

Hauptseminar Medieninformatik

Malin Eiband | Hanna Schneider | Daniel Ullrich

Hauptseminar Medieninformatik | München | 2017-10-24

Übersicht

Voraussetzungen:

Aktuell im Master (Medien-)Informatik / MCI
Englische Sprachkenntnisse

Forschungsthemen:

Jedes Thema wird von (max) 2 Studenten eigenständig bearbeitet

Lernziel der Veranstaltung: Wissenschaftliches Arbeiten

Selbstständige Literaturrecherche
Analyse und Einordnung von Forschungsergebnissen
Schreiben einer wissenschaftlichen Ausarbeitung

Schriftliche Ausarbeitung in Englisch (6-8 Seiten, LaTeX-Template siehe Webseite)
Abschlusspräsentation (15 Minuten + 5 Minuten Diskussion)

Webseite: <http://www.medien.ifi.lmu.de/lehre/ws1718/hs/>

Organisatorisches

- Umfang: 2 SWS / 6 ECTS-Credits
- Prüfer:
Prof. Dr. Andreas Butz
- Betreuer:
Malin Eiband, malin.eiband@ifi.lmu.de
Hanna Schneider, hanna.schneider@ifi.lmu.de
Dr. Daniel Ullrich, daniel.ullrich@ifi.lmu.de

Organisatorisches (2)

- Präsenztermine: ausgewählte Termine, Dienstag 16:00-18:00 Uhr
- Verschiedene Abgaben lt. Zeitplan
- Vorträge am Ende der Vorlesungszeit, Datum tbd
- Ort: Amalienstraße 17, Raum A105

- Verfügbare Plätze: 20

- Prüfungsmodalitäten:
 - Vorläufige Ausarbeitung / kommentierte Gliederung
 - 60-Sekunden-Vortrag (inkl. Abgabe)
 - Schriftliche Ausarbeitung
 - gegenseitige Begutachtung / Kommentierung
 - Überarbeitete schriftliche Ausarbeitung im vorgegebenen Format
 - Vortrag (zuvor Struktur, Entwurf abgeben!)

- Hinweis: Die Literatur ist überwiegend nur in englischer Sprache verfügbar. Gute englische Sprachkenntnisse sind für die Teilnahme erforderlich.

Schedule

Termin	Veranstaltung / Abgabetermin
24.10.17	Vorstellung und Themenvergabe
21.11.17	Abgabe: Ausarbeitung 1. Fassung
24.11.17	Abgabe: Folie 60-Sekunden-Vortrag
28.11.17	60-Sekunden-Vorträge (Beginn s.t.!) / Wie schreibt man Reviews?
03.12.17	Abgabe: Ausarbeitung 2. Fassung (für Review)
15.12.17	Abgabe: Reviews
19.12.17	Verteilung Reviews & Feedback
30.01.18	Abgabe: Ausarbeitung 3. Fassung (final)
06.02.18	Abgabe: vorläufige Folien
07-14.02.18	Probenvorträge
15.02.18	Abgabe: finale Version der Vortragsfolien
19.02.18	Präsentationstag 1 (muss noch bestätigt werden)
20.02.18	Präsentationstag 2 (muss noch bestätigt werden)

Abgabetermine

Termine mit
Anwesenheitspflicht

Hauptseminar Medieninformatik

Research topics

Decision Support Systems for Students



- In which areas do students need decision support?
- On which criteria do they base their decisions?
- How satisfied are students with their decisions?
- How can we use technical solutions to help students in their decision-making process?

Supervisor: Sarah Aragon Bartsch

Technical Solutions to Support Career Choice



- How do people choose their career?
- What are influencing factors on career choice?
- How can technical solutions support career choice?
- How can these systems be evaluated?

Supervisor: Sarah Aragon Bartsch

The Definition of Presence

Problem: The terms immersion and presence are mixed in current research on VR related topics. However these terms are well discussed (e.g. Schubert et al. (2001)).

To do: Create an overview on the definition of presence and immersion in work that uses these terms as measured variable (e.g. Kaul et al. (2017); Willis et al. (2017)).

Outcome: Classification and Quantification of current usage of the terms in contrast to the established definitions.



The Definition of Presence

(References)

- Kaul O.B., Meier K., Rohs M. (2017) Increasing Presence in Virtual Reality with a Vibrotactile Grid Around the Head. In: Bernhaupt R., Dalvi G., Joshi A., K. Balkrishan D., O’Neill J., Winckler M. (eds) *Human-Computer Interaction – INTERACT 2017*. INTERACT 2017. Lecture Notes in Computer Science, vol 10516. Springer, Cham
- Schubert, T., Friedmann, F., and Regenbrecht, H. 2001. The experience of presence: Factor analytic insights. *Presence* 10, 3, 266–281.
- Willis M., De Angeli A., Zancanaro M. (2017) Experience Probes: Immersion and Reflection Between Reality and Virtuality. In: Bernhaupt R., Dalvi G., Joshi A., K. Balkrishan D., O’Neill J., Winckler M. (eds) *Human-Computer Interaction – INTERACT 2017*. INTERACT 2017. Lecture Notes in Computer Science, vol 10516. Springer, Cham

How to Quantify Collaboration

Problem: Collaborative systems supporting instructional tasks need to be evaluated. The used task has strong influence on the measurements (Pointer: Cruz et al. (2014)).

To do: Create an overview on existing tasks that evaluate instructional tasks with a focus on VR. Cluster them by the purpose explained in the corresponding work.

Outcome: An overview on existing tasks with reflection on when and how to use them.



Cruz, A., Paredes, H., Fonseca, B., Morgado, L., and Martins, P. 2014. Can Presence Improve Collaboration in 3D Virtual Worlds? *Procedia Technology* 13, 47–55.

Contextual Factors of Mobile / Ubiquitous Learning

Learning Applications (e.g., Duolingo, Babbel etc.) are often designed as a one-size-fits-all approach → somewhat static and not able to adapt to a learner.

This Hauptseminar-project's goal is to shed light on the following question:

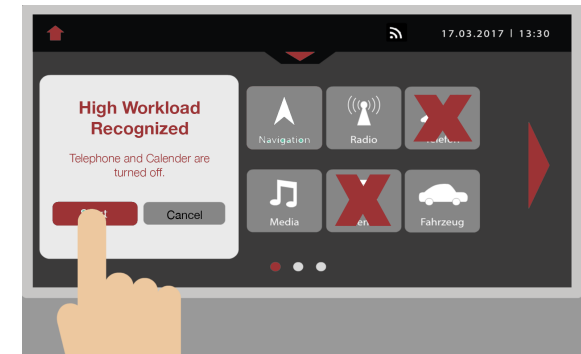
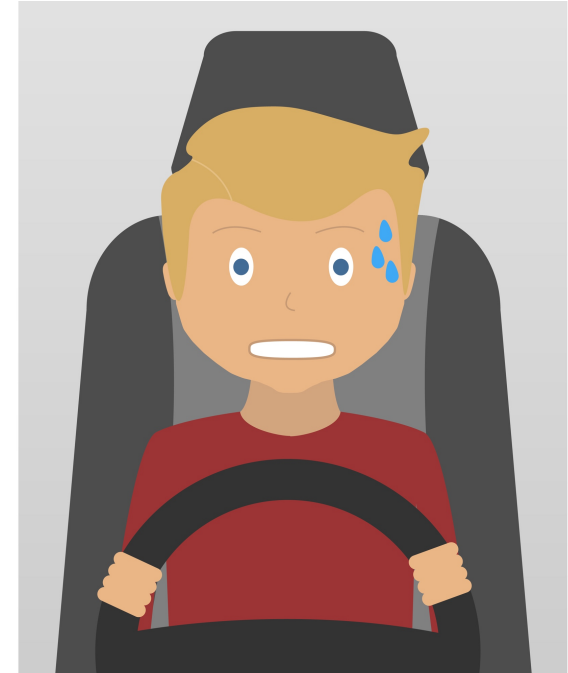
What are the **contextual factors** we need to include to provide both a **good learning outcome** and a **satisfactory user experience** and how can we measure them?

