LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

Proseminar Medieninformatik

Winter term 2020/21

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Team

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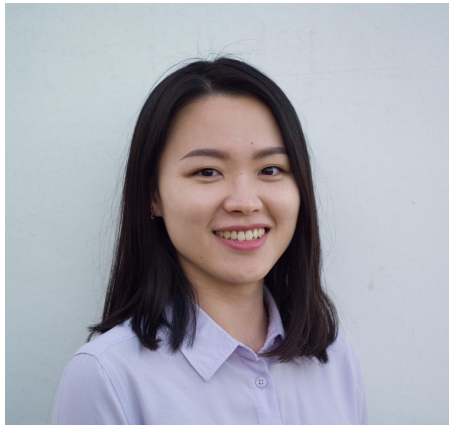
Sven Mayer

Sebastian Feger



Jingyi Li

Francesco Chiossi

Zoom Course Protocol

- You are muted by hosts during the presentation.
- Please type “HERE” in group chat or hand-raise function when you want to speak out, e.g., hands-on session or anytime you have a question.
- Always have your video on if possible. Its nicer for everyone.

- Please respect others’ presentation and intellectual property. No recording. No second usage.
  - Strongly punished: expelled from the course
  - Link to official policy: http://www.medien.ifi.lmu.de/online-lehre/ifi-statement.xhtml.de

Contact us

- Link: http://www.medien.ifi.lmu.de/lehre/ws2021/ps/
- Discord: https://discord.gg/weWAAApR

Agenda

- Goals
- Organization
- How to write a research paper (hands-on session)
- Scientific literature review
- Topic assignment

Goals

- Learn to work scientifically
- Prepare for your Bachelor thesis
- Learn something about a new topic
- Practice your English

Agenda

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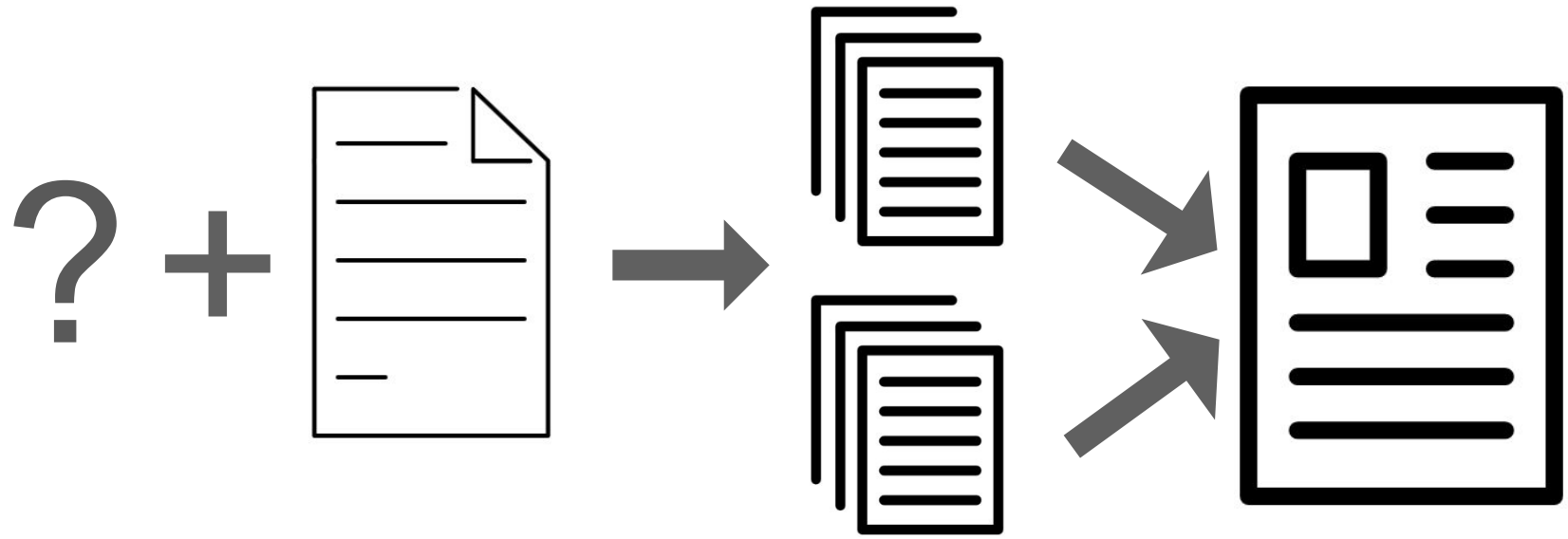
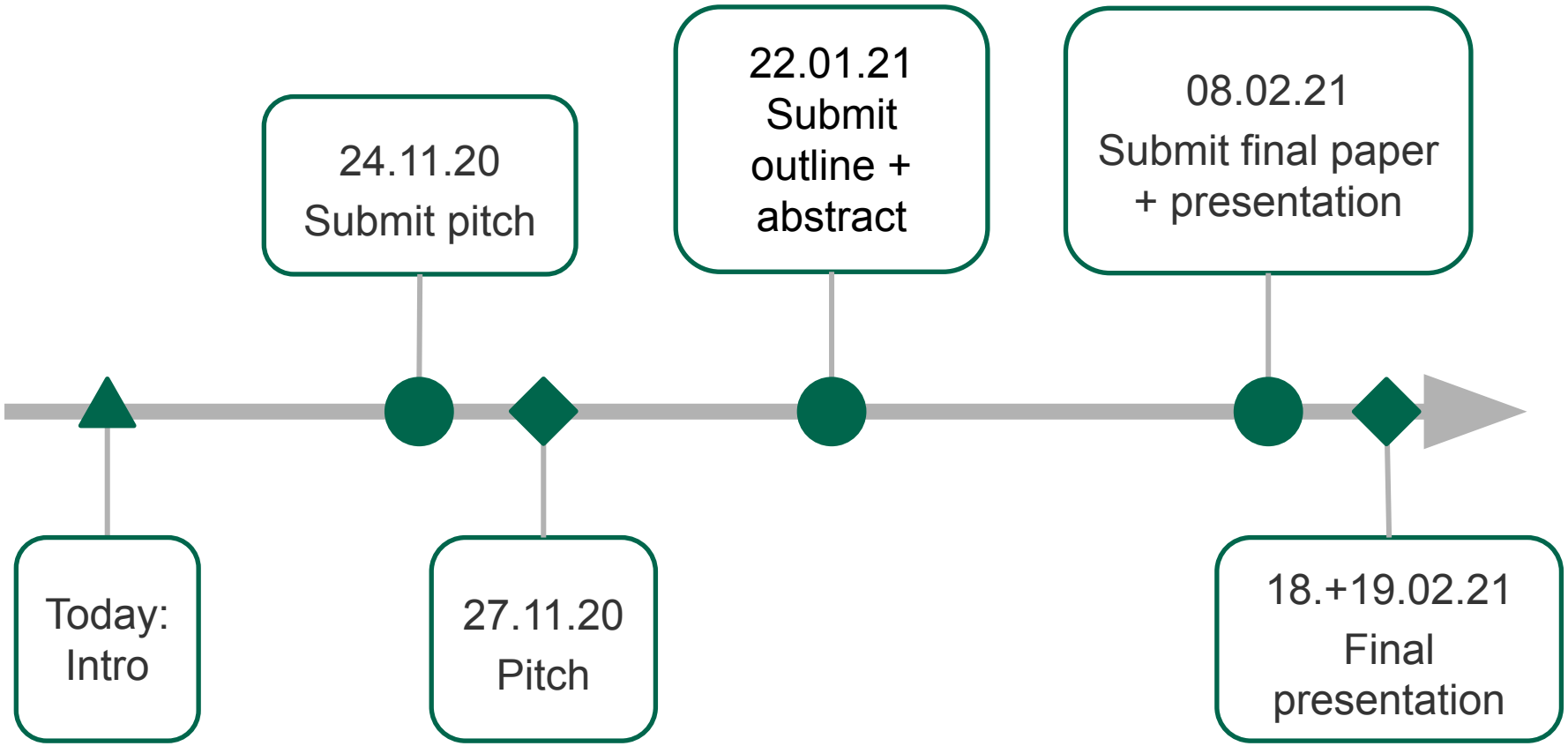
Process

- Research topic > understand it > find literature > write paper



Timeline


24.11.20
Submit pitch
22.01.21
Submit
outline +
abstract
08.02.21
Submit final paper
+ presentation
Today:
Intro
27.11.20
Pitch
18.+19.02.21
Final
presentation

Submissions

- All submissions via Uni2work, zipped
- Short presentation submission: **Tue 24.11.20 (23:59)**
  - Lastname_Title_Spr.pdf
- Paper abstract & outline & lead paper submission: **Fri 22.01.21 (23:59)**
  - Lastname_Title_Ou.zip
- Presentation submission: **Mon 08.02.21 (23:59)**
  - Lastname_Title_Pr.pdf
- Paper Submission: **Mon 08.02.21 (23:59)**
  - Lastname_Title_Pa.pdf

Presentations - Time and Location

- Short pitch presentations:
  - Friday, 27.11.2021 (14:00 - 16:00), **Zoom**

- Final presentation sessions:
  - Thursday, 18.02.2021 (13:00 - 17:00), **Zoom***
  - Friday, 19.02.2021 (13:00 - 17:00), **Zoom***

* Presentations will take place in person only after major changes of the current COVID-19 situation, which will be announced earliest end of January

Pitch Presentation

- Introduce your topic in 90 seconds (in English)
  - Check out pitch guidelines [1]
  - Also check out “3 Minute Thesis”
- Max 3 slides
  - PDF format – no animations

24.11.20
Submit pitch

27.11.20
Pitch

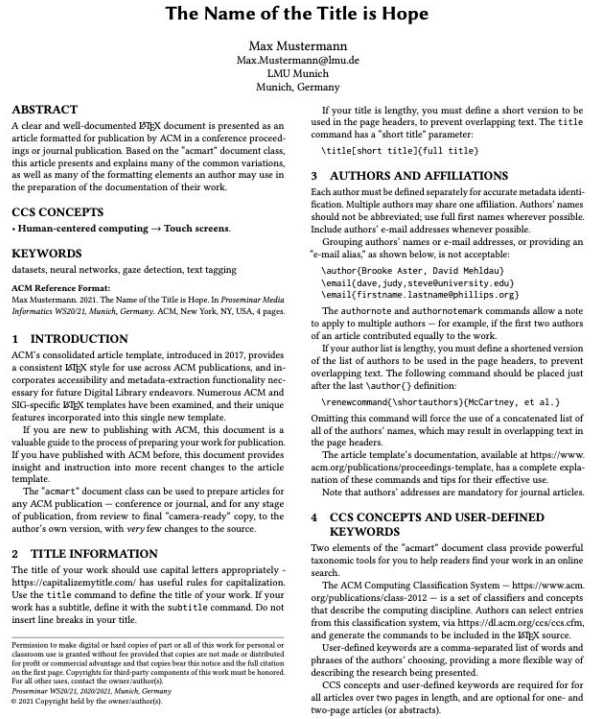
[1] https://mindfulsalestraining.net/pitch-your-idea-in-90-seconds-or-less/

Paper – Outline & Abstract

- Interesting title (not just the research topic)
- Abstract ~150 words
- Section headings + bullet points

- Putting effort into a good outline saves time and effort later

- Submission: Outline & Abstract in template as **one PDF (zipped)**
- LaTeX template [1] (ACM SIGCHI Conference template)
  - Remove placeholder text and images!



The Name of the Title is Hope

Max Mustermann
Max.Mustermann@lmu.de
LMU Munich
Munich, Germany

ABSTRACT

A clear and well-documented LaTeX document is presented as an article formatted for publication by ACM in a conference proceedings or journal publication. Based on the "acmart" document class, this article presents and explains many of the common variations, as well as many of the formatting elements an author may use in the preparation of the documentation of their work.

CCS CONCEPTS

• **Human-centered computing** → **Touch screens**.

KEYWORDS

datasets, neural networks, gaze detection, text tagging

ACM Reference Format:
Max Mustermann. 2021. The Name of the Title is Hope. In *Proseminar Media Informatics WS20/21, Munich, Germany.* ACM, New York, NY, USA, 4 pages.

1 INTRODUCTION

ACM's consolidated article template, introduced in 2017, provides a consistent LaTeX style for use across ACM publications, and incorporates accessibility and metadata-extraction functionality necessary for future Digital Library endeavors. Numerous ACM and SIG-specific LaTeX templates have been examined, and their unique features incorporated into this single new template.

