

Human Computer Interaction

Course, Fall 2008. Computer Science & Media Technology

1 General information

This practical assignment of Human Computer Interaction (HCI) is preferably completed in a team of 2 persons. In exceptional cases other group sizes are allowed. The teams are formed by the course administration; objections should be motivated notice to the course administration before 28-09-2008, the formation of the team is definitive as of 01-10-2008. A list can be found on the HCI-course information pages: <http://hci.liacs.nl>. The group-number given to your team **must** be used in all further correspondence together with the participant names of the team.

1.1 Assistants

Job de Reus, Timo de Vries (student assistants), Amalia Kallergi, Alexander Nezhinsky and Yanju Zhang (course assistants) will provide the practical assistance in this course. They will be involved in the evaluation of the documents and products (prototypes) that your team produces. Their specific task is to give assistance in technical problems (implementation issues) and also to notice deficiencies in you plan so as to improve it and make sure you can work it out to a definitive prototype. In addition the assistant, being on the work floor, will notice eventual shortcomings in the course structure so that we can timely mend problems. The student assistants will be available for technical help; if necessary time schedule for their presence will be indicated by the administration (news section of the HCI URL).

1.2 Team assistant

Each team is assigned to one of the assistants. An assistant is matched to a team on the basis of the implementation platform and/or theme chosen. Once the assistant is known to the team all documents should be sent to the assistant via email. Short comments on the documents are provided via a dedicated team webpage. The assistant will set up initial access to that dedicated page and inform the team. The assistants must also be approached for problems that do not directly have a technical nature; e.g. change of the work plan, discuss the approach taken. As soon as your initial plan is approved you will make an appointment with your team assistant to discuss your plan and approach. If needed and/or indicated by the assistant, more appointments may follow. Please make use of the assistance that we provide.

So, except for programming issues you should exclusively address your team-assistant. If, for some reason, communication fails, contact the course administration. In all cases you it is strongly advised to regularly check the HCI webpage-news section! All information relevant to the HCI course (lectures & assignment) will be published there.

2 Outlines

2.1 Aim and choice of assignment

The aim of this practical course is that you work your way through a complete interface development process from interface design up to actual implementation. Once you have your team, a choice between one of the themes in the assignments A, B or C must be made. If you have come up with a very good idea that does not fit in these themes you may choose the free assignment D. These assignments have to be worked out as far as α -test version.

2.2 User group

For each assignment a clear specification of the group of users that the design and product is intended for must be indicated. In order to get a good view of the users, try to identify a group of users that you can involve in the design trajectory and discuss requirements for the product being made. In the rare case you have not been able to find a group of users; you can always discuss the choice for a group “end users” with the course administration.

2.3 Functional specification

The actual functional specification of your product is really something you are supposed to put together yourselves. Before the first deadline (cf. item 1 Section 8) you will have to deliver a compact project plan of maximal 4 pages to your assistant. The requirements for plan and documentation are given in section 3.

2.4 Evaluation

In order to have your design and implementation evaluated you will address your user-group. At the onset of the assignment identify one user-group. Two evaluations are planned (cf. items 5 and 6 in section 8) and the results of the evaluation work must be laid down in at least two evaluation reports containing remarks on design and implementation. You will use the evaluation of your product to document the revisions that are needed. The planning of the evaluations should appear in your project plan. You may want to do a specialist evaluation and you may ask another team to be involved in this task. For the evaluation process a handout with guidelines will be made available in due course.

2.5 Presentation

In the period between 06-11-2008 and 04-12-2008, your team will have to present your work in progress in a 15 minute presentation to an audience which is selection of the course participants. These presentations are scheduled on Mondays/Thursdays between 11.15 and 13.00 hrs in room 413. (cf. item 4 in section 8). Attendance to these presentations is **mandatory**; list will be kept by the administration. Absence at these presentations will be taken into account in the grading of the assignment. Active participation is valued positively.

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In order to accomplish active participation we strive at an audience that is not too large and to that end we will provide a schema through which attendance is arranged.

