Assignment 7

General comments: In this assignment, you will be writing reviews. Parts of it have to be done individually. But at the begin and end, the whole group should work together. Thus, make sure to plan your time accordingly.

General rules: As always, email your results in a PDF to Wolfgang (huerst@uu.nl).
Include all group members in the cc of this email (students not included in the email will get NO grade!) and consider the usual formalities:

- For the email: Use the subject [INFOMSCIP] Assignment $< i >$ group $< j >$
- For the PDF file: Use the name INFOMSCIP-X-Y.pdf where X is the number of the assignment and Y is your group number. Put all group members' names and student IDs at the begin of the PDF.

Deadline for this assignment: Send the email to Wolfgang before **Thu, Oct 31, 2019, 11am**.
Deadlines are strict. Each additional day after the deadline will result in a grade deduction of 1.0.

General remarks: This assignment is about reviewing papers. We will use the ACM ChiPlay conference series for this. A quote from their website: "CHI PLAY is an international and interdisciplinary conference (by ACM SIGCHI) for researchers and professionals across all areas of play, games and human-computer interaction (HCI). We call this area *player-computer interaction*." You find more information about this conference series here:
https://sigchi.org/conferences/conference-history/CHIPLAY/

First step: ***(You should do this together with your team mates.)*** Make yourself familiar with this conference series by browsing their history page (see link above), which also has links to the websites of previous years (and this year's event, which take place this week).

Once you got a rough idea of the event, go the the ACM digital library page that gives you access to the proceedings (free, if you are in the university network or log in with your UU account via the UU library site; see link provided in the lecture). You find the site with the proceedings for ChiPlay here (click the tab 'Publication Archive' to get a list of the proceedings of each year):
https://dl.acm.org/event.cfm?id=RE1436

In this assignment, you will be writing a review for a paper from any ChiPlay conference; current or past years. You can pick it yourself. Thus, browse the proceedings and select a paper that is of interest to all team members. Make sure it is a full paper. There are different categories and some of the papers might be quite short. Full papers are up to ten pages. You should also check the call for full papers from this year's event, which you can find here:
https://chiplay.acm.org/2019/papers/

Because ChiPlay is a conference with a strong relation to Human-Computer Interaction, you should be able to classify the contribution of the paper that you picked in one of the seven categories of possible contributions in the field of HCI introduced in the paper by Wobbrock and Keintz, 2016 (check the slides of lecture 12 again if you do not remember it). Check which one(s) your paper belongs to.

To deliver: After listing all your team members at the begin of the PDF, write down the citation of the paper that you picked. Give a correct citation of it. That is, not just the name and authors, but all info that is commonly given when you reference it in your own paper. (Hint: remember that you find this easily in the digital library.) Check the ChiPlay publication guidelines for how to properly cite it:
https://chiplay.acm.org/2019/guidelines/
Then list the category or categories from Wobbrock and Keintz, 2016, that your paper belongs to and give a short justification (2-3 sentences should be enough for that).

Some related comments: It might seem strange to review a paper that has already been published. Yet, even published papers sometimes have weaknesses and limitations. For example, it could be that reviewers overlooked something or that the paper was evaluated as okay but not perfect and was one of the few that "just made the cut". But even if it is a great paper with hardly anything to complain, it is a good learning experience to write a review about it. This should also help you improve your own writing.

Second step: ***(You should do this on your own and only later discuss it with your team members; see third step below.)***
Now, assume this paper has not been published before, but is a new submission. You take the role of a program committee member who is supposed to write a review for it. That is, each of you should write his/her own review, independent from your team mates. As reference, we will use the ACM CHI review criteria. If you haven't done so already, check the following websites:

- Guide to a successful CHI submission:
  https://chi2018.acm.org/guide-to-a-successful-submission/
- Guide to reviewing CHI papers:
  https://chi2018.acm.org/guide-to-reviewing-papers/
- You should also have a look at this article referenced in the latter:
  https://mobilehci.acm.org/2015/download/ExcellenceInReviewsforHCICommunity.pdf

Keep in mind that this is from a related but different conference, which might have different formal requirements (e.g., paper lengths). Also, unlike a submission, the paper is not anonymous anymore. Thus, use common sense to adapt the review criteria accordingly. In the appendix at the end of this file, you find an example from reviews of an actual paper. This might help you in getting an idea of how such reviews often look like and their size (a good review does not necessarily has to be very long). Ethical aspects are often also addressed in reviews, but as a learning goal for the course, we want to make this a bit more extensively here. Thus, you do not have to address them in your review, but we will do it separately in the last step listed below.