The list of factors can include but is not limited to:

- Cognitive Performance
- Metacognition
- Location
- Affective State
- Age / Gender
- Memory Capacity
- Character Traits
- Attitude
-

Personalized Car Interfaces

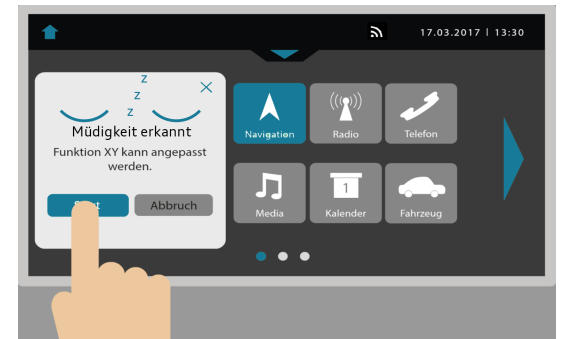
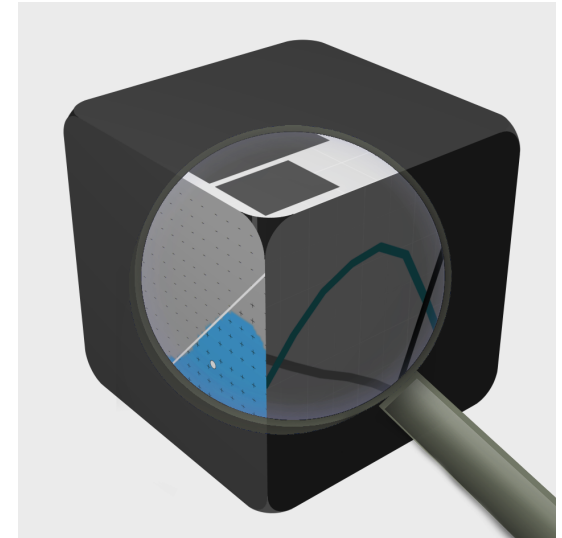
Personalization describes tailoring a product to individual users' characteristics and preferences. In this paper, we want to investigate whether adapting a car interface to the driver's personality or current emotion (e.g. drowsiness, stress) can increase driver safety and comfort. For example, the car interface could show less information when the driver is already stressed due to high workload. Thus, we want to get an overview of current work regarding adaptive and personalized driver interfaces.



Supervisor: Sarah Völkel

Making Personalization Understandable for the User

Personalization describes tailoring a product to individual users' characteristics and preferences. We encounter personalization very often in our everyday life, e.g. recommendations for products on Amazon or TV shows on Netflix. However, users do not always understand how personalization algorithms work. What are possibilities to explain personalization to the user? In this paper, we want to gain an overview of possibilities used, paying special attention to brief comprehensible explanations.



USER-AWARE INTERFACES

Sensors enable computers to detect their users' physiological and emotional states – but what can they do with it?

You will focus on finding out about which approaches have been tried so far in mobile interaction, robotics, automotive user interfaces, ... and how researchers envision future work on the topic.

Supervisor: Michael Braun


DIGITAL PERSONALITY TYPES

Digital assistants like Siri are often perceived as near-human with distinct personalities traits and a mind of their own.

You will analyze work on the behaviour of digital assistants and humanoid robots to find out how personalities are designed and where the journey may lead.

Applications of Human-Drone Interaction



- Unmanned Aerial Vehicles (aka drones) are now cheaper and available for consumers.
 - What can we do with drones?
 - [Communicating Directionality in Flying Robots](#)
 - BitDrones: Towards Using 3D Nanocoaster Displays as Interactive Self-Levitating Programmable Matter
 - [Tactile Drones-Providing Immersive Tactile Feedback in Virtual Reality through Quadcopters](#)
 - [iSphere: Self-Luminous Spherical Drone Display](#)
 - [Jogging with a Quadcopter](#)
- 

Controlling in Human-Drone Interaction

- Unmanned Aerial Vehicles (aka drones) are now cheaper and available for consumers.
- How can we interact with drones?
 - [Drone and me: an exploration into natural human-drone interaction](#)
 - [Drone & Wo: Cultural Influences on Human-Drone Interaction Techniques](#)
 - [Daedalus: a sUAV for human-robot interaction](#)
 - [natural user interfaces for human-drone multi-modal interaction](#)
 - [Action Elements of Emotional Body Expressions for Flying Robots](#)
 - [Emotion Encoding in Human-Drone Interaction](#)
 - [Survey on Natural Interaction Techniques for an Unmanned Aerial Vehicle System](#)
 - [A System Architecture for Hands-Free UAV Drone Control Using Intuitive Voice Commands](#)

How users perceive biometric authentication

- Biometrics are increasingly adopted for consumer products (e.g. iPhone X face recognition, Windows Hello)
- How do users feel about biometric authentication?
 - [Understanding User Perspectives on Biometric Technology](#)
 - [Perception and Acceptance of Fingerprint Biometric Technology](#)
 - [A Survey about User Requirements for Biometric Authentication on Smartphones](#)
 - [Culture & biometrics: regional differences in the perception of biometric authentication technologies](#)
 - [Biometric Authentication on iPhone and Android: Usability, Perceptions, and Influences on Adoption](#)

Web:

- <https://www.forbes.com/sites/gabrielshaoolian/2017/10/13/how-iphone-x-will-kick-start-facial-recognition-acceptance/#44c0631cd599>
- <https://www.emarketer.com/Article/How-Do-Consumers-Really-Feel-About-Facial-Recognition/1016556>
- <https://www.emarketer.com/Article/Like-Not-Smartphones-with-Biometrics-Will-Soon-Norm/1016472>

A Review of the Use, Design, and Methods of Biometric Authentication

- Biometrics are increasingly used for authentication lately.
- What biometric data is collected and how does it improve authentication?
 - [Design and Exploration of Mid-Air Authentication Gestures](#)
 - [A survey of biometric recognition methods](#)
 - [A Survey of Wearable Biometric Recognition Systems](#)
 - [What else does your biometric data reveal? A survey on soft biometrics](#)
 - [Touch me once and I know it's you! Implicit Authentication based on Touch Screen Patterns](#)
 - [Evaluating Behavioral Biometrics for Continuous Authentication: Challenges and Metrics](#)

Mental Health Training & its Effects on Body & Mind

Nowadays, people are looking for new ways to become and remain healthy in a stressful and hectic world. Some ways to do so are meditation, therapy*, hypnosis, progressive muscle relaxation, autogenic training, yoga, and so on.

- Together we will select **3 to 4 approaches** for the seminar.
- Which **changes of the mind and the body** can be reached by those approaches?
- How can **technology support** a healthy mind?

* Psychological therapies such as cognitive behavioural or metacognitive therapy

Cognitive Dissonance in HCI

Cognitive dissonance refers to a contradiction within a person thoughts, beliefs, values, desires etc. and causes mental stress. Cognitive dissonance is used e.g. in education, therapy, consumer influence and recently introduced to HCI.

- What is **cognitive dissonance** and on which **theories** is it grounded?
- How can it be **detected and measured**?
- What strategies are used to **counteracted** it and reach self-affirmation?
- How can **technology** counteract or make use of cognitive dissonance?

Mindfulness in HCI

Mindfulness is often seen as a state, skill or strategy to reach a higher awareness and self-understanding and calmness. Mindfulness is now settling as a new area in HCI.

- **What is mindfulness** exactly and how is it **reached**?
- How can **technology support** mindfulness?
- How can it be **tracked and measured**?

Conscious & Unconscious Mind

Humans think and act consciously but many times thoughts and actions are influenced by the inner, unconscious mind. Intuition and gut feelings, unexplainable behaviours, (negative) thoughts and feelings, misunderstandings etc. can be a manifestation of the unconscious mind bridging into consciousness.

- How do the conscious and unconscious mind **relate to each other** (e.g. dual-process theory)?
- Can the two minds **communicate** with each other (e.g. in therapy)?
How is such communication **reached**?
- How is consciousness and unconsciousness **measured**?

Supervisor: Renate Häuslschmid

Inferring User Emotion from Mobile Interaction Behaviour

Example: Can we tell if the player is frustrated based on touch interactions?



Some starting points for your literature review:

- [What Does Touch Tell Us about Emotions in Touchscreen-Based Gameplay?](#)
- [Towards affective touch interaction: predicting mobile user emotion from finger strokes](#)
- [Opportunistic and Context-aware Affect Sensing on Smartphones: The Concept, Challenges and Opportunities](#)
- [A Survey on Mobile Affective Computing](#)

Supervisor: Daniel Buschek

Inferring Content Relevance from Mobile Interaction Behaviour

You spend more time reading, scrolling, zooming, panning, touching etc. if you find the search result interesting.



Some starting points for your literature review:

- [Mining touch interaction data on mobile devices to predict web search result relevance](#)
- [Detecting Good Abandonment in Mobile Search](#)
- [Towards better measurement of attention and satisfaction in mobile search](#)
- [Predicting User Satisfaction with Intelligent Assistants](#)

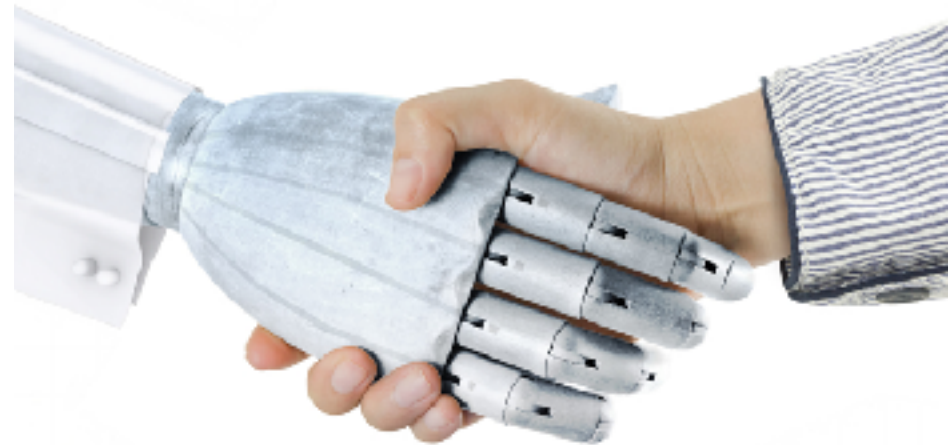
Over- and Under-Trust in intelligent system interaction

Short Description:

An adequate level of trust is crucial for successful interaction with intelligent systems. How can we measure trust? Which variables and circumstances lead to over/under-trusting a system (in particular: robots)?