If you are new to publishing with ACM, this document is a valuable guide to the process of preparing your work for publication. If you have published with ACM before, this document provides insight and instruction into more recent changes to the article template.

The "acmart" document class can be used to prepare articles for any ACM publication — conference or journal, and for any stage of publication, from review to final "camera-ready" copy, to the author's own version, with *very* few changes to the source.

2 TITLE INFORMATION

The title of your work should use capital letters appropriately - https://capitalizemytitle.com/ has useful rules for capitalization. Use the `title` command to define the title of your work. If your work has a subtitle, define it with the `subtitle` command. Do not insert line breaks in your title.

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s).
Proseminar WS20/21, 2020/2021, Munich, Germany
© 2021 Copyright held by the owner/author(s).

If your title is lengthy, you must define a short version to be used in the page headers, to prevent overlapping text. The `title` command has a "short title" parameter:

```
\title[short title]{full title}
```

3 AUTHORS AND AFFILIATIONS

Each author must be defined separately for accurate metadata identification. Multiple authors may share one affiliation. Authors' names should not be abbreviated; use full first names wherever possible. Include authors' e-mail addresses whenever possible.

Grouping authors' names or e-mail addresses, or providing an "e-mail alias," as shown below, is not acceptable:

```
\author{Brooke Aster, David Mehldau}
\email{dave,judy,steve@university.edu}
\email{firstname.lastname@phillips.org}
```

The `authornote` and `authornotemark` commands allow a note to apply to multiple authors — for example, if the first two authors of an article contributed equally to the work.

If your author list is lengthy, you must define a shortened version of the list of authors to be used in the page headers, to prevent overlapping text. The following command should be placed just after the last `\author{}` definition:

```
\renewcommand{\shortauthors}{McCartney, et al.}
```

Omitting this command will force the use of a concatenated list of all of the authors' names, which may result in overlapping text in the page headers.

The article template's documentation, available at https://www.acm.org/publications/proceedings-template, has a complete explanation of these commands and tips for their effective use.

Note that authors' addresses are mandatory for journal articles.

4 CCS CONCEPTS AND USER-DEFINED KEYWORDS

Two elements of the "acmart" document class provide powerful taxonomic tools for you to help readers find your work in an online search.

The ACM Computing Classification System — https://www.acm.org/publications/class-2012 — is a set of classifiers and concepts that describe the computing discipline. Authors can select entries from this classification system, via https://dl.acm.org/ccs/ccs.cfm, and generate the commands to be included in the LaTeX source.

User-defined keywords are a comma-separated list of words and phrases of the authors' choosing, providing a more flexible way of describing the research being presented.

CCS concepts and user-defined keywords are required for for all articles over two pages in length, and are optional for one- and two-page articles (or abstracts).

22.01.21
Submit outline + abstract

[1] http://www.medien.ifi.lmu.de/lehre/ws2021/ps/material/ps_latex_template_v2.zip

Final Paper Submission

- Four pages in English at least
  - Including references
- Use figures, diagrams, and images to illustrate
  - Refer to them in text!

- Submission: **PDF (zipped)**

08.02.21
Submit final paper
+ presentation

18.+19.02.21
Final presentation

Presentation

- 15 min presentation (in English)
- 5 min discussion (in English)

- No slide template – be creative!
  - Many tips on the web, e.g. [1]
  - Very good book: Zen oder die Kunst der Präsentation [2]
  - **Max. 10 words per slide** – Use figures and diagrams!
- Anticipate questions and prepare answer slides (backup-slides)

[1] https://lifehacker.com/how-to-create-presentations-that-dont-suck-5810271
[2] https://opac.ub.uni-muenchen.de/TouchPoint/perma.do?q=+0%3D%224821872%22+IN+%5B2%5D&v=sunrise&l=de

Evaluation

- Checklist
  - Structure
  - Extent
  - Citation
  - Abstract
  - Language
  - Design
  - Goal description/contribution
  - Related work
  - Innovation
  - Coherence

All 4 submissions (short presentation slides, outline, final presentation slides, and paper) have to be submitted completely and in time

Incomplete or delayed submission may not be considered

Paper: 67%

Presentation: 33%

Agenda

- Goals
- Organization
- How to write a research paper (hands-on session)
- Scientific literature review
- Topic assignment

Abstract Assessment

- Reading Material
  - Research Through Design as a Method for Interaction Design Research in HCI [1]
- 8 mins ~150 words:
  - Get markers with different colors. Chose for each number a color. Color each sentence in the abstract according to which category (number) it belongs.

1. What is the specific problem addressed?
2. What have you done?
3. What did you find out? What are the concrete results?
4. What are the implications on a larger scale? How does it change the bigger picture?

[1] https://dl.acm.org/doi/pdf/10.1145/1240624.1240704
Source: https://www.hcilab.org/wp-content/uploads/2018/03/ws18-albrecht_abstract-template.pdf

Discussion - Abstract

Share your answer in the chat.

1. What is the specific problem addressed?
2. What have you done?
3. What did you find out?
   - What are the concrete results?
4. What are the implications on a larger scale?
   - How does it change the bigger picture?

Abstract

(1) For years the HCI community has struggled to integrate design in research and practice. (2) While design has gained a strong foothold in practice, it has had much less impact on the HCI research community. (3) In this paper we propose a new model for interaction design research within HCI. (4) Following a research through design approach, designers produce novel integrations of HCI research in an attempt to make the right thing: a product that transforms the world from its current state to a preferred state. (5) This model allows interaction designers to make research contributions based on their strength in addressing under-constrained problems. (6) To formalize this model, we provide a set of four lenses for evaluating the research contribution and a set of three examples to illustrate the benefits of this type of research.

Introduction Assessment

- Same Reading Material, 15 mins for introduction:
- Mark 1-2 sentences as your answers

1. What is the large scope of the problem?
2. What is the specific problem?
3. Why is the problem important? Why was this work carried out?
4. What have you done?
5. What is new about your work?
6. What did you find out? What are the concrete results?
7. What are the implications? What does this mean for the bigger picture?

Discussion – Introduction

1. What is the large scope of the problem?
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Discussion – Introduction

1. What is the large scope of the problem? **2.** What is the specific problem?
3. Why is the problem important? Why was this work carried out? **4.** What have you done? **5.** What is new about your work?
6. What did you find out? What are the concrete results? **7.** What are the implications? What does this mean for the bigger picture?

1. In recent years we have both witnessed and participated in the struggle as several academic institutions have attempted to integrate design, with technology and behavioral science in support of HCI education and research. 2. While there has been great excitement about the benefits integrating design can bring, we quickly realized that no agreed upon research model existed for interaction designers to make research contributions other than the development and evaluation of new design methods. 4. Over the last two years we have undertaken a research project to (i) understand the nature of the relationship between interaction design and the HCI research community, and (ii) to discover and invent methods for interaction design researchers to more effectively participate in HCI research.

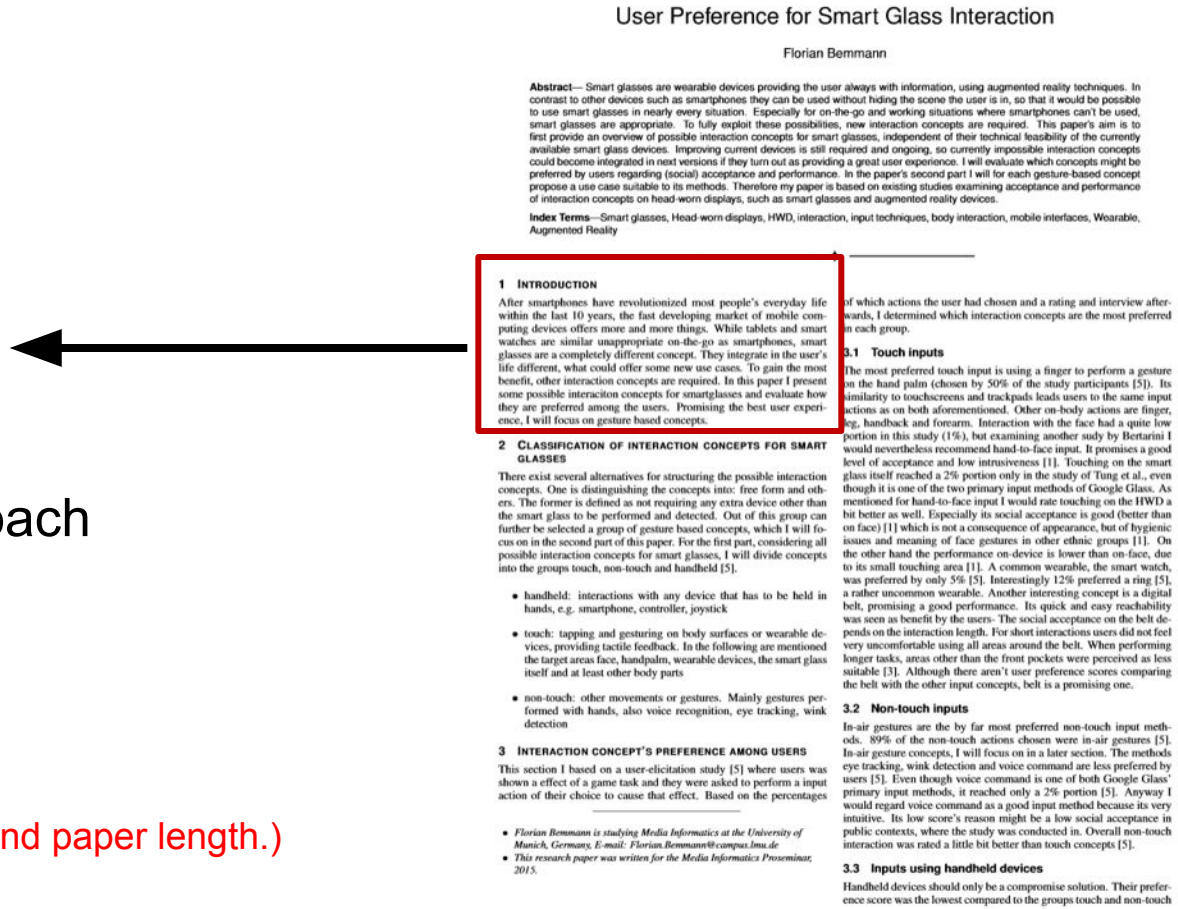
6. Through our inquiry we learned that many HCI researchers commonly view design as providing surface structure or decoration. In addition, we lack a unified vision of what design researchers can contribute to HCI research. 3. This lack of a vision for interaction design research represents a lost opportunity for the HCI research community to benefit from the added perspective of design thinking in a collaborative research environment. The research community has much to gain from an added design perspective that takes a holistic approach to addressing under-constrained problems.

5. To address this situation, this paper makes two contributions: (i) a model of interaction design research designed to benefit the HCI research and practice communities, and (ii) a set of criteria for evaluating the quality of an interaction design research contribution. 4. The model is based on Frayling's research through design [14], and it stresses how interaction designers can engage "wicked problems" [21]. 5. What is unique to this approach to interaction design research is that it stresses design artifacts as outcomes that can transform the world from its current state to a preferred state. The artifacts produced in this type of research become design exemplars, providing an appropriate conduit for research findings to easily transfer to the HCI research and practice communities. 7. While we in no way intend for this to be the only type of research contribution interaction designers can make, we view it as an important contribution in that it allows designers to employ their strongest skills in making a research contribution and in that it fits well within the current collaborative and interdisciplinary structure of HCI research.

Paper

Introduction

- What is the problem?
- Why is it important?
- Introduce your paper/approach



User Preference for Smart Glass Interaction

Florian Bemmann

Abstract— Smart glasses are wearable devices providing the user always with information, using augmented reality techniques. In contrast to other devices such as smartphones they can be used without hiding the scene the user is in, so that it would be possible to use smart glasses in nearly every situation. Especially for on-the-go and working situations where smartphones can't be used, smart glasses are appropriate. To fully exploit these possibilities, new interaction concepts are required. This paper's aim is to first provide an overview of possible interaction concepts for smart glasses, independent of their technical feasibility of the currently available smart glass devices. Improving current devices is still required and ongoing, so currently impossible interaction concepts could become integrated in next versions if they turn out as providing a great user experience. I will evaluate which concepts might be preferred by users regarding (social) acceptance and performance. In the paper's second part I will for each gesture-based concept propose a use case suitable to its methods. Therefore my paper is based on existing studies examining acceptance and performance of interaction concepts on head-worn displays, such as smart glasses and augmented reality devices.