Use the following template for your review (note that the contribution here refers to the actual *research* contribution, not the *type* or *category* of this contribution that was asked for in step 1):

Reviewer name:

Contribution statement:
Give a short statement of the submission's contribution to the field of player-computer interaction (2-3 sentences); this provides the Program Committee with a basis for assessing the significance of the contribution, and for judging whether all the reviewers agree on what the contribution is.

Overall rating:
[1] Strong reject
[2] Weak reject
[3] Borderline
[4] Weak accept
[5] Strong accept

Rating of reviewer's own expertise:
[1] No knowledge (I do not feel comfortable reviewing this paper)
[2] Passing knowledge (not my area, but comfortable making a judgment)
[3] Knowledgeable (I have done research in this area)
[4] Expert (I am an expert on this topic)

Review of the submission (comments will be seen by authors):
A short review of the submission in terms of the criteria laid out in the Call for Papers. That is, make sure it addresses the following aspects:

- *Significance of the paper's contribution to the field of player-computer interaction and the benefit that others can gain from the contribution: why do the contribution and benefit matter?*
- *Originality of the work: what new ideas or approaches are introduced? We want to emphasize that an acceptable paper must make a clear contribution to player-computer interaction.*
- *Validity of the work presented: how confidently can researchers and practitioners use the results?*
- *Presentation clarity: is the structure of the text and the presentation of the results clear?*
- *Relevant previous work: is prior work adequately reviewed?*

Comments to program chairs (optional; comments will NOT be shared with authors):
If you have any additional comments that you want to share with the program committee and other reviewers of this paper but not the authors, you can put them here.

To deliver: After everyone has done their reviews, add each of them to the PDF in the same order as you listed the team members at the begin of the file. Make sure they are nicely and consistently formatted (e.g., remove the instructions given in italic from the template, etc.).

Comments: One of the learning goal here is to have a critical look at literature. Even the best papers are rarely perfect and might have weak points. Be critical, but also nice and respectful to authors. It is not uncommon to have different opinions among reviewers. Thus, it is not required to change your ratings and match them. This is why we have a discussion and a meta review at the end (see 3rd step). ***Comment on grading:*** *Normally, you will get a group grade for this assignment. But because there is an individual part, we reserve the right to give a slight increase or decrease to individual group members in case their review is done particularly well or bad.*

Third step: ***(You should do this together with your team mates.)*** Read the other members' reviews. Sit together and have a discussion. How should the paper be rated? Are all positive and negative issues addressed by the reviewers? (Note that it is not uncommon that one review does not highlight all aspects; this is why we have multiple ones.) Once you have done that, assume the role of a meta reviewer or program chair. That is, write a meta review that (very shortly) summarizes the positive and negative aspects addressed by the reviewers and makes a final recommendation about acceptance or rejection to the program chairs. Use the following template for it:

Meta review (will be seen by authors):
A short summary of the positive and negative aspects addressed by the reviewers and a final recommendation about acceptance or rejection (including justification).

Recommended rating:
[1] Strong reject
[2] Weak reject
[3] Borderline
[4] Weak accept
[5] Strong accept

Comments to program chairs (optional; will NOT be shared with authors):
If you have any additional comments that you want to share with the program committee but not the authors, you can put them here.

To deliver: Add the meta review to the PDF.

Fourth step: ***(You should do this together with your team mates.)*** Now we want to have a look at ethical aspects of the research described in this paper. We do this by addressing the four key principles on ethics in software experimentation identified by J. Singer and N.G. Vinson in their paper "Ethical issues in empirical studies on software engineering" (see slides of lecture 15):

- Scientific Value
- Beneficence
- Informed Consent
- Confidentiality

For each of these aspects, verify if the authors made any related comments in their paper about it and if so, summarize them. Then, write a summary of things that should be done and considered that are not stated in the paper. A short summary is sufficient. No need for a detailed elaboration as long as the text reflects that you thought about it and carefully analyzed it.

Notice that even if the authors might not have addressed some of these issues in their paper, this does not mean that they have not considered them. It is an established and sometimes even legal requirement in some fields to discuss ethical issues in a paper, but for computer science, this is not that common yet (but the community is very active on this, so we can expect this to become a standard in our field in the not so far future as well).

To deliver: Add a headline "Analysis of ethics aspects" and then your comments from above. Add the approximate amount of hours you worked on the assignment, and then email the final file to the course instructor before the deadline.

APPENDIX

Reviews for a paper submitted to the International Symposium on Graph Drawing.

