Measurements and Modelling of the CNS - EITN65

INTRODUCTION – 2018

ANDERS J JOHANSSON
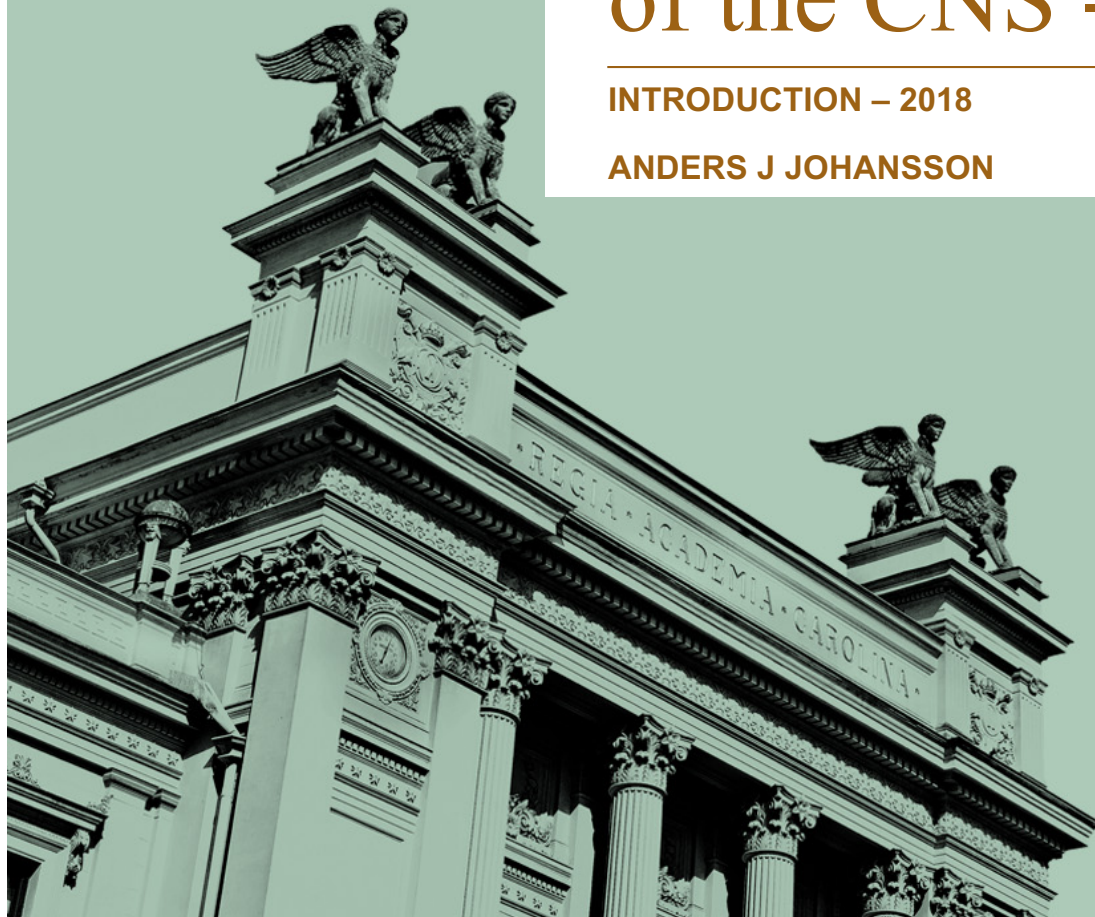
WELCOME!