Index Terms—Smart glasses, Head-worn displays, HWD, interaction, input techniques, body interaction, mobile interfaces, Wearable, Augmented Reality

1 Introduction

After smartphones have revolutionized most people's everyday life within the last 10 years, the fast developing market of mobile computing devices offers more and more things. While tablets and smart watches are similar unappropriate on-the-go as smartphones, smart glasses are a completely different concept. They integrate in the user's life different, what could offer some new use cases. To gain the most benefit, other interaction concepts are required. In this paper I present some possible interaciton concepts for smartglasses and evaluate how they are preferred among the users. Promising the best user experience, I will focus on gesture based concepts.

2 Classification of Interaction Concepts for Smart Glasses

There exist several alternatives for structuring the possible interaction concepts. One is distinguishing the concepts into: free form and others. The former is defined as not requiring any extra device other than the smart glass to be performed and detected. Out of this group can further be selected a group of gesture based concepts, which I will focus on in the second part of this paper. For the first part, considering all possible interaction concepts for smart glasses, I will divide concepts into the groups touch, non-touch and handheld [5].

- handheld: interactions with any device that has to be held in hands, e.g. smartphone, controller, joystick
- touch: tapping and gesturing on body surfaces or wearable devices, providing tactile feedback. In the following are mentioned the target areas face, handpalm, wearable devices, the smart glass itself and at least other body parts
- non-touch: other movements or gestures. Mainly gestures performed with hands, also voice recognition, eye tracking, wink detection

3 Interaction Concept's Preference Among Users

This section I based on a user-elicitation study [5] where users was shown a effect of a game task and they were asked to perform a input action of their choice to cause that effect. Based on the percentages

- *Florian Bemmann is studying Media Informatics at the University of Munich, Germany. E-mail: Florian.Bemmann@campus.lmu.de*
- *This research paper was written for the Media Informatics Proseminar, 2015.*

of which actions the user had chosen and a rating and interview afterwards, I determined which interaction concepts are the most preferred in each group.

3.1 Touch inputs

The most preferred touch input is using a finger to perform a gesture on the hand palm (chosen by 50% of the study participants [5]). Its similarity to touchscreens and trackpads leads users to the same input actions as on both aforementioned. Other on-body actions are finger, eg, handback and forearm. Interaction with the face had a quite low portion in this study (1%), but examining another sudy by Bertarini I would nevertheless recommend hand-to-face input. It promises a good level of acceptance and low intrusiveness [1]. Touching on the smart glass itself reached a 2% portion only in the study of Tung et al., even though it is one of the two primary input methods of Google Glass. As mentioned for hand-to-face input I would rate touching on the HWD a bit better as well. Especially its social acceptance is good (better than on face) [1] which is not a consequence of appearance, but of hygienic issues and meaning of face gestures in other ethnic groups [1]. On the other hand the performance on-device is lower than on-face, due to its small touching area [1]. A common wearable, the smart watch, was preferred by only 5% [5]. Interestingly 12% preferred a ring [5], a rather uncommon wearable. Another interesting concept is a digital belt, promising a good performance. Its quick and easy reachability was seen as benefit by the users- The social acceptance on the belt depends on the interaction length. For short interactions users did not feel very uncomfortable using all areas around the belt. When performing longer tasks, areas other than the front pockets were perceived as less suitable [3]. Although there aren't user preference scores comparing the belt with the other input concepts, belt is a promising one.

3.2 Non-touch inputs

In-air gestures are the by far most preferred non-touch input methods. 89% of the non-touch actions chosen were in-air gestures [5]. In-air gesture concepts, I will focus on in a later section. The methods eye tracking, wink detection and voice command are less preferred by users [5]. Even though voice command is one of both Google Glass' primary input methods, it reached only a 2% portion [5]. Anyway I would regard voice command as a good input method because its very intuitive. Its low score's reason might be a low social acceptance in public contexts, where the study was conducted in. Overall non-touch interaction was rated a little bit better than touch concepts [5].

3.3 Inputs using handheld devices

Handheld devices should only be a compromise solution. Their preference score was the lowest compared to the groups touch and non-touch

Examples [1]
Pw: bestpractice

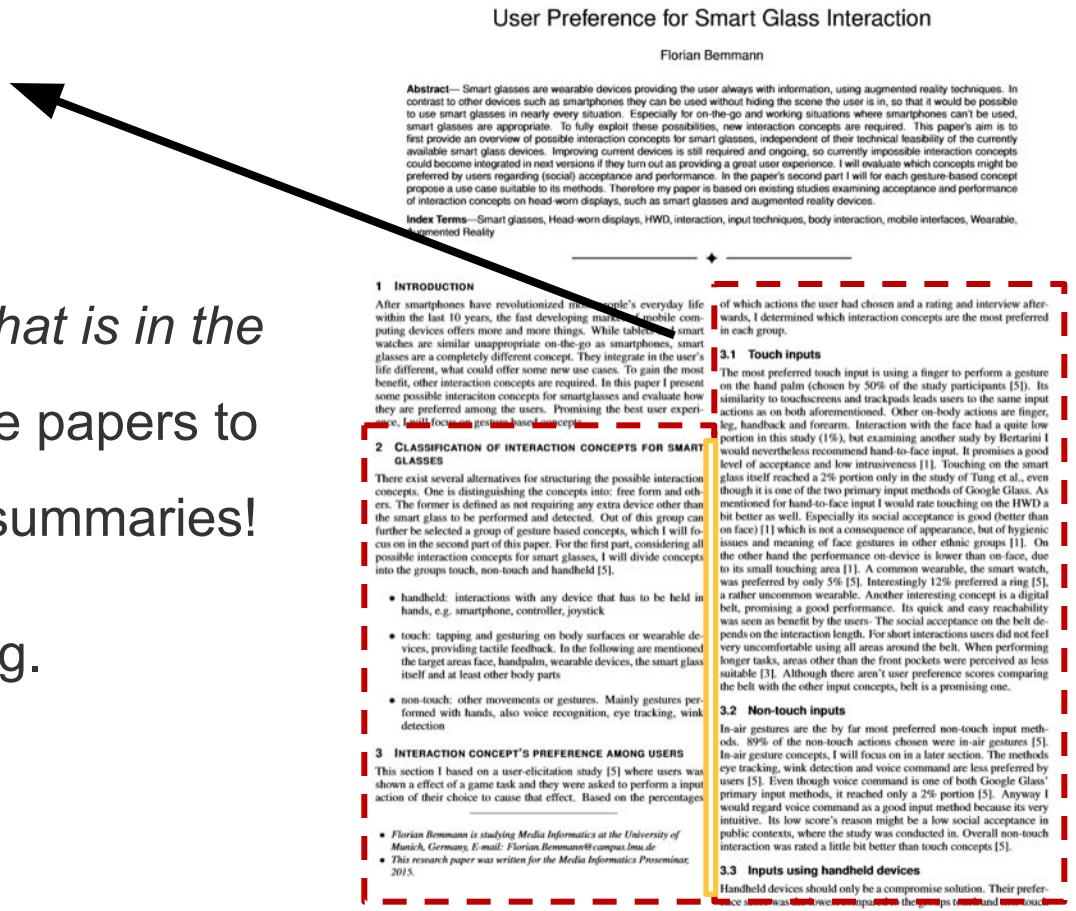
(DO NOT refer to the old template and paper length.)

[1] https://www.medien.ifi.lmu.de/lehre/ss19/ps/materials/Proseminar_Beispielarbeiten.zip

Paper

Related Work

- Design Space, deep discussion of related work. *Don‘t only tell what is in the paper, think beyond*! Connect the papers to a meaningful text, don‘t just list summaries!
- A mind map helps logical thinking.



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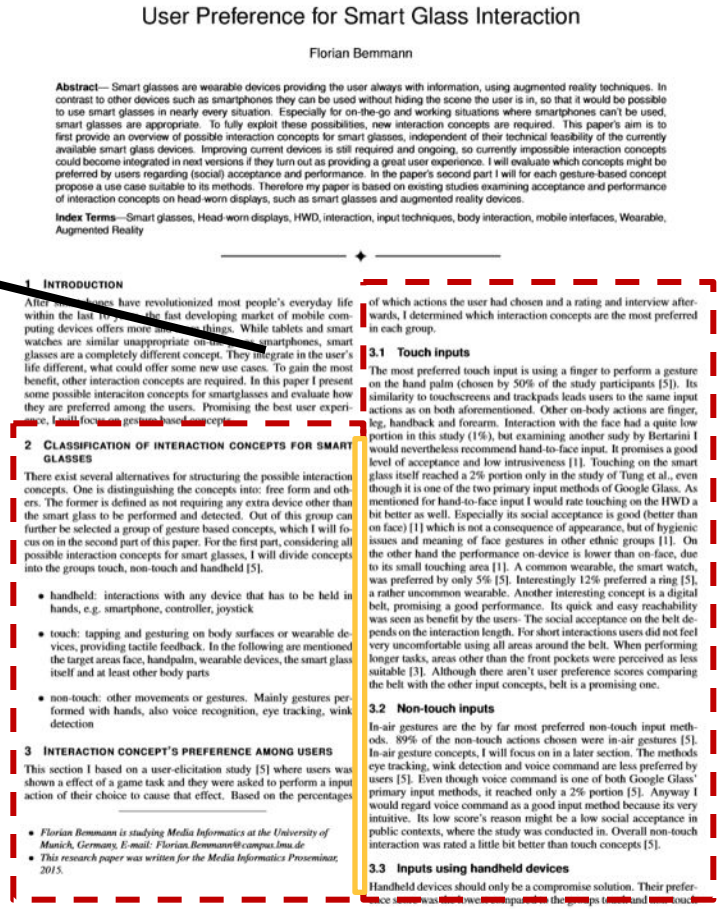
Florian Bemmann is studying Media Informatics at the University of Munich, Germany. E-mail: Florian.Bemmann@campus.lmu.de

This research paper was written for the Media Informatics Proseminar, 2015.

Paper

Methodology

- Approaches and methods
- Systematic review



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3 Interaction concept's preference among users

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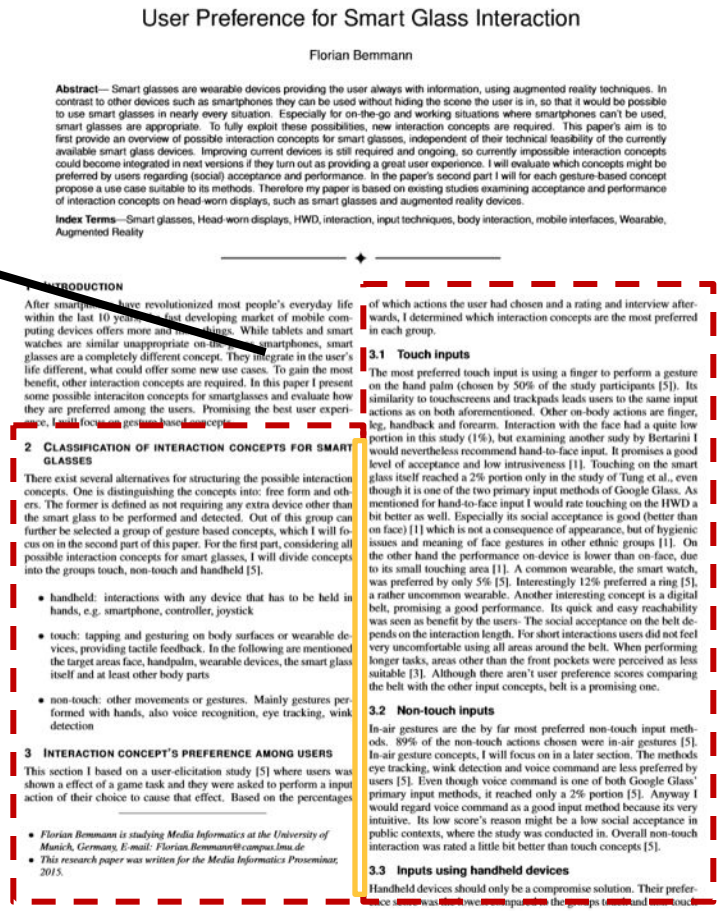
Paper

Results

- Non-interpreted results
  - Description
  - Statistics
  - Quotes from participants
  - …



User Preference for Smart Glass Interaction

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Abstract— Smart glasses are wearable devices providing the user always with information, using augmented reality techniques. In contrast to other devices such as smartphones they can be used without hiding the scene the user is in, so that it would be possible to use smart glasses in nearly every situation. Especially for on-the-go and working situations where smartphones can't be used, smart glasses are appropriate. To fully exploit these possibilities, new interaction concepts are required. This paper's aim is to first provide an overview of possible interaction concepts for smart glasses, independent of their technical feasibility of the currently available smart glass devices. Improving current devices is still required and ongoing, so currently impossible interaction concepts could become integrated in next versions if they turn out as providing a great user experience. I will evaluate which concepts might be preferred by users regarding (social) acceptance and performance. In the paper's second part I will for each gesture-based concept propose a use case suitable to its methods. Therefore my paper is based on existing studies examining acceptance and performance of interaction concepts on head-worn displays, such as smart glasses and augmented reality devices.