Three examples of reviews received for an actual paper submitted to this symposium. While the comments cannot be understood without knowledge of the paper, they illustrate nicely what type of comments on usually gets. Notice that this is a different community than ACM SIGCHI, so the structure and focus of the reviews also differ a bit from what is expected for HCI-related events (see CHI reviewing guidelines).

TITLE: Time-Space Maps from Triangulations

———————— REVIEW 1 ————————

A short paper about time-space representations on maps: Maps have to be modified such that the distances between points are adjusted according to some proportional time measures. Examples used by the authors are traveling times on Dutch railways. After a comprehensive motivation and definition of the problem, the authors discuss three approaches to overcome the problem of degeneracies and other bad effects within the triangulations when points are moved to the desired positions. The first approach of radial triangulation is conceptually simple and very efficient, but may still lead to poor effects. The second one mimicks a Delaunay triangulation, while the last one maintains dynamically a Delaunay triangulation, leading to a comparatively high complexity but a good quality. The section on experiments is short but to the point. The appendix gives more examples, discussions and insights.

Overall, a nicely presented paper, describing standard methods from computational geometry applied to an interesting problem on maps. Although not quite the heart of graph drawing, it is still acceptable. Nice balance between methods and experiments. A pleasure to read.

There is much insights given in the appendix. Hopefully the authors are able to incorporate some in the final version.

———————— REVIEW 2 ————————

Content: The authors present three different methods for computing time-space maps and present several experimental results in order to compare them among each other.

Evaluation: Time-space maps are used to visualize geographic data in a way that distances correspond to travel time. Time-space maps are linear cartograms [1,8,13] and the work is related to embedding graphs with specified lengths. The authors focus on a version of these maps that has one specific location as the center and shows travel times from this location to other locations by distance.

The authors of the submission at hand present three ways to obtain a triangulation of the given points to compute a homeomorphism that is used to get a time-space map. In order to also deform the borders of a region, they add a bounding box with extra vertices that are also used in the triangulation. First they present a simple radial triangulation that runs in $O((n + m) \log n)$ time. Then they use the result to compute a quasi-Delaunay triangulation in $O((n^2 + m) \log n)$ time. Finally, they present a technique for dynamic Delaunay triangulations, which runs in $O(n^3 * 2^{\alpha(n)} \log n)$ time.

(continues on next page)

(continuation of review 2)

At the end of the paper the reader is given an insightful comparison between the quality of all three algorithms by a) comparing the average distance deformation and the angle deformation in tabular form and b) showing output maps of each algorithm. For this comparison the authors used a data set consisting of a Dutch train schedule and 282 railway stations. They conclude clearly that the dynamic Delaunay method is the best in every aspect. I am missing a comparison between the practical running times of the algorithms.

The authors do a good job of describing the problem to get a feasible triangulation that can be used to create a time-space map and also argue why a usual Delaunay triangulation doesn't work for this problem. The three methods are based on each other and the approaches are convincing.

Thus I have ranked the paper "accept".

———————— REVIEW 3 ————————

This paper focus on the interesting topic of creating time-space map by triangulation. The authors present three algorithms, and compare their result using a real dataset. The result of the last algorithm, i.e. dynamic delaunay triangulation looks good.

However, there are major problems of the paper:

* What is the difference of the algorithm compared to previous work?

* Is the result better than previous work?

* The presentation of the idea and result is not clear enough.

* What is the difference of the algorithm compared to previous work?

The authors give three citations (1,8,13) concerning the time-space map. This is good, but they should follow to comment on these works. Is there any limitations of their algorithm, in effectiveness, in performance, or limited to some data? What should be improved? Have they used triangulation? In comparison, what is new in this work? What is the contribution?

* Is the result better than previous work?

Although the authors compared their three algorithms, they have not compared with any other algorithms. Is the presented algorithm perform better or worse? Why? This is important.

* The presentation of the idea and result is not clear enough.

Some parts of the paper are hard to understand. For example, in the later two algorithms, some edges should be flipped. In the last algorithm, the flip should satisfy two conditions. However, the explanation for the flip and its condition is not clear enough for me to understand. I hope there's a drawing showing how the flip take place, and why they take place. Another example is that, when the authors talks about how the station Lelystad causes significant distortion (related to Fig.6 in page 9), I have no idea where Lelystad is. Besides, I don't like the last sentence in page 9 "It seems that the less good visual quality is not caused by artifacts of the method, but by the complexity of the input data." After all, you can always say that when the result is not good. If the data is not complex, then there's no challenge to make the time-space map. I also hope there is a "conclusion and future work" part.