References:

- Hancock, P. A., Billings, D. R., Schaefer, K. E., Chen, J. Y., De Visser, E. J., & Parasuraman, R. (2011). A meta-analysis of factors affecting trust in human-robot interaction. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, 53(5), 517-527.
- Freedy, A., DeVisser, E., Weltman, G., & Coeyman, N. (2007, May). Measurement of trust in human-robot collaboration. In *Collaborative Technologies and Systems, 2007. CTS 2007. International Symposium on* (pp. 106-114). IEEE.

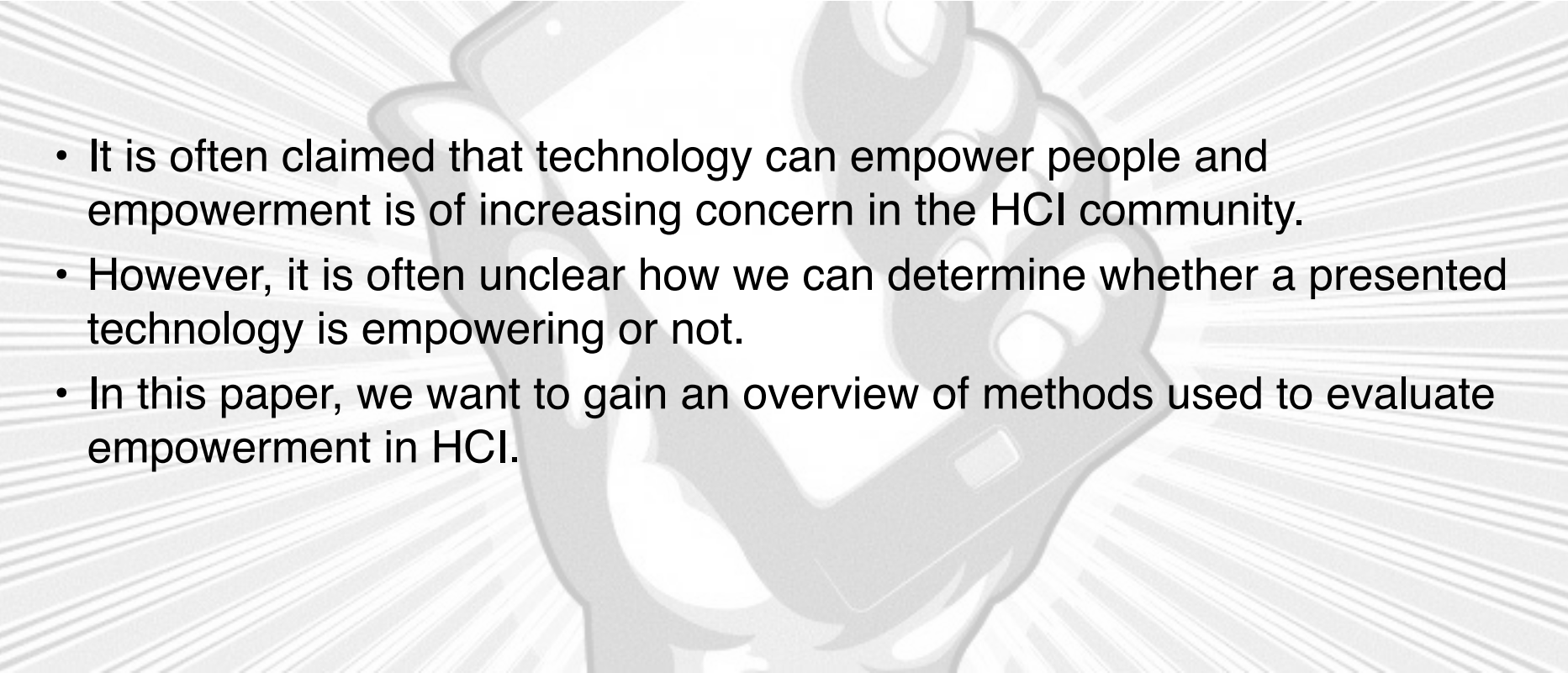


Supervisor: Daniel Ullrich

User-centered Evaluation of Personalized Systems

Personalized systems are pervasive in daily use and personalization is an active research area. In this project, we want to gain an overview of how researchers *evaluate* their work in user studies. In particular, we are interested in the methodology used (e.g., surveys, interviews), the number and demographics of participants, the variables assessed (e.g., usability, trust), the analysis (qualitative or quantitative) and the kind of systems that are presented. Thus, we want to identify best practices for user-centered evaluation of personalized systems.

Evaluating Empowerment in HCI



- It is often claimed that technology can empower people and empowerment is of increasing concern in the HCI community.
- However, it is often unclear how we can determine whether a presented technology is empowering or not.
- In this paper, we want to gain an overview of methods used to evaluate empowerment in HCI.

Cross-Cultural Perceptions of Privacy & Personalization

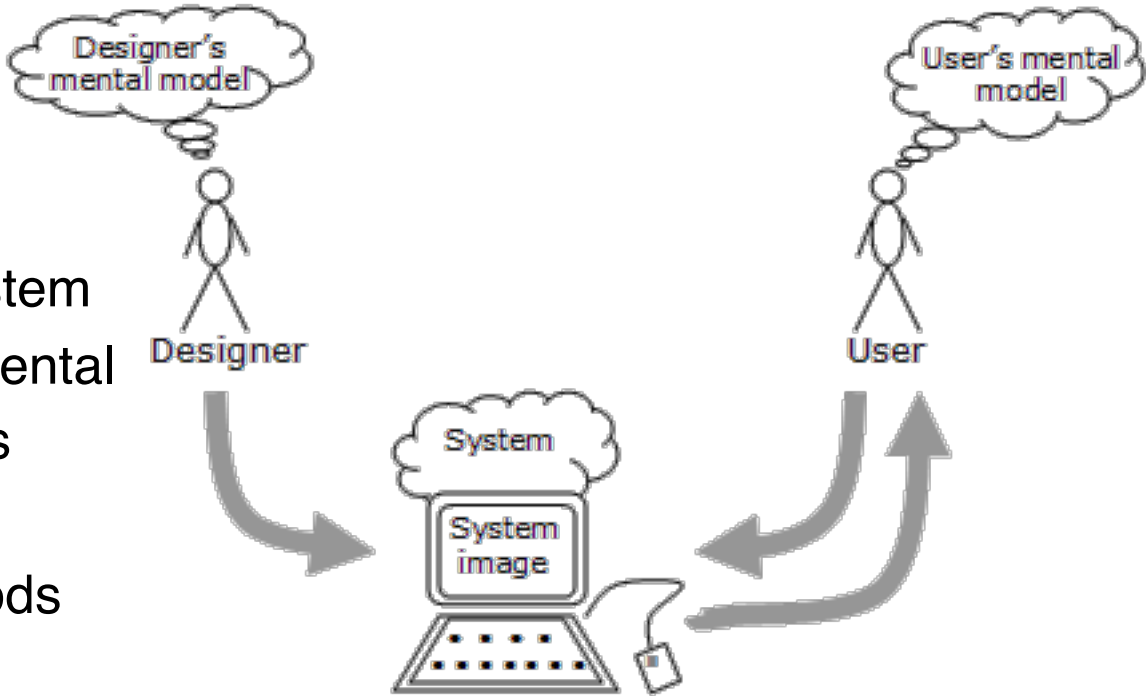
Perceptions of privacy and personalization are likely influenced by people's cultural backgrounds. In this paper, we want to gain an overview of prior work in this area.



Supervisor: Malin Eiband, Hanna Schneider, Florian Lachner

Elicitation of Mental Models

Mental models are user-dependent beliefs and conceptions about the system logic. However, eliciting mental models is not trivial. In this paper, we want to gain an overview of reliable methods and best practices for the elicitation of mental models.