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1 INTRODUCTION

After smartphones have revolutionized most people's everyday life within the last 10 years, a fast developing market of mobile computing devices offers more and more offerings. While tablets and smart watches are similar unappropriate on-the-go as smartphones, smart glasses are a completely different concept. They integrate in the user's life different, what could offer some new use cases. To gain the most benefit, other interaction concepts are required. In this paper I present some possible interaciton concepts for smartglasses and evaluate how they are preferred among the users. Promising the best user experience, I will focus on gesture based concepts.

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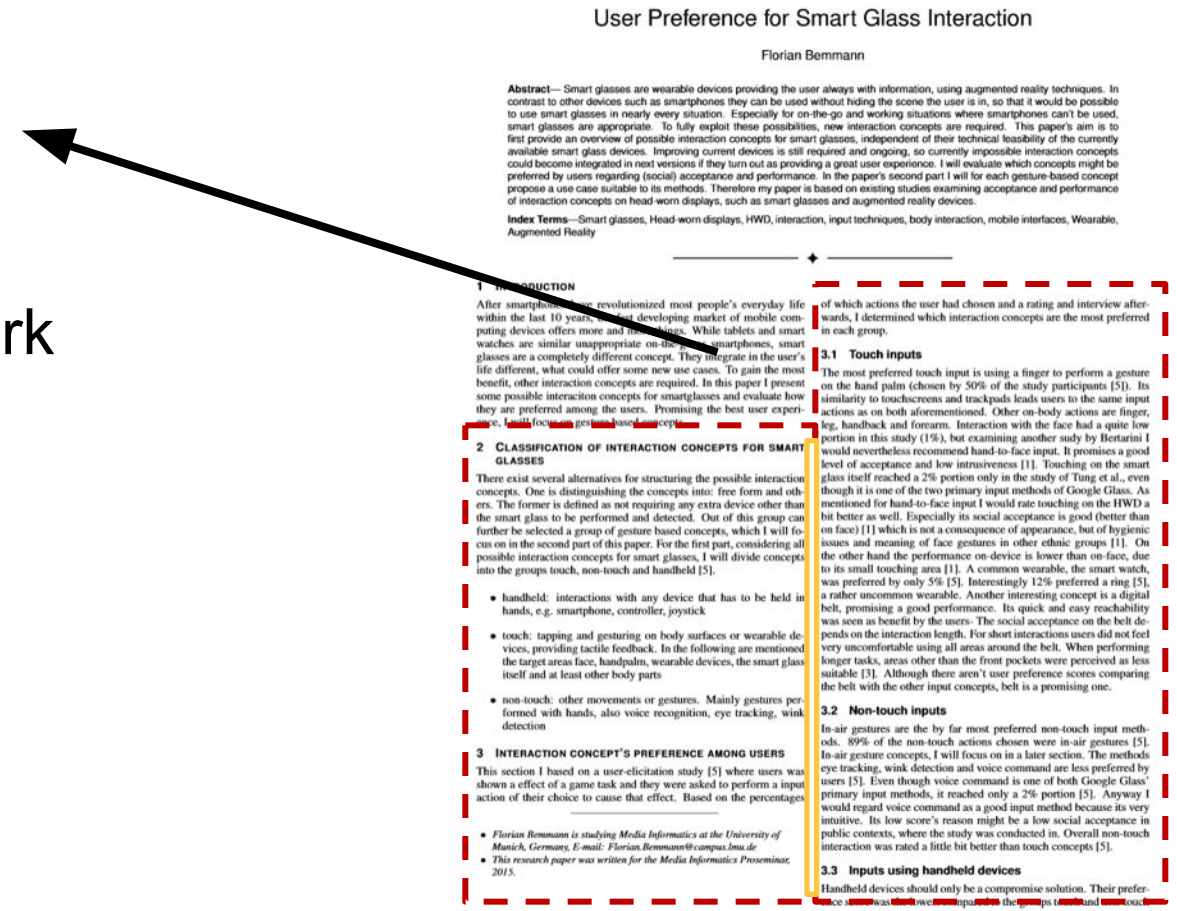
Paper

Discussion

- Interpreted results

  in relation to related work



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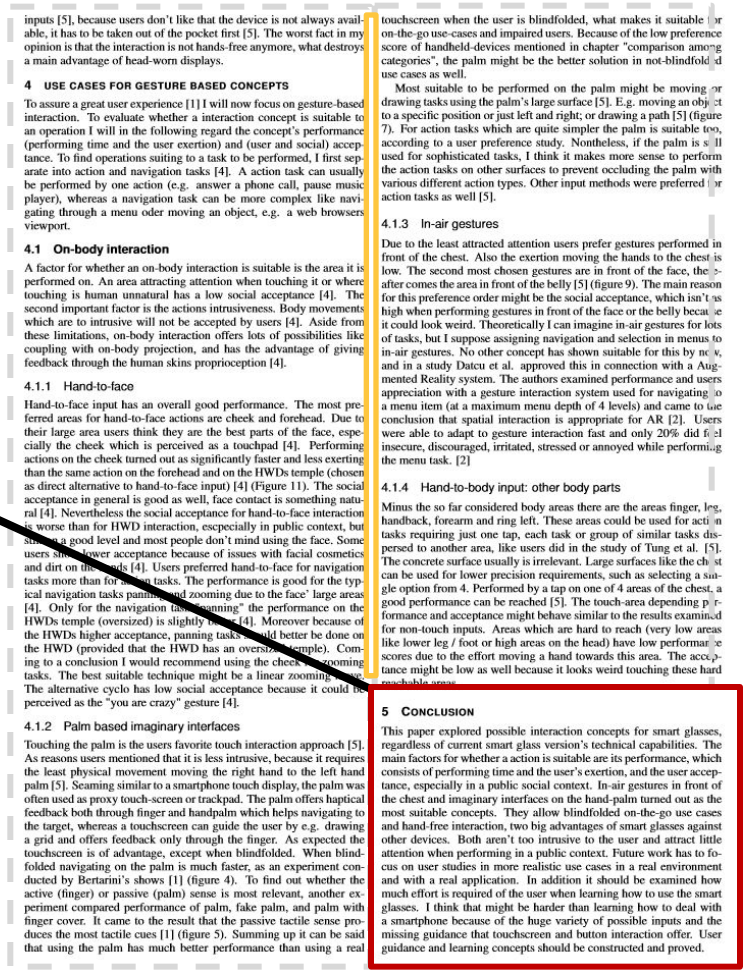
Paper

Conclusion

- Short summary
  - What was done?
- Future Work
  - What is missing in related work?



inputs [5], because users don't like that the device is not always available, it has to be taken out of the pocket first [5]. The worst fact in my opinion is that the interaction is not hands-free anymore, what destroys a main advantage of head-worn displays.

4 USE CASES FOR GESTURE BASED CONCEPTS

To assure a great user experience [1] I will now focus on gesture-based interaction. To evaluate whether a interaction concept is suitable to an operation I will in the following regard the concept's performance (performing time and the user exertion) and (user and social) acceptance. To find operations suiting to a task to be performed, I first separate into action and navigation tasks [4]. A action task can usually be performed by one action (e.g. answer a phone call, pause music player), whereas a navigation task can be more complex like navigating through a menu oder moving an object, e.g. a web browsers viewport.

4.1 On-body interaction

A factor for whether an on-body interaction is suitable is the area it is performed on. An area attracting attention when touching it or where touching is human unnatural has a low social acceptance [4]. The second important factor is the actions intrusiveness. Body movements which are to intrusive will not be accepted by users [4]. Aside from these limitations, on-body interaction offers lots of possibilities like coupling with on-body projection, and has the advantage of giving feedback through the human skins proprioception [4].

4.1.1 Hand-to-face

Hand-to-face input has an overall good performance. The most preferred areas for hand-to-face actions are cheek and forehead. Due to their large area users think they are the best parts of the face, especially the cheek which is perceived as a touchpad [4]. Performing actions on the cheek turned out as significantly faster and less exerting than the same action on the forehead and on the HWDs temple (chosen as direct alternative to hand-to-face input) [4] (Figure 11). The social acceptance in general is good as well, face contact is something natural [4]. Nevertheless the social acceptance for hand-to-face interaction is worse than for HWD interaction, escpecially in public context, but still on a good level and most people don't mind using the face. Some users show lower acceptance because of issues with facial cosmetics and dirt on the hands [4]. Users preferred hand-to-face for navigation tasks more than for action tasks. The performance is good for the typical navigation tasks panning and zooming due to the face' large areas [4]. Only for the navigation task "panning" the performance on the HWDs temple (oversized) is slightly better [4]. Moreover because of the HWDs higher acceptance, panning tasks should better be done on the HWD (provided that the HWD has an oversized temple). Coming to a conclusion I would recommend using the cheek for zooming tasks. The best suitable technique might be a linear zooming [4]. The alternative cyclo has low social acceptance because it could be perceived as the "you are crazy" gesture [4].

4.1.2 Palm based imaginary interfaces

Touching the palm is the users favorite touch interaction approach [5]. As reasons users mentioned that it is less intrusive, because it requires the least physical movement moving the right hand to the left hand palm [5]. Seaming similar to a smartphone touch display, the palm was often used as proxy touch-screen or trackpad. The palm offers haptical feedback both through finger and handpalm which helps navigating to the target, whereas a touchscreen can guide the user by e.g. drawing a grid and offers feedback only through the finger. As expected the touchscreen is of advantage, except when blindfolded. When blindfolded navigating on the palm is much faster, as an experiment conducted by Bertarini's shows [1] (figure 4). To find out whether the active (finger) or passive (palm) sense is most relevant, another experiment compared performance of palm, fake palm, and palm with finger cover. It came to the result that the passive tactile sense produces the most tactile cues [1] (figure 5). Summing up it can be said that using the palm has much better performance than using a real touchscreen when the user is blindfolded, what makes it suitable for on-the-go use-cases and impaired users. Because of the low preference score of handheld-devices mentioned in chapter "comparison among categories", the palm might be the better solution in not-blindfolded use cases as well.

Most suitable to be performed on the palm might be moving or drawing tasks using the palm's large surface [5]. E.g. moving an object to a specific position or just left and right; or drawing a path [5] (figure 7). For action tasks which are quite simpler the palm is suitable too, according to a user preference study. Nontheless, if the palm is still used for sophisticated tasks, I think it makes more sense to perform the action tasks on other surfaces to prevent occluding the palm with various different action types. Other input methods were preferred for action tasks as well [5].

4.1.3 In-air gestures

Due to the least attracted attention users prefer gestures performed in front of the chest. Also the exertion moving the hands to the chest is low. The second most chosen gestures are in front of the face, the second after comes the area in front of the belly [5] (figure 9). The main reason for this preference order might be the social acceptance, which isn't as high when performing gestures in front of the face or the belly because it could look weird. Theoretically I can imagine in-air gestures for lots of tasks, but I suppose assigning navigation and selection in menus to in-air gestures. No other concept has shown suitable for this by now, and in a study Datcu et al. approved this in connection with a Augmented Reality system. The authors examined performance and users appreciation with a gesture interaction system used for navigating to a menu item (at a maximum menu depth of 4 levels) and came to the conclusion that spatial interaction is appropriate for AR [2]. Users were able to adapt to gesture interaction fast and only 20% did feel insecure, discouraged, irritated, stressed or annoyed while performing the menu task. [2]

4.1.4 Hand-to-body input: other body parts

Minus the so far considered body areas there are the areas finger, leg, handback, forearm and ring left. These areas could be used for action tasks requiring just one tap, each task or group of similar tasks dispersed to another area, like users did in the study of Tung et al. [5]. The concrete surface usually is irrelevant. Large surfaces like the chest can be used for lower precision requirements, such as selecting a single option from 4. Performed by a tap on one of 4 areas of the chest, a good performance can be reached [5]. The touch-area depending performance and acceptance might behave similar to the results examined for non-touch inputs. Areas which are hard to reach (very low areas like lower leg / foot or high areas on the head) have low performance scores due to the effort moving a hand towards this area. The acceptance might be low as well because it looks weird touching these hard reachable areas.