Teachers

- Palmi Thor Thorbergsson
  - Assistant Researcher at Neuronano Research Center
  - Lab/excercise responsible
- Ulrike Richter
  - Assistant Researcher in Integrative Neurophysiology
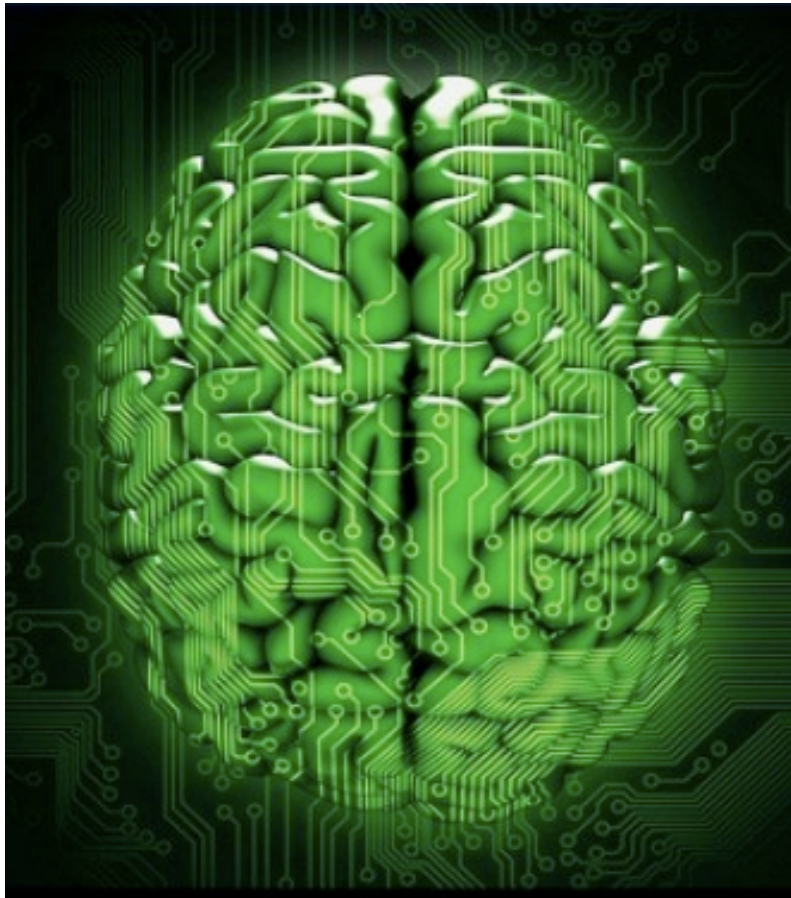 - Course responsible
- Anders J Johansson
  - Assistant Professor in Radio Systems
  - Course responsible
- Joel Sjöbom
  - Lab assistant

Course in short

- 7.5 HP

- 14 Lectures, including

  - 3 Guest lectures

  - 26/2 mandatory (mini-workshop)

- 4 Hand in excercises

- 1 Project report

- 1 Project presentation

- Grade: Pass / Fail

elearning.eit.lth.se

- Using Moodle software

- Lecture notes

- Instructions and material for excercises

- Hand in of excercises

- Hand in of project report

- Discussion forums

- Links to book etc.

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Important for exercises

- Are handed out on Thursdays after the lecture.

    - First one on the 18 January.

- Can be done on own computer, or the computers in the lab when they are available.

- Supporting voluntary lab time on Tuesdays, 8-10 am in E:4119/E:4121.

- Login: Use your Lucat-ID

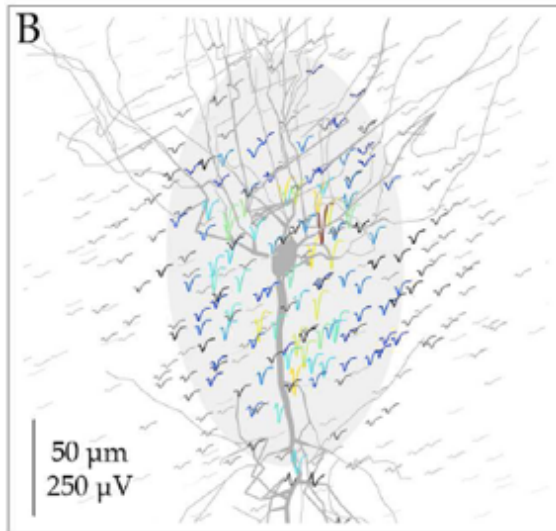- Deadline for hand-in on Thursdays at 12:00 in Moodle.

