Find, read and understand relevant papers
  - Select what to present

- Regularly meet with your supervisors, they’ll help you

- Written report 30%
  - English, scientific style, 15-20 pages, Latex template
  - draft – feedback – final version

- Presentation 50%
  - English, 20 minutes + 10 minutes discussion
  - Content, form, presentation skills
No Plagiarism! Don’t cheat!

Student submission:

Nevertheless, artificial intelligence showed that, nowadays, robots and machines have problems even remotely approaching human perceptual possibilities, apart from some highly domain-specific scenarios.

Original paper:

However, artificial intelligence has shown that, apart from some highly domain-specific scenarios, to this day, machines and robots have difficulties even remotely approaching human perceptual abilities.
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Original paper:

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Use your own words!
Topics

1. Learning from label proportions in brain-computer interfaces: Online unsupervised learning with guarantees
2. Restoration of reaching and grasping movements through brain-controlled muscle stimulation in a person with tetraplegia
3. Person authentication using brainwaves (EEG) and a maximum a posteriori model adaptation
4. Unsupervised classification of operator workload from brain signals
5. A convolutional neural network for steady state visual evoked potential classification under ambulatory environment
6. Evolving a Single Scalable Controller for an Octopus Arm with a Variable Number of Segments
7. Deep Learning in Medical Image Analysis
8. A Machine Learning Approach to Improve Contactless Heart Rate Monitoring Using a Webcam
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