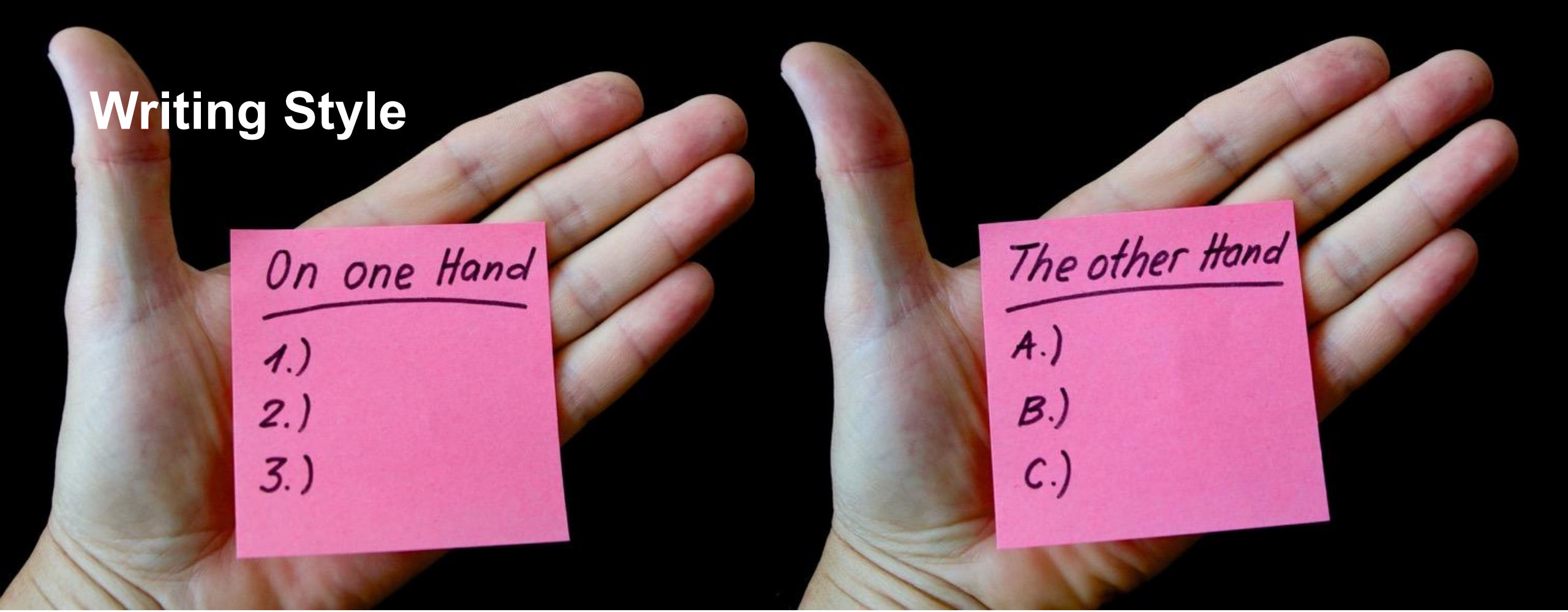
5 CONCLUSION

This paper explored possible interaction concepts for smart glasses, regardless of current smart glass version's technical capabilities. The main factors for whether a action is suitable are its performance, which consists of performing time and the user's exertion, and the user acceptance, especially in a public social context. In-air gestures in front of the chest and imaginary interfaces on the hand-palm turned out as the most suitable concepts. They allow blindfolded on-the-go use cases and hand-free interaction, two big advantages of smart glasses against other devices. Both aren't too intrusive to the user and attract little attention when performing in a public context. Future work has to focus on user studies in more realistic use cases in a real environment and with a real application. In addition it should be examined how much effort is required of the user when learning how to use the smart glasses. I think that might be harder than learning how to deal with a smartphone because of the huge variety of possible inputs and the missing guidance that touchscreen and button interaction offer. User guidance and learning concepts should be constructed and proved.

Writing Style

- Everything you write in your paper must be supported by literature!

Writing Style



- Think about a logical structure of your arguments
- Scientific writing is objective, precise, and neutral

Writing Style

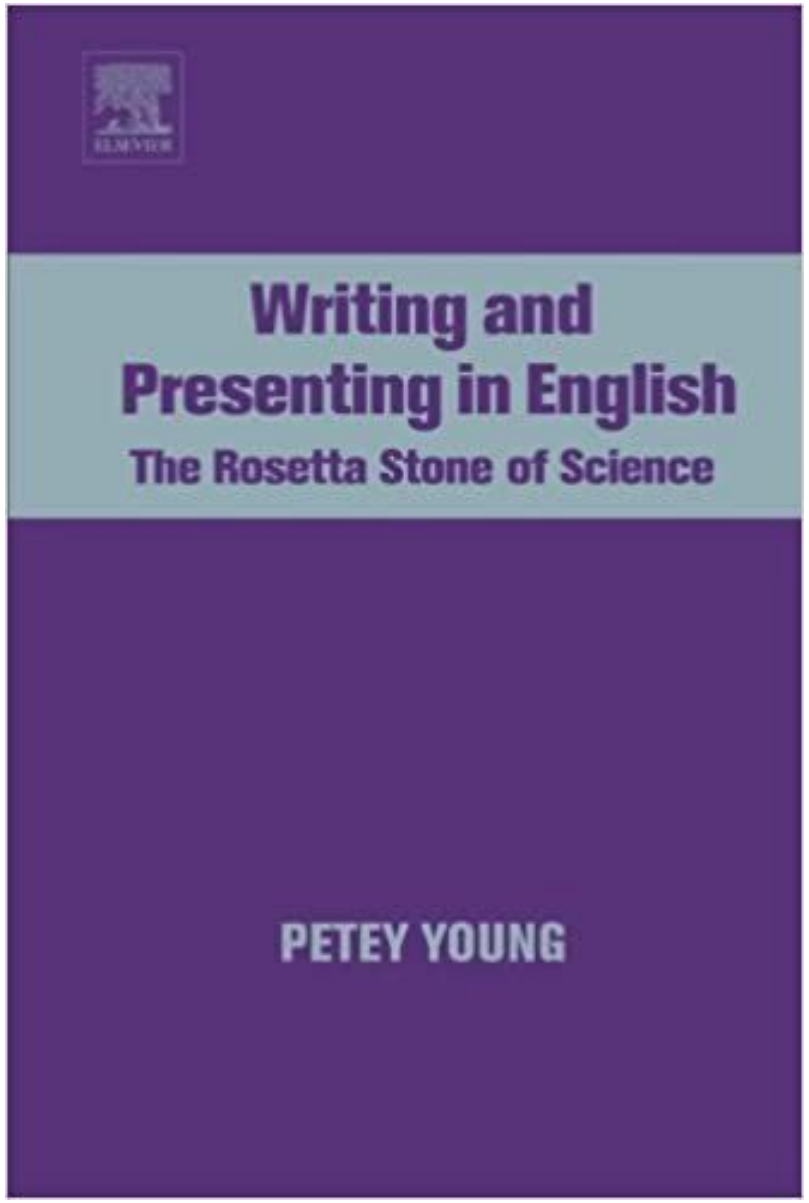
- Numbers from zero to twelve are written as text
- First full terminology „virtual reality“, then abbreviation „VR“
- Abbreviations: “i.e.” = that is, “e.g.” = for example

Writing Style

- DON‘Ts:
  - Passive voice
  - Unprecise quantities (“high”, “slightly”, “almost”, “a little bit”)
  - Fillers (“now”, “well”, “quasi”)
  - Pseudo-Arguments (“naturally”, “as expected”)
  - "state“ better than “make a statement“ -> avoid nominal style, use verbal style!

Literatur

- Writing and Presenting in English
- PDF Download from the UB [1]



[1]
https://opac.ub.uni-muenchen.de/TouchPoint/perma.do?q=+0%3D%22ZDB-30-PAD-EBC285807%22+IN+%5B2%5D&v=sunrise&l=de

Agenda

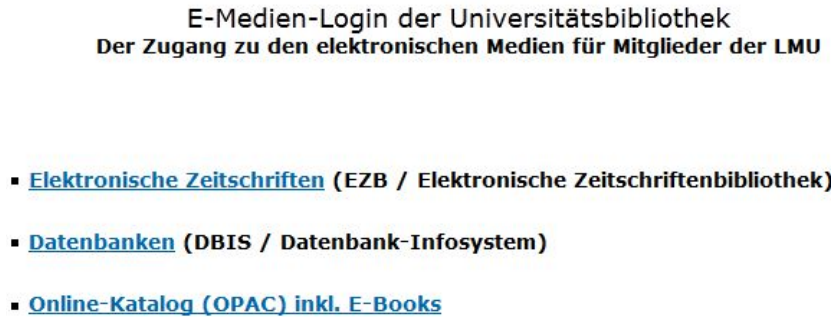
- Goals
- Organization
- How to write a research paper (hands-on session)
- Scientific literature review
- Topic assignment

Research in General

- Starting point for your work: your topic
  - First orientation
  - Look for synonyms, leading researchers, frequently cited literature
  - Some source can NOT be used (e.g., online articles without author, contributions in online communities, Wikipedia)
  - References: Papers, conference proceedings, journals, books, and online sources with author and date of access

