Course: Application Programming in MATLAB Environment 2002

About the seminar work

This course includes an obligatory seminar work needing around 40 hours of work individually. Topic of the work can be self-invented or from the list below, but it must be related to MATLAB and should be agreed with the lecturer. Working group for one specific topic can consist of one or two students.

There will be approximately ten weeks time for preparing the seminar work (including the Christmas time when every hard-working student will have, at most, one week holiday ;-). Starting from next week, the weekly tutoring time is **Thursday 14–16 Ag B212.1**. Extra tutorial times must be agreed with either TK (room Ag C415.1, email: tka@mit) or EH (room Ag C424.1, email: emsh@mit).

The documentation of the seminar work is around 10 pages (depends heavily on the topic!) written report containing, at least, the initial topic, description of used methods and learning datas, and presentation of the obtained results. Every group prepares a web page of their work containing the final deliverables, i.e. their paper, its presentation and developed macros and other programs.

The closing seminar, where the works will be presented to each other, will be by the end of III period. The final evaluation and corrections of the presented works will be made one week before this seminar, so that all the works should be ready to be delivered to tutors by that time. WE STRONGLY ENCOURAGE ALL TO START THE WORK IMMEDIATELY BEFORE SPRING SEMESTER ROLLS IN!

All students which present their seminar work on the seminar will obtain 4–12 credit points to the first final examination which they attend after the seminar. Let us recall that this work is obligatory, so that those of the students who want to pass this course without a presentation must, anyway, finish the seminar work, but then there will be no additional credits given.

Basic topic: Train the MLP-network to solve an application based on a suitable learning data (many interesting possibilities in the course homepage). Choose one trick from the book of tricks, realize it and test its effect on your problem.

Clustering: Testing different algorithms for clustering self-generated and example datas. Visualization of datas and the arising clusters.

Speech processing I: Organize a test setting, where you can record the individual signals of two speakers and the combined signal of their joint talk. Then try to build an MLP that recovers the two original signals (cf. http://cslu.cse.ogi.edu/nsel/demos/).

Speech processing II: Using the same test setting as before, try to build an MLP-classifier for recognizing some words of a speaker.

GUI revisited: Build a proper GUI for the MLP-network taking advantage of all the development that was made during the exercises.

Free topic: A topic of your choice that is related to MATLAB (e.g., Java&MATLAB, other external interfaces & MATLAB, etc.)