Seminar WS 2015/16

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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  - General information
  - Presentation of topics
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- December: outlines of presentation and written report

- **Week before presentations**: rehearsal presentation and first report

- January 29th, February 5th (Fridays): presentation sessions

- February 12th: final written report
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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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:

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Use your own words!
Topics

1. Adaptive Control of Artificial Pancreas Systems
2. Analysis and prediction of vital signs in hospitalized patients
3. Closed-loop control of propofol anaesthesia using bispectral index
4. NIRS-based classification of clench force and speed motor imagery with the use of empirical mode decomposition for BCI
5. Hybrid fNIRS-EEG based classification of auditory and visual perception processes
6. An asynchronous wheelchair control by hybrid EEG–EOG brain–computer interface
7. Brain-to-text: decoding spoken phrases from phone representations in the brain
8. A brain-inspired spiking neural network model with temporal encoding and learning
9. Spike-Based Indirect Training of a Spiking Neural Network-Controlled Virtual Insect
10. Human-level control through deep reinforcement learning
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