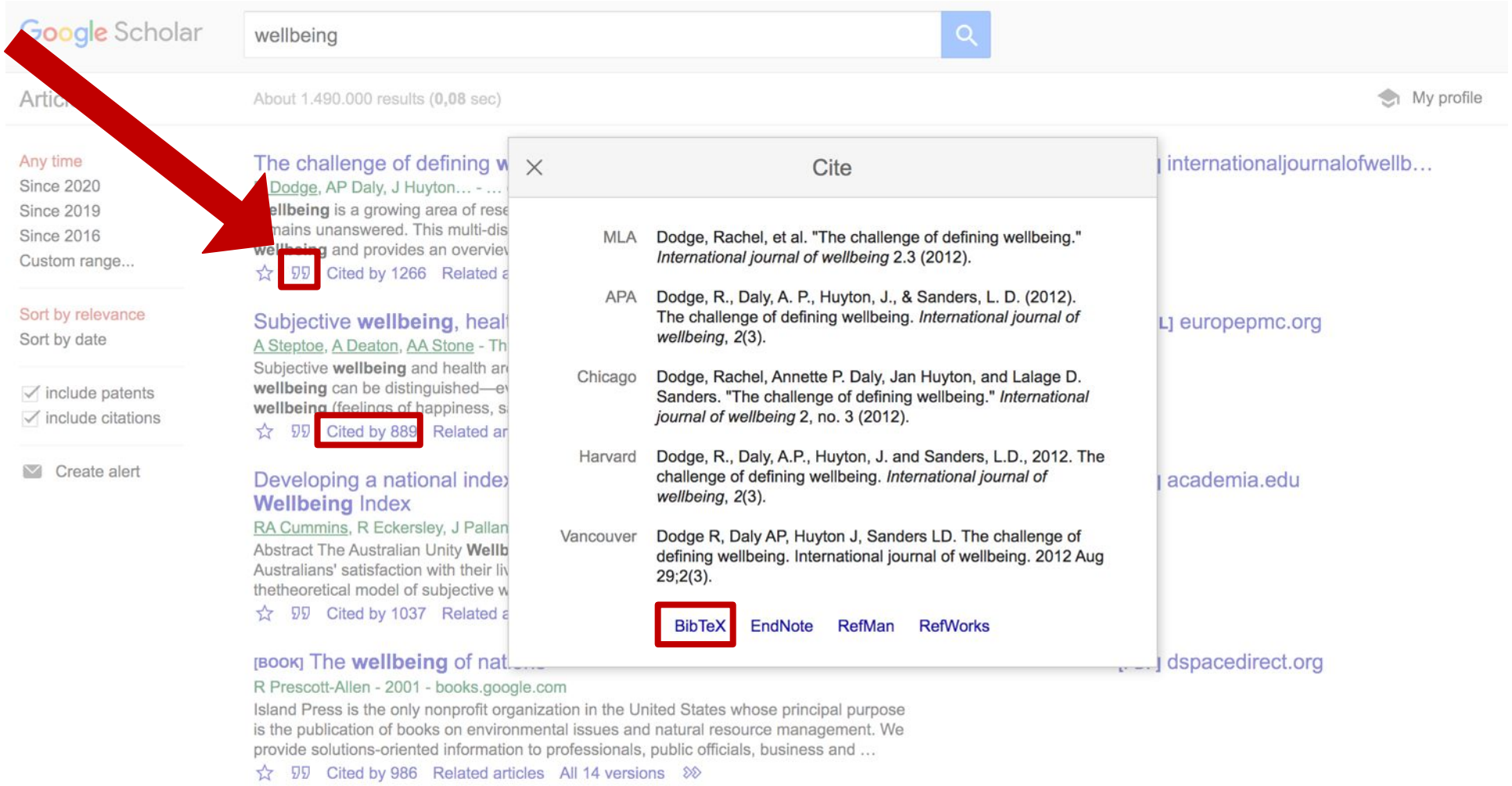
Finding Literature

- Almost all literature is available online!
  - Google/Google Scholar (http://scholar.google.com)
  - ACM Digital Library (https://dl.acm.org/)
  - Citeseer (http://citeseer.ist.psu.edu)
  - IEEE Xplore (http://ieeexplore.ieee.org)
  - Springer (https://link.springer.com)
  - Elsevier (https://www.elsevier.com/catalog)
  - ScienceDirect (www.sciencedirect.com)
  - Semantic Scholar (https://www.semanticscholar.org/)
  - Microsoft Academic (https://academic.microsoft.com)
  - OPAC der Universitätsbibliothek (http://opacplus.ub.uni-muenchen.de)



- For the full functionality log in at
  - „LMU E-Medien-Login/Datenbanken“
  - and find the needed library (e.g., ACM DL)

Finding Literature (Google Scholar)



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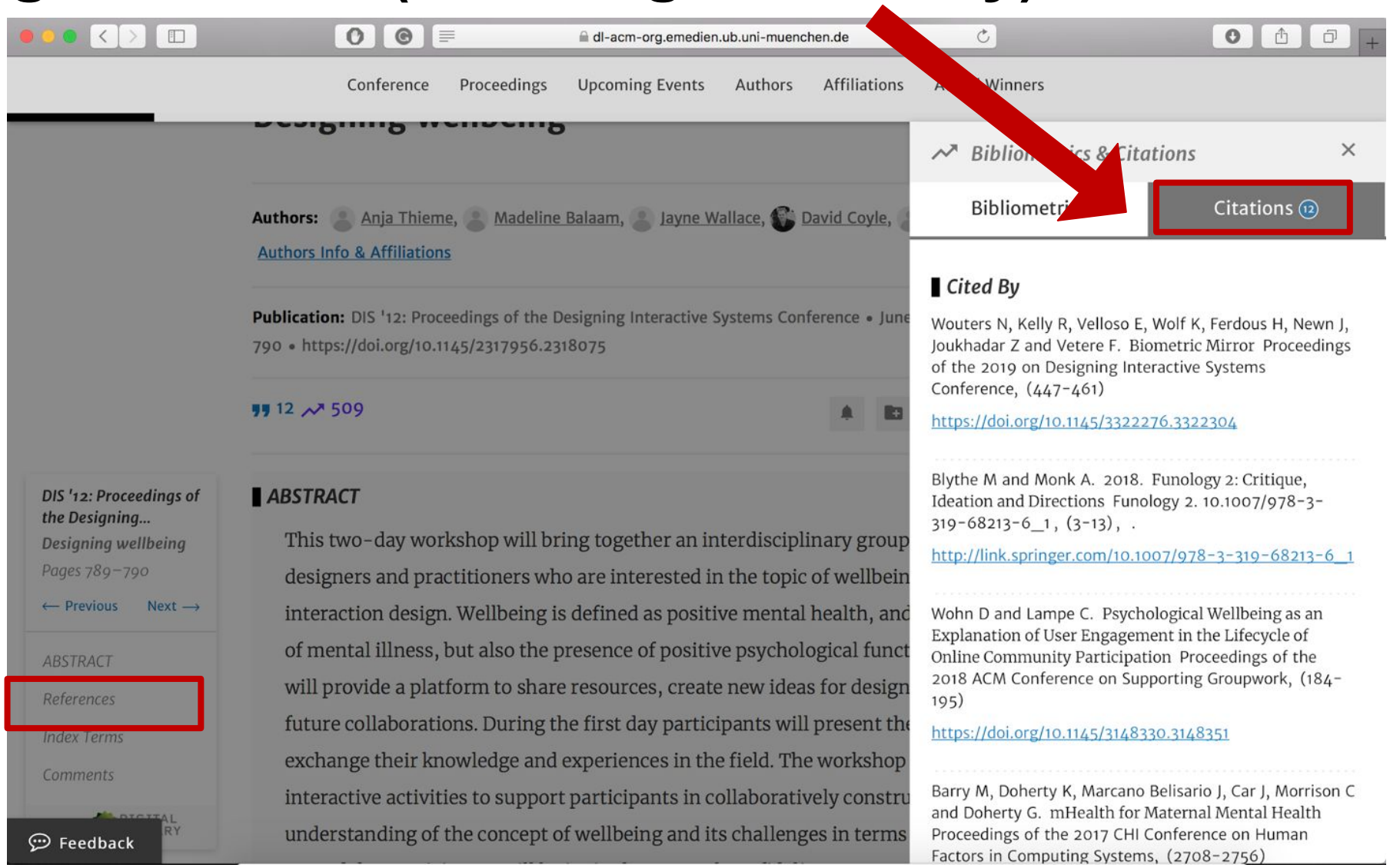


HCI Flagship Publications

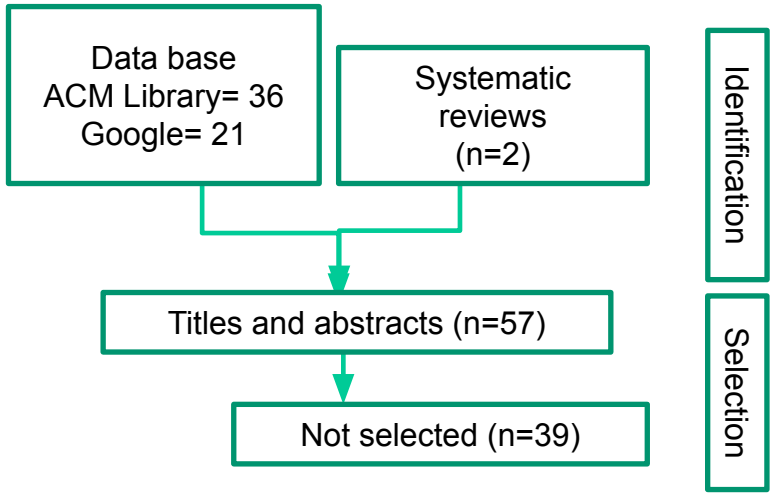
- Conference (SIGCHI [1]):
  - CHI
  - CSCW
  - UIST
  - IUI
  - MobileHCI
  - DIS
  - ISS
  - ….
- Journal:
  - TOCHI
  - IJHCS
  - CSCW
  - IWC
  - IMWUT (formerly UbiComp)
  - ….

[1] https://sigchi.org/conferences/upcoming-conferences/

Systematic Review

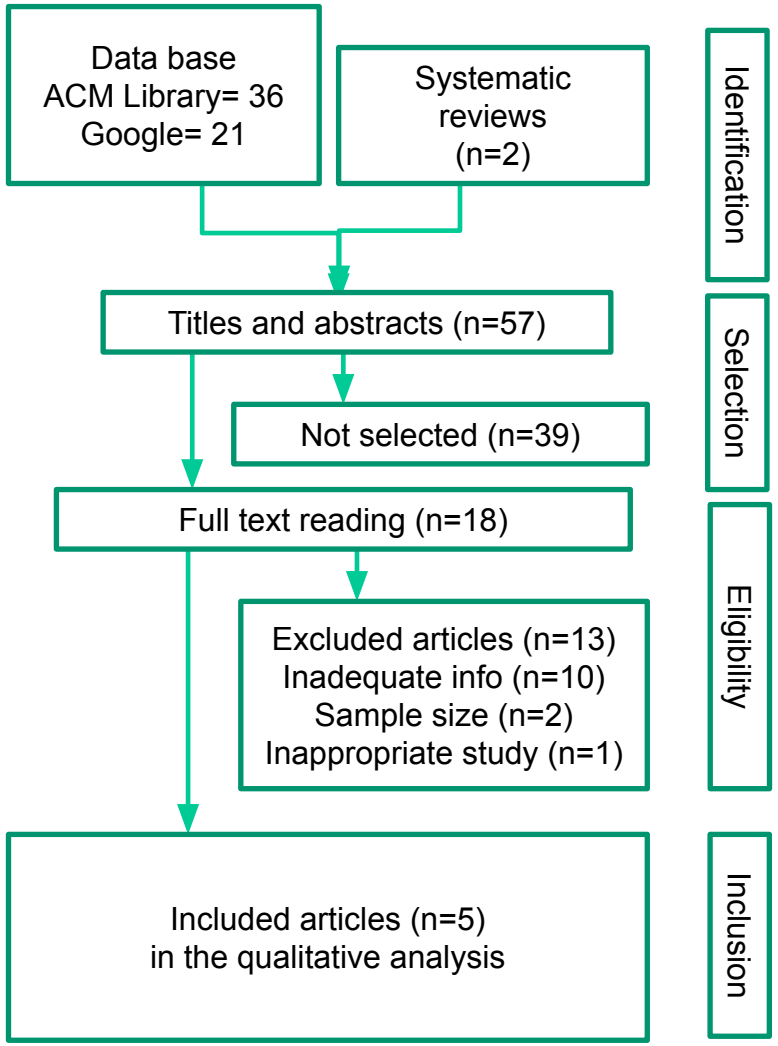
1. Review question: clearly stated objectives (may include secondary ones)

2. Literature search:
   - Comprehensive literature search conducted
   - Searched information sources listed (i.e., ACM Library)
   - Keywords used for electronic literature search provided („tech and wellbeing“)
   - Manual search conducted through references of articles, abstracts



Systematic Review

3. Data Abstraction*:
   - Structured data abstraction form used
   - Disagreements listed between authors and how they were resolved
   - Characteristics of studies listed (ie, manuscript type, keyword interpretation)
   - Inclusion and exclusion criteria provided for studies
   - Number of excluded studies and reasons for exclusion included
   - Variables of interest (primary and secondary variables)



Systematic Review

- You do NOT necessarily follow all steps.
- Five GOOD papers are essential in your review.

- More Reading Material:
  - ACM Computing Surveys [1]

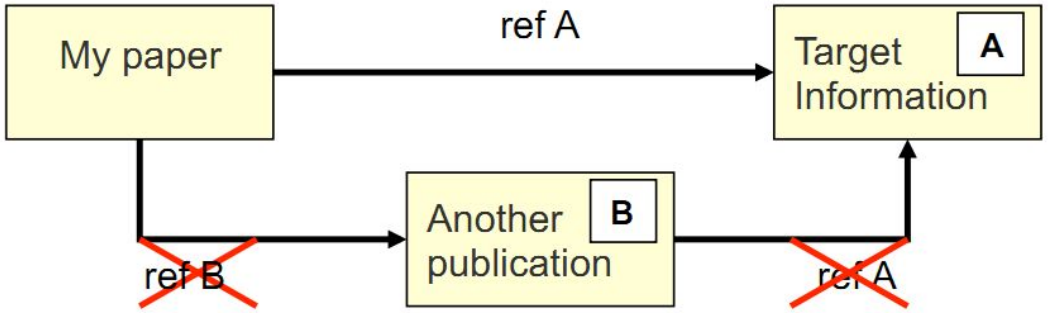
[1] https://dl.acm.org/journal/csur

Why should I care about citations?