2.6 HCI Paper

At the end of your project you will have to write a final paper on your work. This report is being reviewed together with your product. The focus of the final paper is the **process** which has led you to the prototype. This paper can include some aspects on the design you have made in the beginning but you should extrapolate your early findings to the final prototype. The same holds for the evaluations; you do not have to include the complete evaluation (this is already in the evaluation report) rather make clear how you used it to come to the final prototype.

In cases where you have failed to meet your specifications you must explain and argument this thoroughly in your final report for all aspects in your plan. In your final report you must make obvious why your system is suitable for the proposed domain and user.

2.7 Final presentation

In a final meeting with the course administration you present your work and also your report is being discussed. The course administration will provide a schema for these presentations. The goal of this presentation is to really focus in the interaction in your final prototype. No other presentation material than your prototype is required. The conclusive meetings are scheduled in the second half of January 2009.

3 Project plan and documentation

This section gives a brief explanation on the documents you will have to produce. All the deadlines for these documents are given in section 8.

3.1 Concept idea & summary

In order to quickly assess your idea we first evaluate a draft summary. In this phase we might reject ideas that are considered not to be realizable in the given time or ideas that do not include sufficient interaction. The concept summary consists of the following items:

1. Title of your project/product
2. Team number and names
3. Intended implementation platform (1 sentence)
4. Intended user group (1 sentence)
5. Summary of your idea (200 words)

All this should fit on 1 A4. These concept idea summaries will also be used to assign the right assistant to your team. The summary should therefore be explicit and clear.

The file (preferably pdf) should be send (email) to “fverbeek _AT_ liacs.nl”, in the subject header: HCI and team number.

It should therefore look like this:

Subject: HCI 2007 team<number>

To: fverbeek@liacs.nl

From: hci-student

CC: team-member hci student

3.2 Project plan

In your project plan you elaborate on the concept plan. Your project plan, including a time planning, has to be reasonable and feasible. The first part of your plan should contain a compact but reasonably detailed functional specification that describes the intended functionality of your product, i.e., main concepts. Next part should contain a short description of the user group that you have identified including a motivation that relates the users to the product. The following part should contain a description of the innovative aspects of your product and how this relates to HCI.

At this stage of your project you should deliver a detailed sketch of a timetable for the project that is to schedule your activities. This timetable has to be consistent with the provided deadlines. From the moment your project plan has been approved by the course administrators, you will have to implement your design in accordance with your plan. In short, your project plan should contain:

1. Description of interface design
2. Low-profile functional design
3. User group aimed at
4. Innovations aimed at
5. Detailed time-table

The crucial element in your paper design is the description of your interface design where you indicate embedding of the (relevant) HCI-design criteria to your future application. This document is the next you have prepared and here you elaborate on the concepts presented in your project plan.

3.3 Paper design

The next important milestone in the trajectory is your paper design. Here you have:

1. Worked out the concept interface design.
2. Detailed User analysis
- 3. Task analysis**
4. Sketch of your interface (using e.g. MS-Visio, Hand-drawn or other visual communication)
5. Specifications for usability testing for your product

3.4 Evaluations

In your timetable you must plan two evaluation sessions by a user-group. The results of both evaluations should be reported. The user-group that participates in the evaluation should be given clear instruction as to how to do the evaluation. These instructions must be provided the report on the evaluations (cf. section 4). Next, also your response and actions on the basis of the evaluation should be included in the evaluation report.

3.5 Final report

A style sheet for the final paper will be provided. This style sheet, as well as all instructions therein, must be used. See also 2.6.

4 Implementation and review

For the implementation it is advised to use a model/view/controller-architecture as discussed in the book (Ch. 8.5). If you decide to diverge from this architecture you should provide a clear motivation in your reports. The actual construction of the interface should, of course, offer some of the main functionality, but for this practical course the usability aspects of your interface bear much more weight. A limited but good interface is appreciated higher than a fully functional bad interface. Manage your time carefully so that you can optimize the product you are building. Consider integrating an optional time slot in your planning for adding more functionality to your product.