Topics

#	Topic	Supervisor	Student 1	Student 2
1	Decision Support Systems	Sarah A. B.	Alice Nguyen	
2	Technical Solutions to Support Career Choice	Sarah A. B.	Julia Speckmeier	
3	The Definition of Presence	Christian Mai	Dimitri Hein	
4	Quantify Collaboration	Christian Mai	Martin Gross	Benedikt Reschberger
5	Contextual Factors of Mobile Learning	Christina Sch.	Anh Vu	
6	Personalized Car Interfaces	Sarah Völkel	Nicole Lippner	Zouhair Mazlani
7	Making Personalization Understandable	Sarah Völkel	Matthias Geiger	Zhan
8	User-aware interfaces	Michael Braun		
9	Digital personality types	Michael Braun	Anja Mainz	
10	Applications Human-Drone Interaction	Mohamed Khamis	Katharina Schwarz	Felix Frömel
11	Controlling in Human-Drone Interaction	Mohamed Khamis	Zhe li	
12	How users perceive biometric auth.	Mohamed Khamis	Leonhard Mertl	Jan Kaiser
13	Use, Design, Methods of biom. auth.	Mohamed Khamis		

Topics

#	Topic	Supervisor	Student 1	Student 2
14	Mental Health Training	Renate		
15	Cognitive Dissonance	Renate		
16	Mindfulness in HCI	Renate	Cedric Quintes	
17	Conscious and unconscious mind	Renate	Mario Schneller	Dimitri Reisler
18	Inferring User Emotion from Behaviour	Daniel Buschek	Ou Changkun	Florian Lehmann
19	Inferring Content Relevance	Daniel Buschek	Veronika Fuchsberger	
20	Over- and Udertrust	Daniell Ullrich		
21	User-centered Evaluation of Personalized Systems	Malin, Hanna		
22	Evaluating Empowement in HCI	Malin, Hanna		
23	Cross-cultural Perceptions of Personalisation and Privacy	Florian, Hanna, Malin	Elisaveta Karypidou	
24	Elicitation of Mental Models	Malin, Hanna		

Distributing (scientific) knowledge

Distributing knowledge

- Books
- Articles in journals
- Articles in conferences
- Thesis (Bachelor, Master, PhD)
- On the internet (e.g. blogs, Wikipedia)
- Talks and lectures
- Personal communication
- Patents
- ...



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- Thesis (Bachelor, Master, PhD)
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- Talks and lectures
- Personal communication
- Patents
- ...



Peer review vs
no peer review

Scientific Conferences

- Before the conference
 - Topics and title are defined
 - Open call for scientific contributions (i.e., papers)
 - Papers get submitted
 - Papers get peer reviewed
 - Authors get notification and reviews
 - Final versions of accepted papers are submitted
- During the conference
 - One author gives a presentation
 - Typically in addition
 - Invited keynotes
 - Discussion panels
- After the conference
 - Papers are published in conference proceedings

How to find scientific articles?

- Libraries
 - ACM digital library
 - IEEE digital library
 - Google Scholar, Citeseer
 - The author's websites
 - Web search
 - OPAC der Universitätsbibliothek, <http://opacplus.ub.uni-muenchen.de>
-
- ACM, IEEE, and most other sources aren't freely available
 - University has subscription for the most important sources
-
- Get a paper:
 - Try ACM, IEEE, ... from the university network
 - Use Google (Scholar) to find a free source
 - Go to the authors' websites
 - Polite mail to the authors
 - Ask people from the library

How to access publications

Access databases (ACM, IEEE, EZB) through our university network (LRZ-VPN und –Proxy):

<http://www.lrz-muenchen.de/services/netzdienste/proxy/browser-config/>

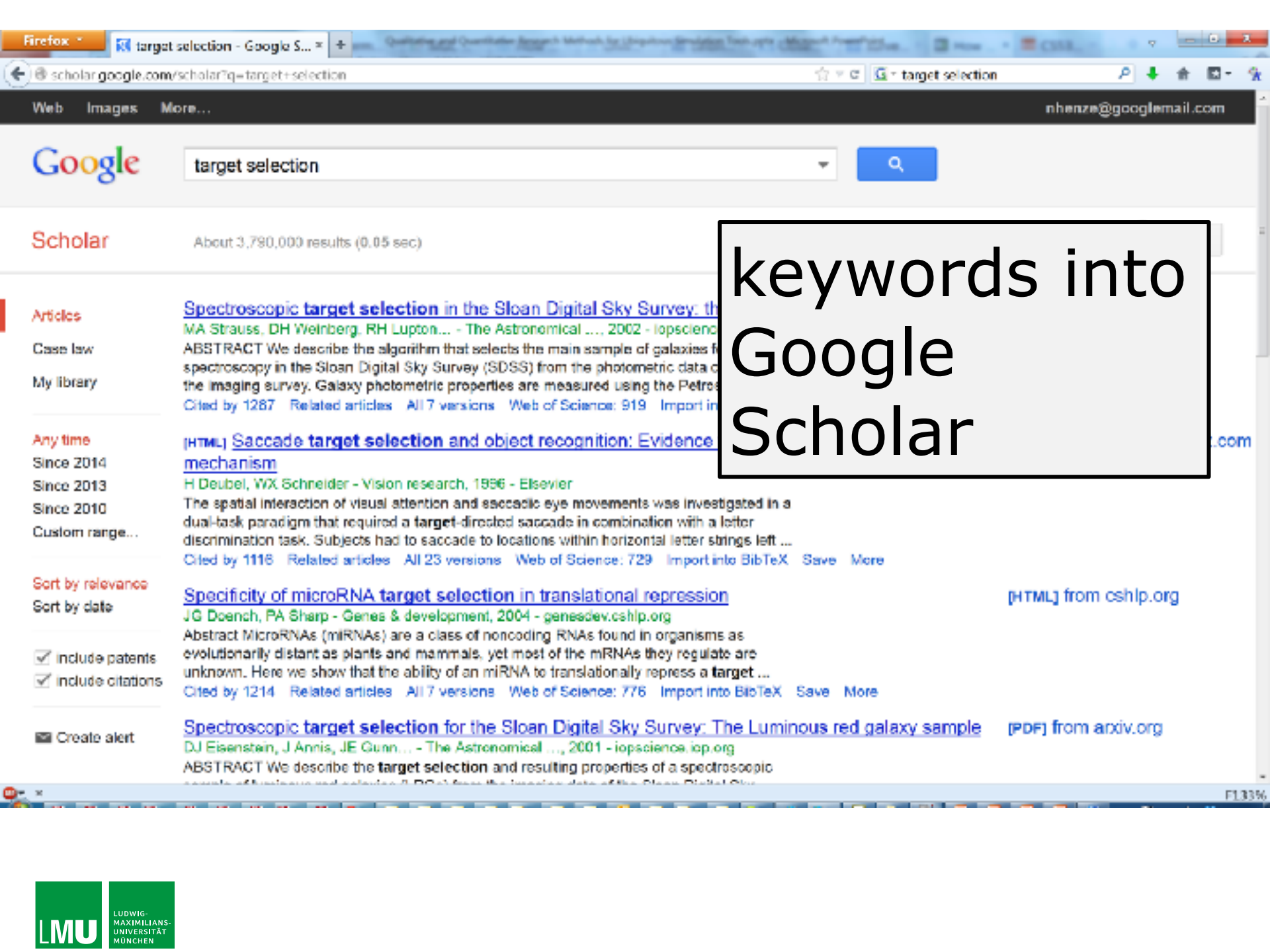
Hint: (Open source) software to manage references:

JabRef: <http://jabref.sourceforge.net/download.php>

BibDesk: <http://bibdesk.sourceforge.net/>

Mendeley: <http://www.mendeley.com/>

Zotero: <http://www.zotero.org/>



target selection



Scholar

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Articles

Case law

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[Spectroscopic target selection in the Sloan Digital Sky Survey: the](#)

MA Strauss, DH Weinberg, RH Lupton... - The Astronomical Journal, 2002 - iopscience.iop.org

ABSTRACT We describe the algorithm that selects the main sample of galaxies for spectroscopy in the Sloan Digital Sky Survey (SDSS) from the photometric data of the imaging survey. Galaxy photometric properties are measured using the Petrosian radius. Cited by 1287 Related articles All 7 versions Web of Science: 919 Import into BibTeX

[\[HTML\] Saccade target selection and object recognition: Evidence for a shared mechanism](#)

H Deubel, WX Schneider - Vision research, 1996 - Elsevier

The spatial interaction of visual attention and saccadic eye movements was investigated in a dual-task paradigm that required a target-directed saccade in combination with a letter discrimination task. Subjects had to saccade to locations within horizontal letter strings left to right. Cited by 1116 Related articles All 23 versions Web of Science: 729 Import into BibTeX Save More

[Specificity of microRNA target selection in translational repression](#)

JG Doench, PA Sharp - Genes & development, 2004 - genesdev.cshlp.org

Abstract MicroRNAs (miRNAs) are a class of noncoding RNAs found in organisms as evolutionarily distant as plants and mammals, yet most of the mRNAs they regulate are unknown. Here we show that the ability of an miRNA to translationally repress a target mRNA is highly specific. Cited by 1214 Related articles All 7 versions Web of Science: 776 Import into BibTeX Save More

[Spectroscopic target selection for the Sloan Digital Sky Survey: The Luminous red galaxy sample](#)