- Copyright / intellectual property
- Foundation of scientific work
- Citations links belonging work together
- Reader needs all the information you had to check if you are correct

Citations

- Quotation
  - Direct (in quotation marks) -> “text text“ [1]
  - Indirect -> Mustermann et al. [1]
  - No secondary citation



- Wikipedia: not citable (but good for quick research)
- Citation style: http://www.medien.ifi.lmu.de/studierende/abschlussarbeiten/master/richtlinien.xhtml#zitate-und-quellenangaben

Citations APA (.bib template in Latex)

	IN-TEXT REFERENCE	REFERENCE LIST
BOOKS		
One author – in-text reference placement ***Note:*** There are two main ways to use in-text references. Firstly, to focus on the information from your source – 'information prominent'. Secondly, to focus on the author – 'author prominent'.	***'Information prominent' (the author's name is within parentheses):*** The conclusion reached in a recent study (Cochrane, 2007) was that… ***OR*** ***'Author prominent' (the author's name is outside the parentheses):*** Cochrane (2007) concluded that…	Cochrane, A. (2007). *Understanding urban policy: A critical approach.* Malden, MA: Blackwell Publishing.
Chapter in edited book	A discussion about Australia's place in today's world (Richards, 1997) included reference to… ***OR*** Richards (1997) proposed that…	Richards, K. C. (1997). Views on globalization. In H. L. Vivaldi (Ed.), *Australia in a global world* (pp. 29-43). North Ryde, Australia: Century.
JOURNAL, NEWSPAPER & NEWSLETTER ARTICLES		
Journal article with one author – separated paging (paginated by issue) If each issue of a journal begins on page 1, include the issue number in parenthesis immediately after the volume number in the Reference List.	In an earlier article, it was proposed (Jackson, 2007)…	Jackson, A. (2007). New approaches to drug therapy. *Psychology Today and Tomorrow, 27*(1), 54-59.
Journal article with two authors – continuous paging throughout a volume. If the journal volume page numbers run continuously throughout the year, regardless of issue number, do **not** include the issue number in your Reference List entry.	Kramer and Bloggs (2002) stipulated in their latest article… ***OR*** This article on art (Kramer & Bloggs, 2002) stipulated that…	Kramer, E., & Bloggs, T. (2002). On quality in art and art therapy. *American Journal of Art Therapy, 40,* 218-231.

Plagiarism

- No plagiarism, NO plagiarism, not even a little!
- Plagiarism
  - Material of third parties, without reference
  - Direct quotations, without reference
  - Copied pictures, diagrams, or graphics without reference
- Your work will be checked automatically
- Work with plagiarism will fail the course!
- http://www.medien.ifi.lmu.de/lehre/Plagiate-Ifl.pdf

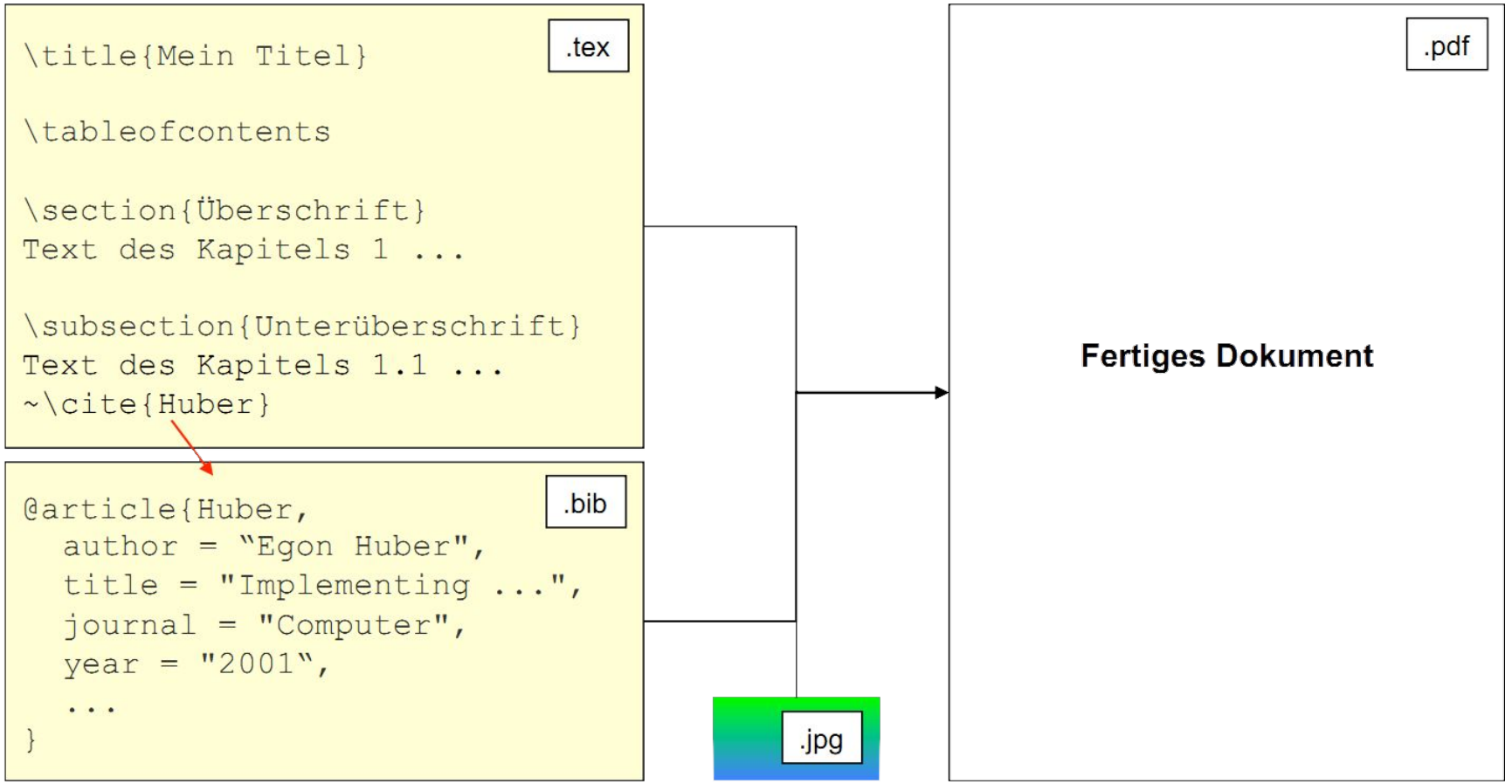
How to LaTeX

LaTeX

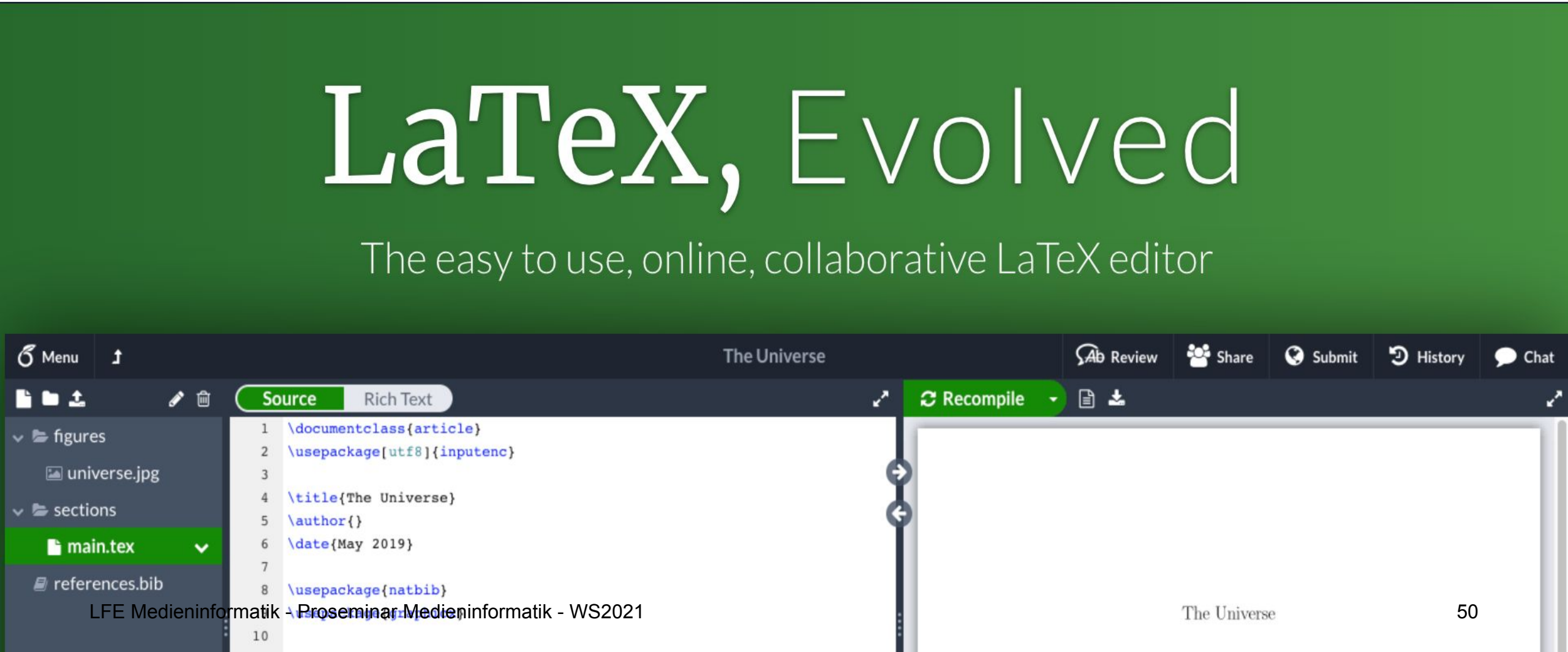
- Text formatting
- No WYSIWYG, instead creation of source code
- Integration of pictures and diagrams in the final document
- Integration of references (with linkage to Zotero, Citavi, EndNote, BibTex…)
- Very nice typography
- No formatting mistakes when creating the text
- Huge number of online tutorials available [1, 2]

[1] https://www.overleaf.com/learn/latex/Tutorials
[2] https://www.overleaf.com/learn/latex/Learn_LaTeX_in_30_minutes