The software platforms that are recommended for this assignment are:

1. Java (JRE2/Processing)
2. Visual C++ with QtDesigner.
3. Macromedia Flash/Flex
4. JavaScript/HTML

These software platforms are available on the student-computer rooms (305/306 etc.). Other tools or libraries are negotiable. However, you should realize that it can not be expected that the assistants support all programming languages.

The product should execute on either of these platforms:

1. Windows XP/Vista
2. MacOS X
3. Ubuntu/Debian/Fedora Linux

Internet applications should run within:

1. Internet Explorer 7
2. FireFox 2.0
3. Opera 8

The choice of software tools and hardware platform should be part of your project plan. With the users group in mind you can motivate that choice in the project plan.

The emphasis of this course is on the design and evaluation of a graphical user interface. In order to make the features of your design more realistic you can add functionality as your time schedule allows. It will certainly contribute to the ideas you are trying to convey with the product. The actual code for your implementation is not directly relevant for your grade. However, the course assistants should be able to deduce from your code how you have implemented your interface-architecture. Instead of a judgment on source code, you will have to explain your design and implementation and their relations in the discussion/review of your final report with the course personnel (cf. item 8 & 9 in section 8).

5 Evaluations

As a team you must have identified a user group for the product. From this user group make a representative selection of *at least* two (2) persons. Hopefully you have been able to make future users enthusiastic about your (potential) product and consequently they are willing to participate in an evaluation of your product. You have to make sure that availability of the potential users fits in your project schedule. Participation of real users is very much appreciated and will certainly enrich your views on the design process.

In some special cases you may wish to assemble information by a specialist panel. For specialist evaluations it is preferred that you address one other team to participate in the evaluation. In all cases the results of the evaluations should be reported together with the instructions that were given with the evaluation.

At least two evaluations of the work in progress are required. The evaluations may result in adjustments at the design and implementation level (cf. Star-lifecycle model). You should pick at least one suitable evaluation method from the book/lectures and apply this method to your product. The results should be reported in an evaluation report. All evaluations you complete as well as the revisions to the product that have been applied afterwards will be taken into account for your final grade.

A document with guidelines for the evaluations and the report on the evaluations will be made available.

6 Themes in HCI Assignment 2008

In this practical assignment we will distinguish major three themes. These themes are chosen such that the team can use imagination in defining a product within that theme. In all cases you should **actively seek** contact with the **future users** of your product and involve the users in the design process (evaluations). The extent to which you have realized involvement of users in the design process will be taken into account in the grading of the project.

In addition, all products must show **innovation** and the aspects of innovation have to be dominantly present in the user interface. The innovations that are aimed at should be mentioned in the project plan. Innovation and the realization thereof will be part of the grading for this project.

The entire course personnel will first evaluate all concept ideas/summaries. Ideas that are not well structured or unrealistic in their implementation will be rejected. In these cases a new plans has to be submitted.

In your work plan it should be clearly indicated which user group you will be addressing and how you will realize contact with your user-group.

6.1 Theme A: Data disclosure & Scientific Interfaces

The goal of this assignment is the design and implementation of a realistic interface for data disclosure in a specific scientific field. The vast amount of data that are generated in experimental research should be made accessible to other users within a community. Transparency and maintainability are crucial to the application in mind. You should focus on one specific domain and identify the potential users.

Innovation can be derived from an explorative study on the current solutions. As HCI expert you can bring new concepts to the attention of the user groups and show the advantages via prototyping and usability testing.

A project in this theme can also be defined as a project in theme C if the emphasis is on the introduction of new interaction techniques.

6.2 Theme B: Support group Interfaces

The goal of this assignment is the design and implementation of is to built an interface that supports the work of a specific group of users that otherwise do not have access to ICT facilities. Such groups can be special-interest groups such as patient organizations. Key is that some interest-group organization can be addressed as a starting point. The organization and improvement of certain dataflow and interactions might greatly enhance quality of the work strived at of these communities. Addressing users themselves should be straightforward. Innovation can be derived from an explorative study on existing solutions. As expert you can bring new concepts to the attention of the user groups and show possible advantages via prototyping and usability testing.

