How to write a technical paper or report

EE267W – Workshop 1

Who do you write the paper for?

Who do you write the paper for?

- write submitted paper for reviewers or report for course staff, not the general audience!
- who are these reviewers or course staff
  - domain experts!
- how do they evaluate your submission? look at the review form or the outlined criteria!

REVIEW FORM

Description

Briefly describe the paper and its contribution to computer graphics and interactive techniques. Please give your assessment of the scope and magnitude of the paper's contribution.

Clarity of Exposition

Is the exposition clear? How could it be improved?

Quality of References

Are the references adequate? List any additional references that are needed.

Reproducibility

Could the work be reproduced from the information in the paper? Was any code or data submitted with the supplemental materials? If so, does it support the claims in the paper? Are all important algorithmic or system details discussed adequately in the paper?

Rating

Please rate this paper on a continuous scale from 1 to 5, where:

1 = Definitely reject. I would protest strongly if it's accepted.
2 = Probably reject. I would argue against this paper.
3 = Possibly accept, but only if others champion it.
4 = Probably accept. I would argue for this paper.
5 = Definitely accept. I would protest strongly if it's not accepted.

Please base your rating on the paper as it was submitted.

Reviewer Expertise

Please rate your expertise in the subject area of the paper on a continuous scale from 1 to 3, where:

1 = Beginner
2 = Knowledgeable
3 = Expert

Explanation of Rating

Explain your rating by discussing the strengths and weaknesses of the submission, contributions, and the potential impact of the paper. Include suggestions for improvement and publication alternatives, if appropriate. Be thorough. Be fair. Be courteous. Your evaluation will be forwarded to the authors during the rebuttal period.

Private Comments

You may enter private comments for the papers committee here. These comments will not be sent to the paper author(s). Please do not mention any other papers that are currently in review, or the names of people associated with these papers.

write well, get to the point!

do your homework!

give all details! (even code, data etc)

this is the most important one! very subjective – gut feeling

weights reviewer

make up some reasons why to reject

usually empty

CVRP Review Form

Paper Summary

Paper Strengths.
Please discuss the positive aspects of the paper. Be sure to comment on the paper's novelty, technical correctness, clarity and experimental evaluation. Notice that different papers may need different levels of evaluation: a theoretical paper may need no experiments, while a paper presenting a new approach to a known problem may require thorough comparisons to existing methods. Also, please make sure to justify your comments in great detail. For example, if you think the paper is novel, not only say so, but also explain in detail why you think this is the case.

Paper Weaknesses.
Please discuss the negative aspects of the paper: lack of novelty or clarity, technical errors, insufficient experimental evaluation, etc. Justify your comments in great detail. If you think the paper is not novel, explain why and give a reference to prior work. Keep in mind that novelty can take a number of forms; a paper may be novel in terms of the method, the problem, the theory, analysis for an existing problem, or the empirical evaluation. If you think there is an error in the paper, explain in detail why it is an error. If you think the experimental evaluation is insufficient, remember that theoretical results/ideas are essential to CVPR and that a theoretical paper need not have experiments. It is *not* okay to reject a paper because it did not outperform other existing algorithms, especially if the theory is novel and interesting. It is not reasonable to ask for

Preliminary Rating.
This rating indicates to the area chair, to other reviewers, and to the authors, your current opinion on the paper. Please use 'Borderline' only if the author rebuttal and/or discussion might sway you in either direction.

Strong Accept - Weak Accept – Borderline – Weak Reject - Strong Reject

Preliminary Evaluation.
Please explain to the AC, your fellow reviewers, and the authors your current opinion on the paper. This explanation may include how you weigh the importance of the various strengths and weaknesses you described above in Q1Q3. Please summarize the key things you would like the authors to include in their rebuttals to facilitate your decision making. There is no need to summarize the paper.

New exciting ideas.
CVPRí16 would like to draw attention to papers that explore highly innovative ideas, novel problems, and/or paradigm shifts in conventional theory and practice. Such papers may not be ìcompleteî in the ìtraditionalî manner in the sense that it may not be possible to have experimental results comparing other related efforts or that they may not have large, publicly available data sets to be used for performance comparison. However, we expect these papers to be visionary by nature. Should this paper be considered under ìnew exciting ideasî?

Reproducibility.
Could the work be reproduced from the information in the paper? Are all important algorithmic or system details discussed adequately?