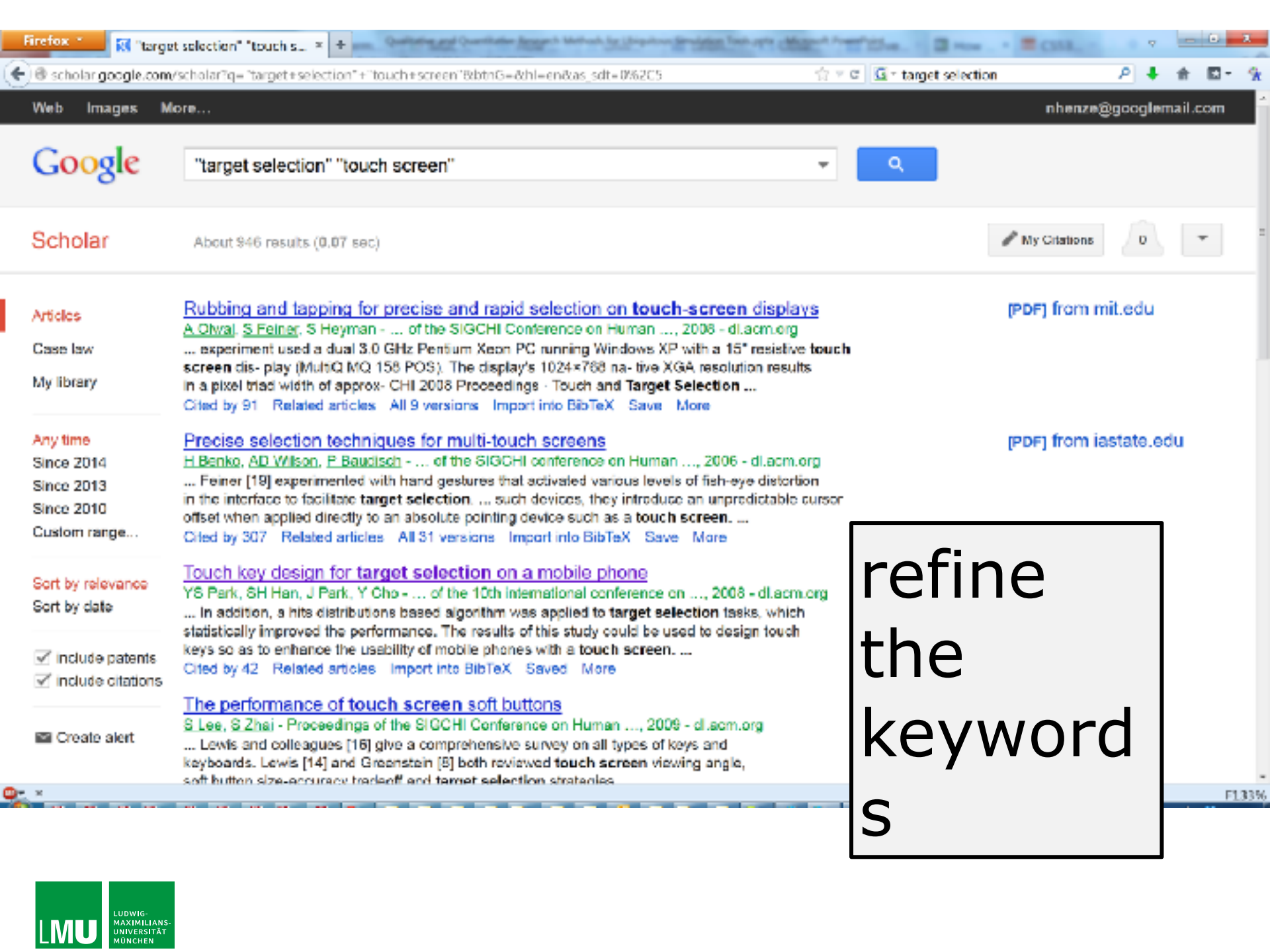
DJ Eisenstein, J Annis, JE Gunn... - The Astronomical Journal, 2001 - iopscience.iop.org

ABSTRACT We describe the target selection and resulting properties of a spectroscopic sample of luminous red galaxies (LRGs) from the imaging data of the Sloan Digital Sky Survey.

keywords into
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Scholar

[\[HTML\] from cshlp.org](#)

[\[PDF\] from arxiv.org](#)



"target selection" "touch screen"



Scholar

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Articles

[Rubbing and tapping for precise and rapid selection on touch-screen displays](#)

[\[PDF\] from mit.edu](#)

A. Ohwaj, S. Feiner, S. Heyman - ... of the SIGCHI Conference on Human ..., 2008 - dl.acm.org
... experiment used a dual 3.0 GHz Pentium Xeon PC running Windows XP with a 15" resistive touch screen display (MultiQ MQ 158 POS). The display's 1024x768 native XGA resolution results in a pixel grid width of approx- CHI 2008 Proceedings - Touch and Target Selection ...
Cited by 91 Related articles All 9 versions Import into BibTeX Save More

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[Precise selection techniques for multi-touch screens](#)

[\[PDF\] from iastate.edu](#)

H. Benko, A.D. Wilson, P. Baudisch - ... of the SIGCHI conference on Human ..., 2006 - dl.acm.org
... Feiner [18] experimented with hand gestures that activated various levels of fish-eye distortion in the interface to facilitate target selection. ... such devices, they introduce an unpredictable cursor offset when applied directly to an absolute pointing device such as a touch screen. ...
Cited by 307 Related articles All 31 versions Import into BibTeX Save More

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Since 2013

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Sort by date

include patents

include citations

Create alert

[Touch key design for target selection on a mobile phone](#)

YS Park, SH Han, J Park, Y Cho - ... of the 10th international conference on ..., 2008 - dl.acm.org
... In addition, a hits distributions based algorithm was applied to target selection tasks, which statistically improved the performance. The results of this study could be used to design touch keys so as to enhance the usability of mobile phones with a touch screen. ...
Cited by 42 Related articles Import into BibTeX Saved More

[The performance of touch screen soft buttons](#)

S. Lee, S. Zhai - Proceedings of the SIGCHI Conference on Human ..., 2009 - dl.acm.org
... Lewis and colleagues [16] give a comprehensive survey on all types of keys and keyboards. Lewis [14] and Greenstein [8] both reviewed touch screen viewing angle, soft button size-accuracy tradeoff and target selection strategies.

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Scholar

Page 8 of about 765 results (0.06 sec)

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Articles

[An experimental comparison of a mouse and arrow-jump keys for an interactive encyclopedia](#)

J Ewing, S Mehrabanzad, S Sheek, D Ostroff... - International Journal of ..., 1996 - Elsevier

... Their study compares user satisfaction and path completion times associated with a mouse, a touch screen, and a keyboard. ... Target selection time was measured from the appearance of the target on the screen until the selection of the target with the selection device. ...

Cited by 41 Related articles All 9 versions Web of Science: 15 Import into BibTeX Save More

Any time

[Touchscreen interfaces for alphanumeric data entry](#)

[PDF] from sagepub.com

C Plaisant, A Sears - Proceedings of the Human Factors and ..., 1992 - pro.sagepub.com

... There has been a great deal of research that focused on target selection. ... Evaluation of methods of touch screen implementation for interactive computer displays, Abstract presented at 2nd International Conference of Human-Computer Interaction, Honolulu, HI. ...

Cited by 23 Related articles All 8 versions Import into BibTeX Save More

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Escape: A Target Selection Technique Using Visually-cued Gestures

Koji Yatani¹, Kurt Partridge², Marshall Bern², and Mark W. Newman³

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²Computing Sciences Laboratory
Palo Alto Research Center, Inc.
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kurt@parc.com, bern@parc.com

³School of Information
University of Michigan
www.si.umich.edu
mnewman@umich.edu

ABSTRACT

Many mobile devices have touch-sensitive screens that people interact with using fingers or thumbs. However, user interaction is difficult because targets become occluded, and because fingers and thumbs have low input resolution. Recent research has addressed occlusion through visual techniques. However, the poor resolution of finger and thumb selection still limits selection speed. In this paper, we address the selection speed problem through a new target selection technique called Escape. In Escape, targets are selected by gestures cued by icon position and appearance. A user study shows that for targets six to twelve pixels wide, Escape performs at a similar error rate and is at least 20% faster than Shift, an alternative technique, on a similar task. We evaluate Escape's performance in different circumstances, including different icon sizes, icon overlap, use of color, and gesture direction. We also describe an algorithm that assigns icons to targets, thereby improving Escape's performance.

Author Keywords

Target selection, finger gesture, touch screen, mobile device

ACM Classification Keywords

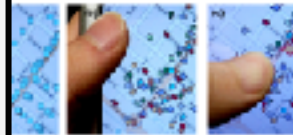
H.5.2 [Information Interfaces and Presentation]: User Interfaces—Input devices and strategies, Interaction styles.

INTRODUCTION

A recent research study of thumb use demonstrated that on-screen targets be no smaller than 5.2mm wide [13]. Below this size, performance begins to degrade when the user tries to select a target with a thumb since thumb-presses are simply too large and too variable to give an accurate selected point. Although users can accurately select smaller targets by another method, such as by using a stylus, they lose the ease of thumb-based interaction. Furthermore, it is often not possible to make a target large enough for thumb-based interaction because larger targets occupy more space, leaving less room on a small display for other targets and information.

