Report - DD2421 - 2019-08-30

Respondents: 1
Answer Count: 1
Answer Frequency: 100.00 %

Please note that there is only one respondent to this form: the person that performs the course analysis.

Course analysis carried out by (name, e-mail):

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COURSE DESIGN

Briefly describe the course design (learning activities, examinations) and any changes that have been implemented since the last course offering.

VT19 (P3) was the fourth course round to run Machine Learning as DD2421 while the previous one was given in HT18 (P1). Students were free to choose one of the two course rounds, and therefore the two are not meant to be very different.
An observation is that the number of students increased to ca. 300 which was the largest size being given in P3.

The course provides an overview of the field of machine learning and describes a number of learning paradigms, algorithms, theoretical results and applications. It also covers some basic concepts of statistics, artificial intelligence and information theory relevant to machine learning.

The course design was basically kept the same in terms of lectures, labs, and the format of written exams.

12 lectures with lecture notes made available on course webpage
(6 by Atsuto Maki, 3 by Giampiero Salvi, 2 by Örjan Ekeberg, and a summary lecture by all).
The materials are mainly based on James et al. [1], Prince [2], and Rojas [3] for supplementary reading, all available online. [1] An Introduction to Statistical Learning,
G. James, D. Witten, T. Hastie and R. Tibshirani (Springer, 2013).
[2] Computer Vision: Models, Learning, and Inference, Simon J.D. Prince (Cambridge University Press, 2012).
[3] Neural Networks - a Systematic Introduction, R. Rojas (Springer-Verlag, 1996).

Three lab assignments orally examined by a group of TAs: 1. Decision Trees, 2. Support Vector Machines, and 3. Boosting.

Written exam by A-section (eight multiple choice) + B-section consisting of nine questions. In A-section simple questions regarding basic concept and/or terminology were asked as an essential part for passing. B-Section consisted of questions typically corresponding to a learning outcome (full point is 27). Graded in the range of A-F/Fx.

THE STUDENT'S WORKLOAD

Does the students' workload correspond to the expected level (40 hours/1.5 credits)? If there is a significant deviation from the expected, what can be the reason?

The distribution of students' workload corresponds to the expected level, similar to that in P3 in the previous year (comparison to P3 rather than P1 assuming that the background of students are similar). Overall, the working hours seem to have a little decreased, which seems to be related to the students' background (see the analysis below).

THE STUDENTS' RESULTS

How well have the students succeeded on the course? If there are significant differences compared to previous course offerings, what can be the reason?

There was not significant difference compared to previous course round, but the ratio of the students who received 'A' has improved. Passing rate, including the re-exam, was 96% among those who took the exam, which was exactly the same in as the previous period, HT18 (P1). About half of the students received ‘A’ or ‘B’ and about 20% received 'A' among those, 5% increase from HT18(P1).

OVERALL IMPRESSION OF THE LEARNING ENVIRONMENT

What is your overall impression of the learning environment in the polar diagrams, for example in terms of the students' experience of meaningfulness, comprehensibility and manageability? If there are significant differences between different groups of students, what can be the reason?

The overall trend in the polar diagrams was alike the previous course rounds, stable as expected. When it comes to possible difference between different groups of students, female students showed higher average responses especially in the areas of comprehensibility, but there are no clear reasons for this to be the case in this particular course round. "Svensk students i Årskurs 1-3" gave higher scores compared to other groups of students in almost all parts of the diagram, for which it's not clear if a specific reason exists. The diagram as a whole seems to be in a somehow improved balance.

ANALYSIS OF THE LEARNING ENVIRONMENT

Can you identify some stronger or weaker areas of the learning environment in the polar diagram - or in the response to each statement - respectively? Do they have an explanation?

The trend on the stronger and weaker areas stayed similar, while the areas of "6. The atmosphere on the course was open and inclusive" and "17. My background knowledge was sufficient to follow the course" both gained some extra scores. The slight increase in the latter may be the explanation for some decreases of the working hour. The relatively weak area, "20. I had opportunities to choose what to do", remained as the weakest with its score being "4.2", and it is explained as the nature of the large course now with ca. 300 students even in P3.

ANSWERS TO OPEN QUESTIONS

What emerges in the students' answers to the open questions? Is there any good advice to future course participants that you want to pass on?

- It seems to be commonly accepted that the course provides a good introduction to the field of machine learning, which is how it has been developed for students with various backgrounds.
- Still useful feedback provided for improving the course which we take into consideration with priority.
- Many advised to future course participants to attend the lectures.

PRIORITY COURSE DEVELOPMENT

What aspects of the course should primarily be developed? How could these aspects be developed in the short or long term?

There were a few concerns raised on the part of probabilistic machine learning. We plan to welcome a new teacher who will look after the three lectures (taking over the current teacher moving to another institute).

In the medium/long term, we continuously take the following aspects into account for further course development:
• Introductions of latest applications of introduced machine learning methods.
• Further clarification of lab instructions if/wherever necessary.
• Re-designing lab 1 to make it more challenging.
• Written exercises in some form.
• Adding another lab.

OTHER INFORMATION

Is there anything else you would like to add?

The TAs were Alexander Kozlov (primary), Fethiye Irma Dogan, Mia Kokic, Taras-Svitozar Kucherenko, Özer Özkahraman, Elena Sibirtseva, Xi Chen, Pouria Tajvar (doktorand), Alexander Nöu, and Francesco Nuzzo (MSc students).