6.3 Theme C: Exploratory Information Access by new Interactions

In theme C the aim of your product is in re-building certain application domains by introducing new interaction techniques; i.e. gaming devices, touch screens, tablet PC's etc.

The different use of the interaction will define a new interface and the combination of these needs to be evaluated with a specific user group. The innovations that you plan should in all cases include a thorough analysis of the users and the users must be involved in the design trajectory. The user domain must be very distinct rather than broad and generic. An explorative study on the current solutions for the user interface/interaction should be part of your user analysis.

6.3 Theme D

Assignment D is a "Free-Assignment". The team is expected to present an idea of a Graphical User Interface that they intend design/build. In order to be able to assess the implications of the particular plan, please be extremely clear in your description. Your application should be built for a specific real-world domain. As in all the other assignments, innovation should be a key part of your product. If you cannot make your case sufficiently well it will be advised to take up one of the themes for an assignment. All aspects mentioned earlier should be fulfilled (users, software tools and hardware platform) and the timetable should be unambiguous. The realism of the plan will be studied thoroughly in order to be able to approve the plan. The final project should be near complete, referred to as an α -release, not just a prototype. This type of project fits well if the relations with the future users are well-defined and also the future users intend to use the resulting software product. Feasibility of the initial project plan will be crucial for approval of a project in this theme.

7 Grading of the assignments and HCI Design criteria

The grading will be based on a number of aspects. The initial project plan will be graded with sufficient (you may proceed with minor revisions) or insufficient (serious revising is necessary).

7.1 Grading

Important aspects concerns the planning, punctuality, progress, etc., with which you carry out the project. You will be (sub-) graded for each milestone along the design process. The following milestones are specifically graded:

- Project Plan, PM;
- Revised Project Plan (after review);
- Paper design;
- User evaluation (1) + response;
- User evaluation (2) + response;
- User evaluation (N) + response; (if applicable)
- Presentation /Attendance;
- Final prototype + documentation + final report, etc.
- Final review/discussion by course personnel;

Besides the time management and overall management of the project the grading is based on a number of HCI aspects.

The final grade for your assignment is a weighted average of each of these sub grades. Your final grade for the HCI course is made up of both the exam grade and the assignment grade, as follows: provided that both the result of your written exam (T) and your practical assignment grade (P) are ≥ 5.5 the final grade is:
 $HCI = 0.65 \cdot P + 0.35 \cdot T$

Grades will be valid for one year if one fails on one of the parts of the course; after a year, the student has to redo the complete course.

7.2 Physical design criteria

- screen-layout
- icon design
- navigation
- expertise level
- interaction
- input devices
- coherence between windows and components, etc.

7.3 General design criteria

- problem statement (including user analysis)
- usability specifications
- prototyping
- evaluation
- documentation

8 Deadlines

Deadlines are handled very strict by the course administration. Late submissions will not be taken into consideration for evaluation and grading.

You should keep yourself informed on possible changes in the course schedule. These changes will be posted on the HCI information pages and/or Hallway Information Screens (a.k.a LIACS Info Screen). If in doubt, contact your assistant.

	Document or Product	Due Date (= deadline)
0	Concept Summary	9 October 2008, 18.00 hrs
1	Project plan	16 October 2008, 18.00 hrs
2	Revised project plan	In correspondence with assistant
3	Paper Design	Specified in project plan
4	15 minutes presentation to course participants	According to schema provided by admin.
5	User evaluation 1	Specified in project plan
6	User evaluation 2	Specified in project plan
7	Evaluation report	19 December 2008 , 12.00 hrs
8	Final Product, Documentation and Report	9 January 2009 , 12.00 hrs
9	Final presentation with course administration	Period 13-20 January 2009

9 Relevant email addresses and links

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Contact	Content
Dr. Ir. Fons J. Verbeek	Lectures, Book & Reading assignments, Practical assignment, Course supervision
Assistants	Practical Issues in Assignment. Deliverables according to your Time Table.

URL
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http://hci.liacs.nl

FJV September 2008