Although users cannot accurately select targets smaller than 5.2mm with direct thumb touch, techniques such as Offset Cursor [15] and the name cursor Shift [17] improve selection accuracy by helping users refine their initial selection position. Originally designed for fingertip operation, these techniques overcome the general problem of digit occlusion by offsetting the cursor from the selection point (Offset Cursor), or by displaying an inset of the selection region (Shift).

While these approaches are more accurate for smaller targets, they are also slower. When selecting a 12 pixel (2.6 mm) target with a fingertip, participants using Shift made only about 20% as many errors as normal pointing, but took 76% longer [17].



It is difficult to select a target when it is occluded by other selectable objects (b). The icons in Escape are gestures that do not require the selection (c) of a target by a gesture (at least the release of the key) in order to select the target quickly and when it is small or occluded by other objects.

look at everything
that still seems
related

Escape: A Target Selection Technique Using Visual Attention

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ABSTRACT

Many mobile devices have touch-sensitive screens, but people interact with using fingers or thumbs, and touch interaction is difficult because targets are occluded, and because fingers and thumbs have low resolution. Recent research has addressed occlusion with visual techniques. However, the poor resolution and touch selection still limits selection speed. In this paper, we address the selection speed problem with new target selection techniques called Escape. Targets are selected by gestures based on their position and appearance. A user study shows that for targets six to twelve pixels wide, Escape performs at a similar error rate and is at least 20% faster than Shift, an alternative technique for a similar task. We evaluate Escape's performance in different circumstances, including different font sizes, font overlap, use of color, and gesture direction. We also describe an algorithm that assigns icons to targets, thereby improving Escape's performance.

Author Keywords

Target selection, finger gesture, touch screen, mobile device

ACM Classification Keywords

H.5.2 [Information Interfaces and Presentation]: User Interfaces—Input devices and strategies, Interaction styles.

INTRODUCTION

Everyone wants a mobile device to be small—until they start to use it. They screen are hard to use, and they size interfaces are hard to control.

Many mobile devices have a screen that a user can control by touch. Although these devices can also be controlled by a stylus, many people prefer to use their thumbs [10].

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CHI 2008, April 5–10, 2008, Florence, Italy.
Copyright 2008 ACM 978-1-60559-016-9/08/04...\$5.00.

read figures,
abstract & graphs
first

occupy more space, leaving less room on a small display for other targets and information.

Although users cannot accurately select targets smaller than 6 pixels with direct thumb touch, techniques such as Offset Cursor [15] and the name cursor Shift [17] improve selection accuracy by helping users refine their initial selection position. Originally designed for fingertip operation, these techniques overcome the general problem of digit occlusion by offsetting the cursor from the selection point (Offset Cursor), or by displaying an inset of the selection region (Shift).

While these approaches are more accurate for smaller targets, they are also slower. When selecting a 12 pixel (2.6 mm) target with a fingertip, participants using Shift made only about 20% as many errors as normal pointing, but took 50% longer [17].

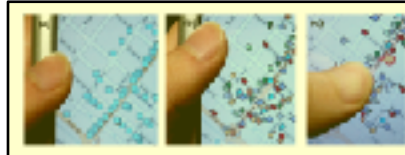
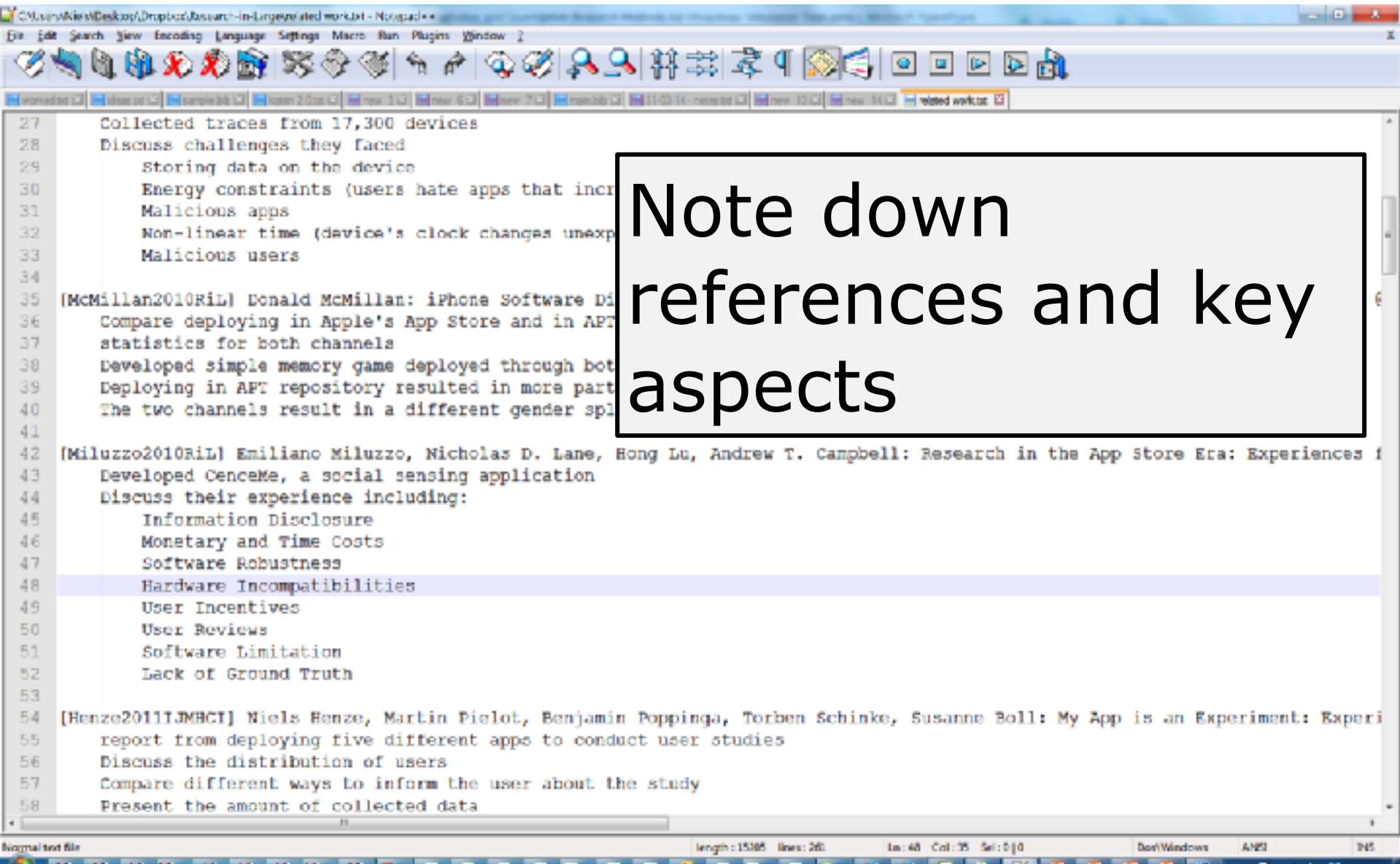