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Important for project

15/2	Hand-out of projects
16/2	Submit choice of project
21/2	Submit outline of project
1/3	One-minute presentation
4/3	Hand-in of report for peer review
6/3	Hand-in of peer review
8/3	Hand-in of final report, together with response to peer review
15/3	Reports given back
21/3	Hand-in corrected report

19-23/2 Sportlovet…

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Project overview

- Projects are done in pairs

- Different projects to choose from

Somatic sensory cortex

Record

Central sulcus

Postcentral gyrus

Receptive field (center)

Receptive field (surround)

Touch in the center of receptive field increases cell firing

Touch in the surround of receptive field decreases cell firing

Touch outside of receptive field has no effect

Activity of cortical neuron

Period of stimulation

B

50 μm
250 μV
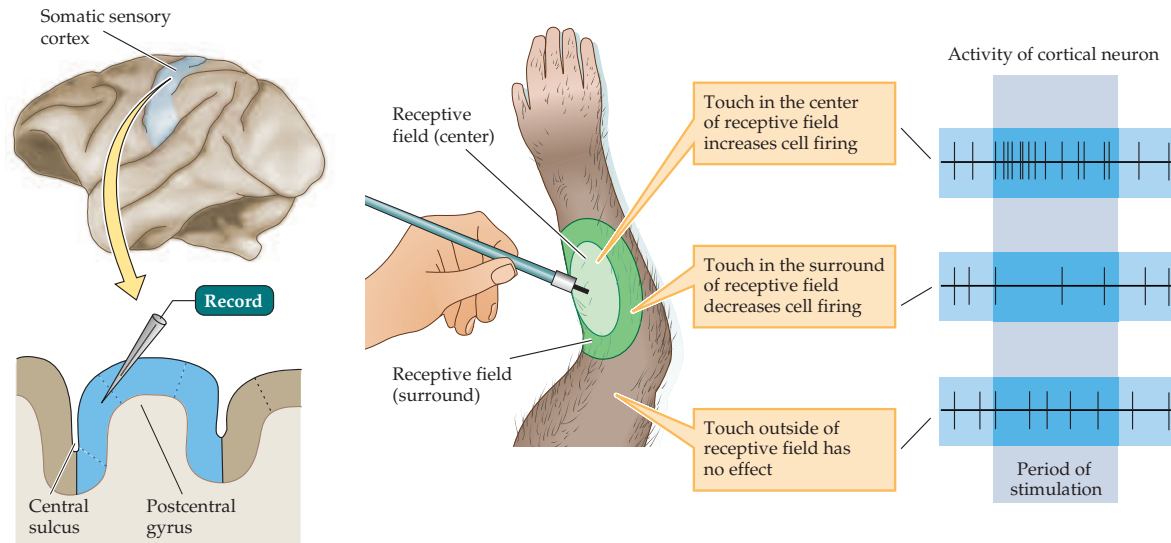
Each project comes with

- Background description,

- Literature references

- Instructions to get started

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Written report

- 4-6 pages

- A short but informative title

- Organized into the following sections:

  - Introduction

  - Methods

  - Results and discussion

  - References

- More details later!

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Peer-review process

- Peer review: You will read and comment on one report, and another group will read your own.

  – The comments are a good support to make your own report better.

- Revised report handed in to course responsible by moodle.

- Point by point answers to peer review comments also to be handed in!

- More details later!

1 minute presentation!

- Max 60 seconds!

- Only one powerpoint slide!

- Type of "Elevator pitch"
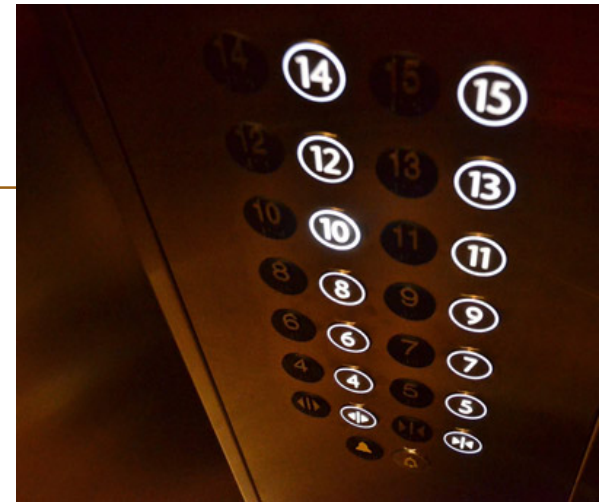
Books

- **Neuronal Dynamics**
  W. Gerstner, W. M. Kistler, R. Naud, L. Paninski

  - Free on the web:
    http://neuronaldynamics.epfl.ch/index.html

- **Principles of Computational Modelling in Neuroscience**
  D. Sterrat, B. Graham, A. Gillies, D. Willshaw

- **Theoretical Neuroscience**
  P. Dayan, L. F. Abbot