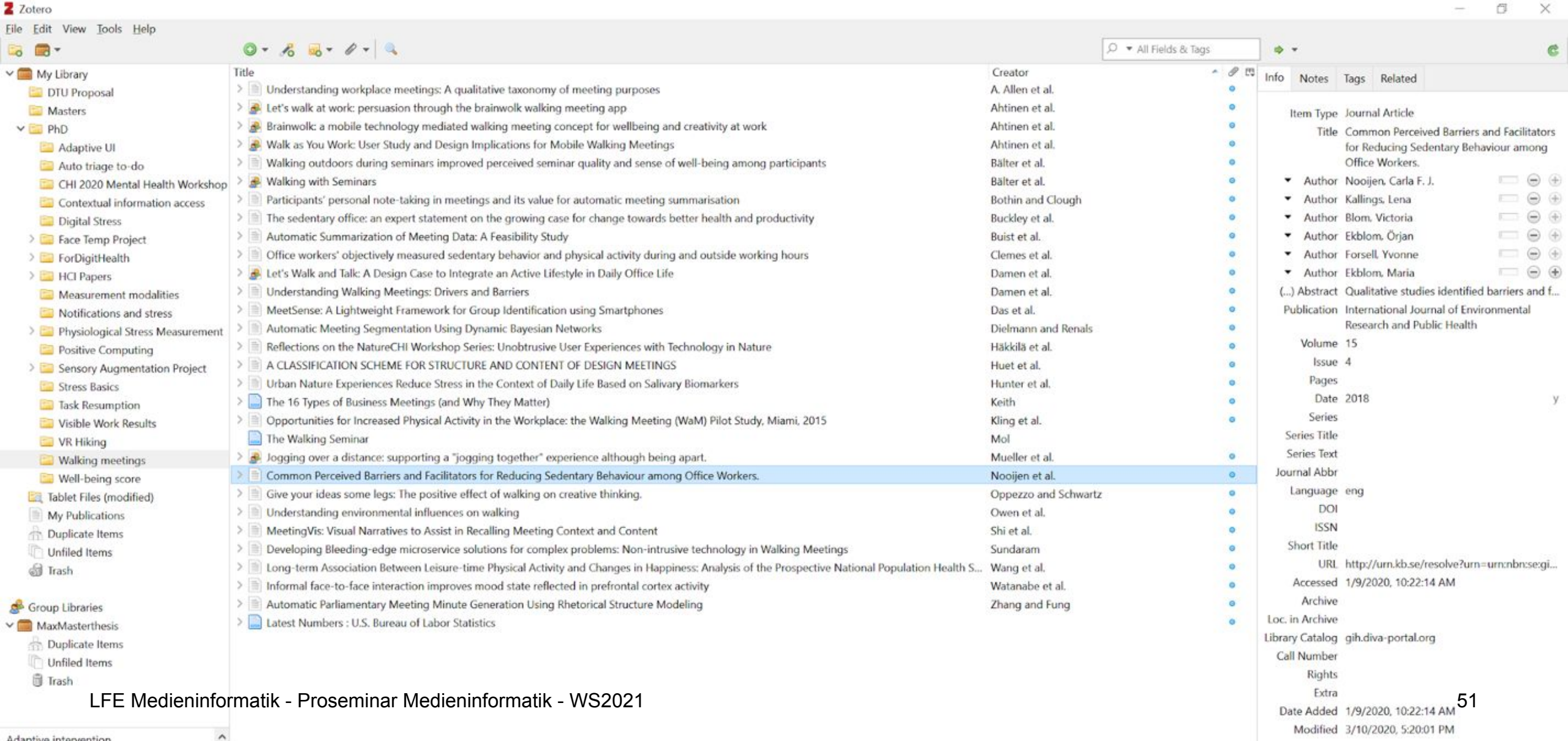
Example Creation of a Document



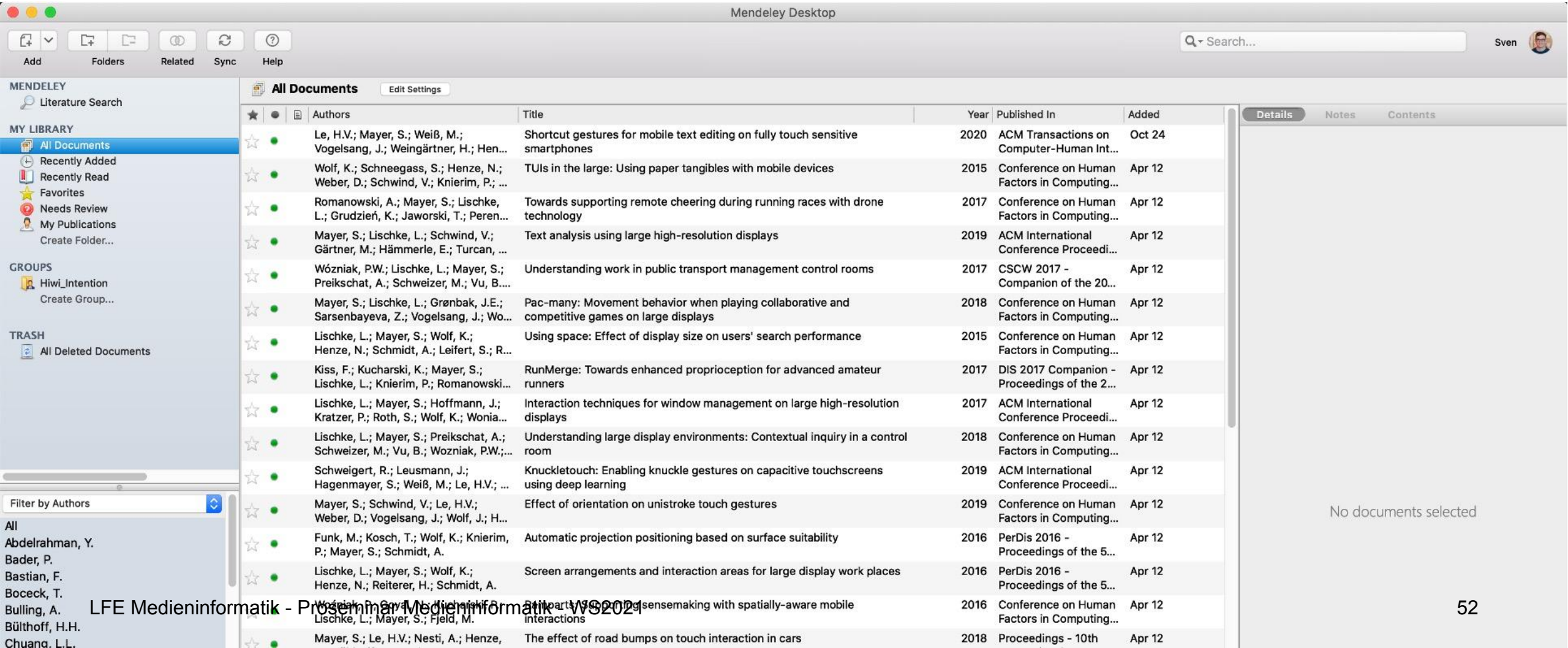
Overleaf https://www.overleaf.com/



Zotero https://www.zotero.org/



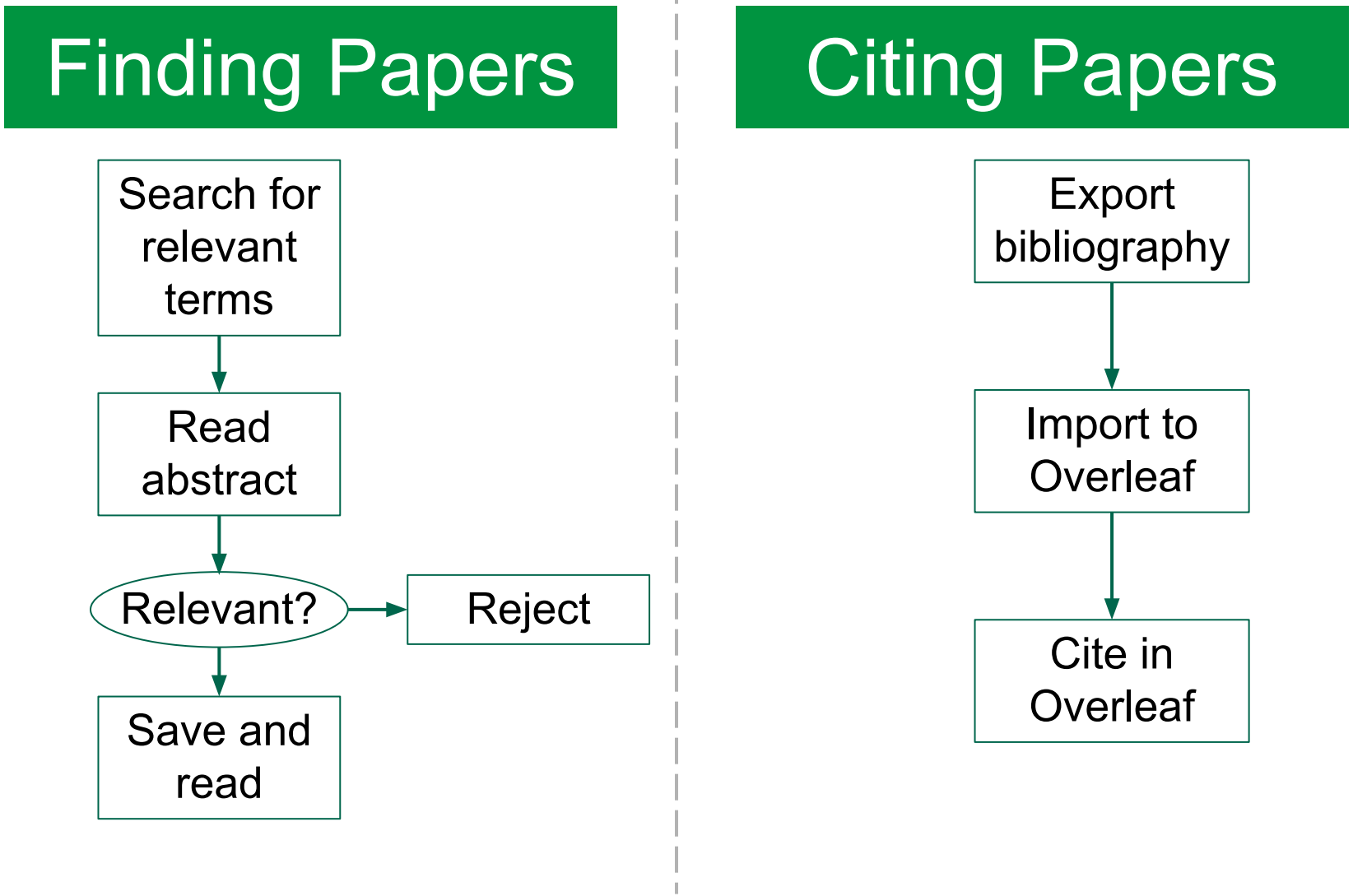
Mendeley https://www.mendeley.com/



Other Reference Managers

- Citavi
  - http://www.ub.uni-muenchen.de/schreiben/literaturverwaltung/citavi/index.html
- JabRef
  - http://www.jabref.org/

Example workflow



Workflow Live Demo

Further Information on LaTeX

- If you want to use LaTeX without Overleaf:
  - Windows: MikTeX (http://www.miktex.org/) + TeXnicCenter (http://www.toolscenter.org/) or Sublime (How to: https://jdhao.github.io/2018/03/10/sublime-text-latextools-setup/)
  - Mac OS: MacTex (http://tug.org/mactex/), with TeXShop IDE (http://www.uoregon.edu/~koch/texshop/index.html) or TexMaker (http://www.xm1math.net/texmaker/) or Sublime
  - Linux: teTeX-package (www.ctan.org/) + Kile (http://kile.sourceforge.net/), installed on the Pool-PCs
- Download LaTeX-Templates
  - Open .tex- and .bib-file in your IDE, check and understand the source files
  - Setup LaTeX => PDF, compile .tex-file twice
  - Further help can also be found online and in dedicated LaTeX-Tutorials

LaTeX Resources

- LaTeX-Packages and Documentation (http://www.ctan.org)
- A (Not So) Short Introduction to LaTex2e (http://www.ctan.org/tex-archive/info/lshort/english/)
- LaTeX Symbols List (http://www.ctan.org/tex-archive/info/symbols/comprehensive/)
- Import and format graphics (http://tug.ctan.org/tex-archive/info/epslatex/english/epslatex.pdf)
- German FAQs (http://www.dante.de/faq/de-tex-faq/html/de-tex-faq.html)

- BibTeXs can often be found in the digital libraries themselves (e.g., ACM, IEEE)
- How-To: http://www.bibtex.org/Using/de/

Agenda

- Goals
- Organization
- How to write a research paper (hands-on session)
- Scientific literature review
- Topic assignment

PS I: Topics

Supervisor: Jingyi Li

1. Passenger VR experience
2. Passenger AR experience
3. VR interaction in confined spaces
4. Haptic feedback for VR interaction
5. Physiological measurements for VR interaction
6. Motion/simulator-sickness in VR
7. Social experience in public VR
8. VR for productivity
9. VR for meditation
10. Review of recommended practice J3016
11. Reality and Virtuality Continuum in the Car

Supervisor: Francesco Chiossi

1. What is an interruption?
2. Measures for task engagement
3. Physiological sensing in HCI
4. Task Engagement in VR
5. When an interruption is fruitful for the task?
6. Physiological sensing for detecting distraction
7. Measuring cognitive distraction from a behavioral perspective
8. Task interruption and resumption
9. Notifications vs Interruption vs Distraction
10. How investigate distraction remotely?
11. Measuring Immersion in VR

Topics can be adapted (with our agreement!)

PS II: Topics

Supervisor: Sven Mayer

1. Bimanual Mid-Air Pointing
2. MAGIC Pointing
3. Gesture Interactions for Multi-Screen Setups
4. On-Screen Tangibles
5. Pressure Based Touch Input
6. Control Less Input in VR
7. Mobile Camera Based Eye Tracking
8. Social Interruptibility
9. Interaction in Control Rooms
10. Methods to Measure Workload
11. Bystander Inclusion in VR

Supervisor: Sebastian Feger

1. Gamification in Science
2. Gamification Player Types Design
3. Motivating Documentation
4. Open/Reproducible Science in HCI
5. Tools That Foster Collaboration
6. Tools That Support Reuse
7. Motivating Valuable Practices
8. Skills in Simulated Environments
9. Communicating IoT Device Security to Users
10. Informing Users about IoT Device Privacy
11. Recall and Memory of Recorded Everyday Data

Topics can be adapted (with our agreement!)

Office Hours

Available by appointment.

Send an email to schedule a video chat

depending on your topic supervisor:

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