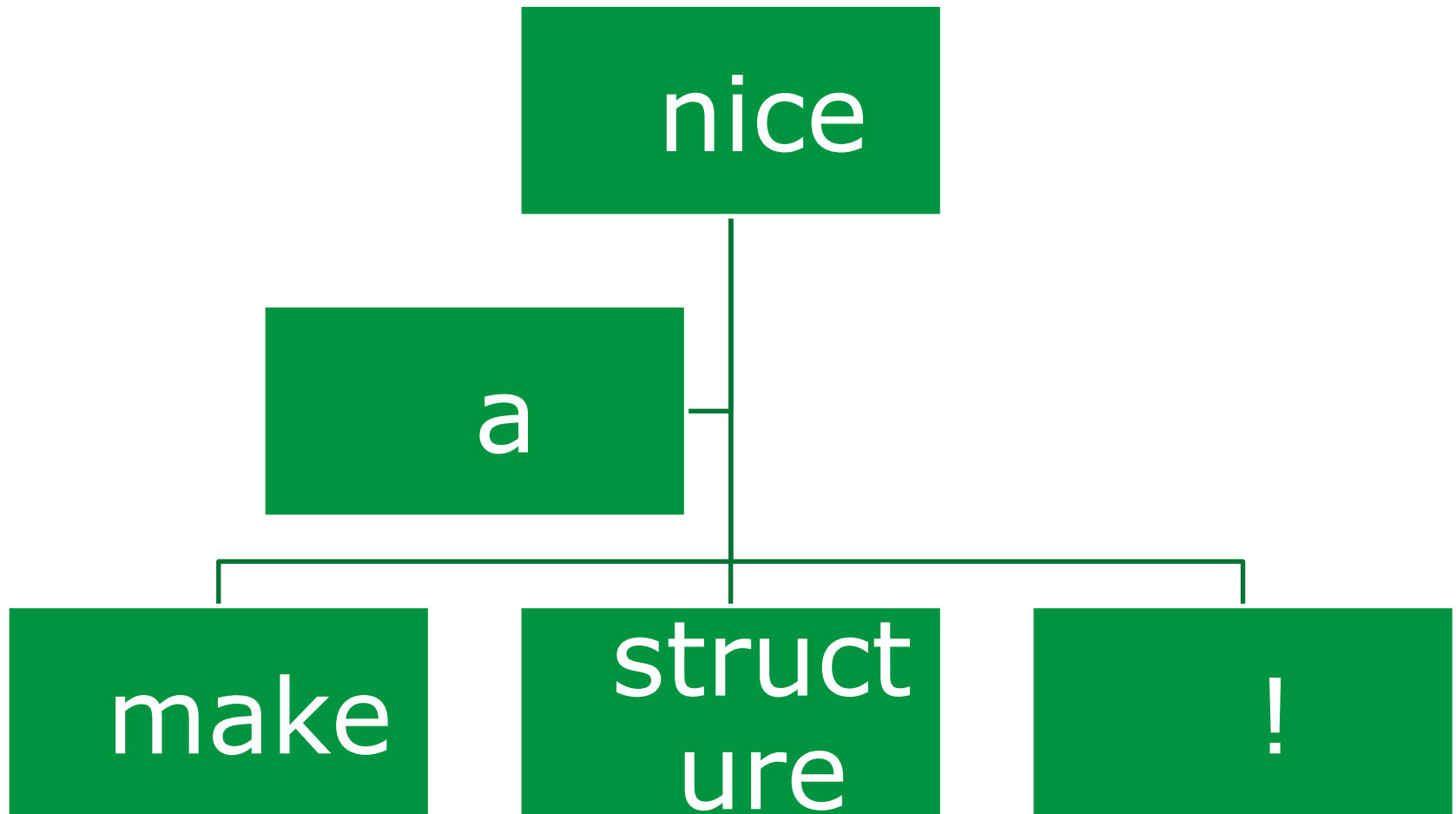
Figure 1. (a) It is difficult to select a target when it is surrounded by other selectable objects. The icons in Escape indicate finger gestures that directly guide the selection. (b) A thumb tap followed by a gesture to offset the release of the thumb enables a user to select the target quickly and correctly even when it is small or occluded by other objects.



```
27 Collected traces from 17,300 devices
28 Discuss challenges they faced
29   Storing data on the device
30   Energy constraints (users hate apps that incr
31   Malicious apps
32   Non-linear time (device's clock changes unexp
33   Malicious users
34
35 [McMillan2010RiL] Donald McMillan: iPhone Software Di
36 Compare deploying in Apple's App Store and in APT
37 statistics for both channels
38 Developed simple memory game deployed through bot
39 Deploying in APT repository resulted in more part
40 The two channels result in a different gender spl
41
42 [Miluzzo2010RiL] Emiliano Miluzzo, Nicholas D. Lane, Hong Lu, Andrew T. Campbell: Research in the App Store Era: Experiences f
43 Developed CenceMe, a social sensing application
44 Discuss their experience including:
45   Information Disclosure
46   Monetary and Time Costs
47   Software Robustness
48   Hardware Incompatibilities
49   User Incentives
50   User Reviews
51   Software Limitation
52   Lack of Ground Truth
53
54 [Henze2011IJMBCI] Niels Henze, Martin Pielot, Benjamin Poppinga, Torben Schinke, Susanne Boll: My App is an Experiment: Experi
55 report from deploying five different apps to conduct user studies
56 Discuss the distribution of users
57 Compare different ways to inform the user about the study
58 Present the amount of collected data
```

Note down references and key aspects

Try to find a structure and repeat the process



Example from an introduction

- Brief introduction to the context:

“Since the introduction of the iPhone, mobile phones with touchscreens began to dominate the smartphone market. Today, all major phone makers have touchscreen devices in their portfolio. In contrast to earlier devices, today’s smartphones are operated by touching the screen with the fingers ...”

- Describe the scope

“...our aim is to observe and manipulate the touch behaviour of a diverse sample, a large number of devices, and various contexts. To collect the required large amount of keystrokes on a virtual keyboard we developed a mobile typing game. To attract a large number of participants ...”

- Provide an overview

“After discussing related work, we describe the game that we developed to collect the data. We provide an overview about the data we collected after publishing the game to the Android Market. Following this, an analysis of the...”

Citations: Example from a related work section

“**Karlson showed** that regions which are easily to reach with the thumb when considering one-handed interaction achieve the best task performance and lowest perceived difficulty [7]. **Karlson concludes** that frequently used buttons should be placed in those regions. **Perry and Hourcade showed** again that targets within easy reach of the thumb can be reached quicker but the accuracy is best when the targets are located on the left, right and top edges of the screen [14]. **Park et al. analysed** the success rate, error rate and convenience of 25 regions of a touchscreen when using one-handed thumb input [13]. **The authors** also analysed the offset between indicated target and actual touch events. They observed location-specific offsets and discuss the idea of adjusting the location of the touch recognition area to improve the overall performance. “

From: N. Henze, E. Rukzio, and S. Boll: Observational and Experimental Investigation of Typing Behaviour using Virtual Keyboards on Mobile Devices. Proceedings of CHI, 2012.

Ausarbeitung in Englisch

- Abstract
 - Thema und Ergebnis der vorliegenden Arbeit (ca. 150 Worte)
- Einleitung
 - Kontext und Ziele des Forschungsgebiets
 - Gliederung / Vorgehensweise (Fließtext)
- Hauptteil
 - Forschungsgebiet skizzieren
 - Historie darlegen
 - Unterschiedliche Ansätze gegenüberstellen und analysieren (Trends, Stärken und Schwächen, ...)
- Zusammenfassung / Diskussion
 - Offene Forschungsfragen
 - Wiederkehrende Probleme, mögliche Lösungsansätze?
 - Kritische Einschätzung
- 6 – 8 Seiten, zweispaltig, kein Bilderbuch, keine „Wall of Text“
- <http://research.microsoft.com/en-us/um/people/simonpj/papers/giving-a-talk/writing-a-paper-slides.pdf>
- <http://www.journal.univagora.ro/download/pdf/425.pdf>

Wissenschaftliches Schreiben

- Logisch nachvollziehbarer Aufbau der Arbeit
- Klarer, wertneutraler Sprachstil, so einfach und kurz wie möglich
- Grammatik, Rechtschreibung
- Zahlen von null bis zwölf im Text ausschreiben
- Abkürzungen wie „e.g.“, „i.e.“ ausschreiben
- Vermeiden
 - Ungenaue Mengenangaben („high“, „little“, „almost“, ...)
 - Floskeln (z.B. „Based on these and various other findings...“)
 - Füllwörter (z.B. „somewhat“, „indeed“, „remarkably“, ...)
 - Tautologien (z.B. „LCD Display“ => LCD = Liquid Crystal Display)
 - Pseudo-Argumente (z.B. „of course“, „as expected“, „without doubt“, ...)
 - Unbelegbare Behauptungen (z.B. “This is the best Hauptseminar ever!”)

Aber...

- Wissenschaftliche Arbeiten müssen nicht krampfhaft langweilig sein!
- Gratwanderung! Nicht zu flapsig.
- Zentral:
 - Quellen müssen klar ersichtlich sein
 - Aussagen müssen entweder belegt oder als Annahmen gekennzeichnet werden

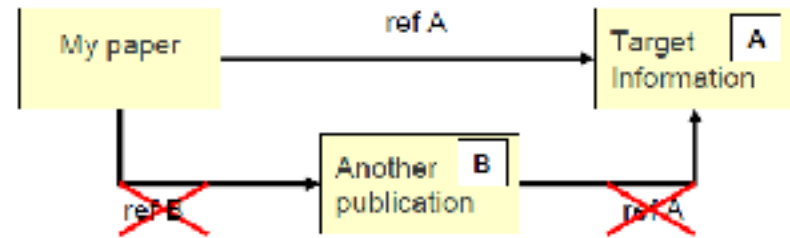
(Sand-Jensen, 2007)

Table 1. Top-10 list of recommendations for writing consistently boring publications.

- Avoid focus
- Avoid originality and personality
- Write l o n g contributions
- Remove implications and speculations
- Leave out illustrations
- Omit necessary steps of reasoning
- Use many abbreviations and terms
- Suppress humor and flowery language
- Degrade biology to statistics
- Quote numerous papers for trivial statements

Zitierweise

- Plagiate
 - Übernahme von Texten immer als direktes (wörtlich) oder indirektes (sinngemäß) Zitat kennzeichnen
 - Nichtbeachtung gilt als Täuschungsversuch
 - <http://www.medien.ifi.lmu.de/lehre/Plagiate-lfl.pdf>
- Direktes Zitat mit Anführungsstrichen
- Sekundärzitate vermeiden



- Zitierweise mit der LaTeX Vorlage automatisch festgelegt
- Internet-Quellen immer mit Autor und Datum des letzten Zugriffs angeben
- Wikipedia: gut für allgemeines Verständnis, aber nicht zitierfähig!