Confidence.
Select: "Very Confident" to stress that you are absolutely sure about your conclusions (e.g., you are an expert who works in the paper's area), "Confident" to stress that you are mostly sure about your conclusions (e.g., you are not an expert but can distinguish good work from bad work in that area), and "Not Confident" to stress that that you feel some doubt about your conclusions. In the latter case, please provide details as confidential comments to PC/AC chairs (point 7.)

EE267 Report Requirements

- requirements outlined in lecture 1!

- report = conference paper format 6-8 pages with
  - abstract
  - introduction
  - related work
  - your thing
  - results, qualitative and quantitative evaluation
  - discussion, future work, and conclusion
  - references
  - see latex template on website (will be there)

Looks like a SIGGRAPH paper?

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- visual aesthetics – everything has to be really polished
- plots & charts at the end

- show me the magic!

Looks like a SIGGRAPH paper?

Most common structure of a paper:

Abstract

1. Introduction
2. Related Work
3. Theory / Approach / Methods
4. Implementation
5. Analysis
6. Results
7. Discussion
8. Conclusion

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Most common structure of a paper:

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1. Introduction
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5. Analysis – plots & charts!
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8. Conclusion

Heilmeier's Catechism (applies to everything!)

- papers
- grant proposals
- fellowship applications
- startup pitch / investors
- telling your friends / family what you work on

- YOUR EE267 PROJECT REPORT

Heilmeier's Catechism (applies to everything!)

- What are you trying to do? Articulate your objectives using absolutely no jargon.
- How is it done today, and what are the limits of current practice?
- What's new in your approach and why do you think it will be successful?
- Who cares? If you're successful, what difference will it make? What are the risks and the payoffs?
- How much will it cost? How long will it take? What are the midterm and final "exams" to check for success?

Example Project:

Mitigating Motion Sickness in VR

What are you doing?

multi-modal experience:

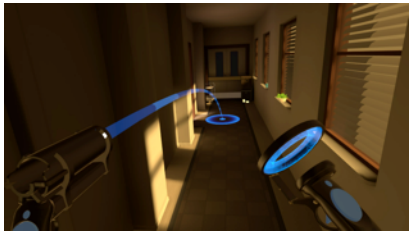
- visual
- audio
- haptics/tactile
- ~~vestibular~~

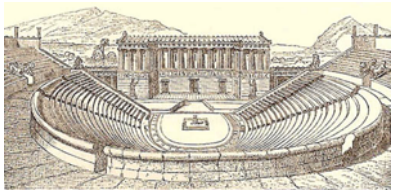
problem statement:

- visual-vestibular conflict creates motion/VR sickness!

How is it done today?

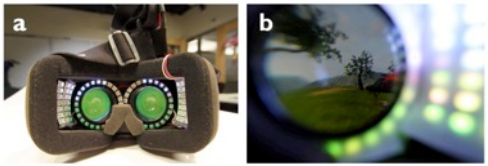
1. limit visual-vestibular conflict





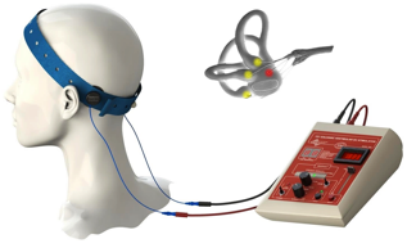
2. manipulate visual information

- e.g. counter vection (MSR SIGCHI 2016)



3. direct vestibular stimulation

- galvanic (electrodes on head)
- audio (volume = jet engine)
- bone conduction (best of the 3)



What's your approach? (contributions)

- develop (gaze-contingent) rendering algorithm to minimize sensation of motion
- how? render scene with motion blur (possibly in a foveated manner)
- why? if fast-moving objects are blurred, there is no visual perception of motion (optical flow on retina is always low)

Who cares?

- vr content creators
- consumer electronics companies: samsung, google, facebook, huawei, …
- consumers, because they get a new experience!

Example Roadmap

- week 1: more detailed reading of relevant literature
- week 2: implement motion blur & foveation; drop foveation if time runs out
- week 3: implement user study and test algorithm on 20 users by having them fill out sickness questionnaires
    - generate a test scenes with 2 settings: (i) little self motion and (ii) lots of self motion
    - for each user, randomize over 4 conditions (with and without blur, little or lots of motion), let them look at the scene, and then fill out Kennedy sickness questionnaire
    - for little motion, my algorithm should have no effect on sickness; for lots of motion??? need to complete the project to find the answer … (outcome doesn't matter for grading as long as it's well executed and documented)