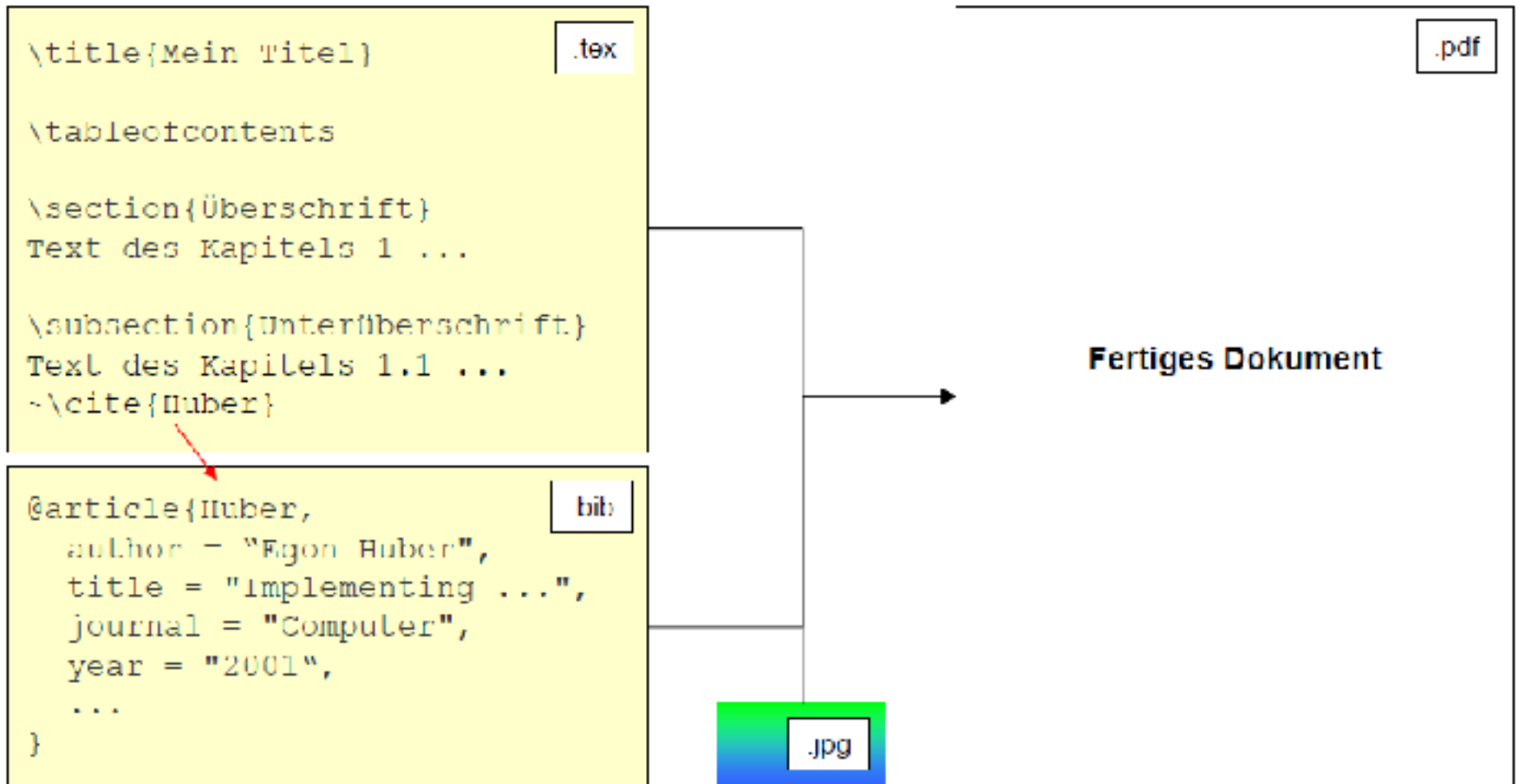
Formatierung

- Größtenteils automatisch
 - über LaTeX und CLS-Datei
- Kein Kapitel 1.1 wenn es nicht auch ein Kapitel 1.2 gibt
- Keine Section-Überschrift über 2 Zeilen
- Paragraphen
 - werden durch eine Leerzeile in der TEX Datei getrennt
 - keine manuellen Umbrüche
- Möglichst wenig Fußnoten
- Referenzen
 - alle Abbildungen, Tabellen müssen im Text referenziert sein
 - die im Literaturverzeichnis angegebenen Quellen müssen im Text referenziert sein
- Abgabe der Endfassung: LaTeX Source + pdf-Datei
 - komplette LaTeX-Source (.tex, .bib, Abbildungen, ...) und pdf in einem zip-Archiv

L^AT_EX

- Weiterentwicklung des Textsatzprogramms TeX, einfachere Benutzung
- Kein WYSIWYG
- Prinzip: Trennung von Inhalt und Gestaltung
 - Autor kümmert sich ausschließlich um den Inhalt
 - Gestaltung durch Einbindung von Formatierungsklassen
- Standard für wissenschaftliche Publikationen
- Vorteile
 - Automatische Generierung von Gliederung, Abbildungsverzeichnissen, Index, Bibliographien, etc.
 - Einfache Formatierung von mathematischen Formeln
 - Einfache Verwaltung / Einbindung von Literaturhinweisen
- Nachteile
 - Am Anfang gewöhnungsbedürftig
 - Positionierung von Grafiken teils umständlich

Erstellung eines Dokuments

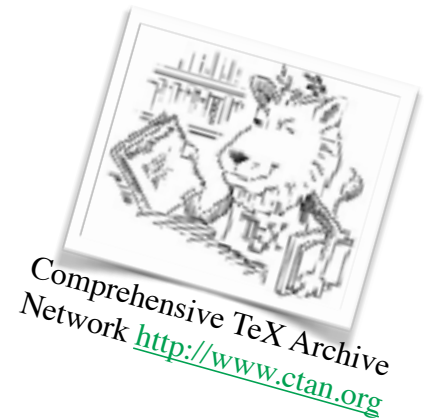


Vorgehensweise

- TeX Implementierung und LaTeX GUIs / IDE installieren:
 - Windows OS:
 - MikTeX (<http://www.miktex.org>) + TeXnicCenter (<http://www.texniccenter.org/>)
 - siehe auch Installation mit ProText (<http://www.tug.org/protext>)
 - Max OS:
 - MacTeX (<http://www.tug.org/mactex>) mit TeXShop IDE (<http://www.uoregon.edu/~koch/texshop/index.html>)
 - TexMaker (<http://www.xm1math.net/texmaker/>)
 - Linux:
 - teTeX package (<http://www.ctan.org>) + Kile (<http://kile.sourceforge.net>)
 - vorinstalliert im CIP-Pool
- Download Hauptseminar LaTeX-Template
 - TEX und BIB Dateien mit IDE öffnen, Source anschauen und nachvollziehen
 - LaTeX => PDF einstellen, TEX Datei zweimal kompilieren
 - PDF bewundern
 - Text mit eigener Arbeit ersetzen
 - Bei Bedarf weitere LaTeX-Tutorials konsultieren

L^AT_EX-Resourcen

- LaTeX Klassen und Dokumentationen
 - (Not So) Short Guide to LaTeX2e
 - <http://www.ctan.org/tex-archive/info/lshort/english>
 - LaTeX Symbols List
 - <http://www.ctan.org/tex-archive/info/symbols/comprehensive>
 - Grafiken importieren und formatieren
 - <http://tug.ctan.org/tex-archive/info/epslatex/english/epslatex.pdf>
- Deutschsprachige LaTeX Kurzbeschreibung
 - http://latex.tugraz.at/_media/docs/l2kurz.pdf
- Deutschsprachige FAQs
 - <http://www.dante.de/faq/de-tex-faq/html/de-tex-faq.html>
- BibTeX–Tool und Dateiformat zur Verwaltung und Einbindung von Bibliographien
 - Fachliteratur-Referenzen werden online vielfach im BibTeXFormat angeboten (z.B. ACM, IEEE)
 - How-To: <http://www.bibtex.org/Using/de>



BIB_TE_X

Fragen zur Organisation?

Schedule

Termin	Veranstaltung / Abgabetermin
24.10.17	Vorstellung und Themenvergabe
21.11.17	Abgabe: Ausarbeitung 1. Fassung
24.11.17	Abgabe: Folie 60-Sekunden-Vortrag
28.11.17	60-Sekunden-Vorträge (Beginn s.t.!) / Wie schreibt man Reviews?
03.12.17	Abgabe: Ausarbeitung 2. Fassung (für Review)
15.12.17	Abgabe: Reviews
19.12.17	Verteilung Reviews & Feedback
30.01.18	Abgabe: Ausarbeitung 3. Fassung (final)
06.02.18	Abgabe: vorläufige Folien
07-14.02.18	Probenvorträge
15.02.18	Abgabe: finale Version der Vortragsfolien
19.02.18	Präsentationstag 1 (muss noch bestätigt werden)
20.02.18	Präsentationstag 2 (muss noch bestätigt werden)

Abgabetermine

Termine mit
Anwesenheitspflicht

60-Sekunden-Vorträge

60-Sekunden-Vorträge

- Bewertungskriterien
 - Inhalt
 - Folie
 - Stil