Literature Research

Advanced Topics in Future Internet Research
Seminar Multimedia Communications I/II

TECHNISCHE UNIVERSITÄT DARMSTADT

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Literature Research
Common Questions

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How to find relevant related work?

- What exactly defines “relevant”?
- Where to search, what to search?
- Citations, conferences, and impact

How to read a scientific paper?

- Skimming – or: the structure of a research paper
- Taking notes, discussing ideas
- Structuring related work

How to write a survey paper?

- Goal of a survey – more than just summaries!
- LaTeX vs. Word – no, really: why you should use LaTeX
- Examples and elements of good survey papers

This is a Workshop!

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You should ask questions and discuss

- With us (Björn, Nils, Manisha) and with your supervisor
- With your colleagues

Anytime: just raise your hand, ask!

- (we might delay the question if we have a corresponding slide)

Coffee (and water) flat rate for the duration of the Workshop!

- Use the coffee machine in the KOM Lounge (just outside this room)
- Just add a mark to the ATFIR-List when you grab a hot drink
  - no marks needed for water!
- Your chance to grab a coffee: in a few seconds
- And ***please***: let staff members cut the queue

Agenda

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How to find relevant related work?

- Tools and metrics (citations, h-index)
- Conferences vs. journals (impact)

Discussion and coffee break

How to read a scientific paper?

- Structure of a research paper, skimming
- Annotations and notes: tools and techniques

Discussion and coffee break

How to write a survey paper?

- Structure and contribution of a survey paper
- Tools, templates, and techniques (LaTeX, BibTeX, …)

Now it’s time for a coffee!

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How to find relevant related work?

The Lifecycle of a Scientific Paper

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Researcher identifies a problem and proposes a solution

- May be a system, an algorithm, a theory, …
- Based on the current state of the research community
- Accompanied by an evaluation to prove the soundness of the solution

Researcher submits the resulting paper to a conference

- Usually yearly submission deadlines
- Papers are anonymously “peer-reviewed” by other researchers – **why?**
- Based on the reviews, the paper is accepted or rejected

Accepted papers are presented at the conference

- And later included in the proceedings of the conference
- And, after some time, available online on the publisher’s website
- The whole process can easily take a full year!

Paper Reviews

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Review process

- Paper is distributed to a number of anonymous reviewers – **why?**
- Reviewers provide (among other things) a score and their reasons
- Authors have to address the reviewers' comments
- Best papers get accepted, some may be shepherded

The choice of reviewers is crucial in the process

Usually not published

- Very few conferences include reviews and authors' answers

Different Types of Scientific Papers

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“Paper” or “Full Paper”

- A “complete” paper: problem statement, solution, evaluation, related work
- Most common paper type, usually 8-10 pages in IEEE format

“Short Paper” or “Idea Paper”

- Intended for “work in progress” or preliminary results, usually 4 pages
- However: often a result of rejected full papers
  - (paper is not rejected, but accepted as short paper) – **why?**

“Demo Paper”, “Poster Abstract”

- Short papers accompanying a technical demonstration or a poster – **why?**
- Usually limited impact, but often focused on very technical problem, 2-3 pages

Finding Literature: ask Google (Scholar)!

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Advantages

- Indexes nearly everything: papers, patents, journals, …
- Provides a lot of metadata: citation counter, cited works, …

Disadvantages

- Indexes nearly everything
- Provides a lot of metadata

Biggest challenge:

- Identify the right keywords!
- Find the most important authors!

Communities

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Scientists tend to form clusters of expertise: communities

- Reflected in the conferences and journals of the field
- Top conferences and journals are measured by their impact
- **What is the h-index?**

Restricting search to these top-venues leads to better results

- Usually publications with high citation count – **why?**
- From well-known scientists (reoccurring names!)
- Accepted by the community

Top-Publikationen - Computer Networks & Wireless Communication Weitere Informationen

Publikation	h5-Index	h5-Median
1. IEEE Communications Magazine	90	162
2. IEEE Transactions on Wireless Communications	78	109
3. Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM)	78	106
4. IEEE Communications Surveys & Tutorials	76	114
5. IEEE Transactions on Vehicular Technology	72	87
6. IEEE Journal on Selected Areas in Communications	66	97
7. ACM SIGCOMM Conference	64	118

Zitationsindexe	Alle	Seit 2010
Zitate	6459	4771
h-index	34	29
i10-index	75	70

Finding Related Papers

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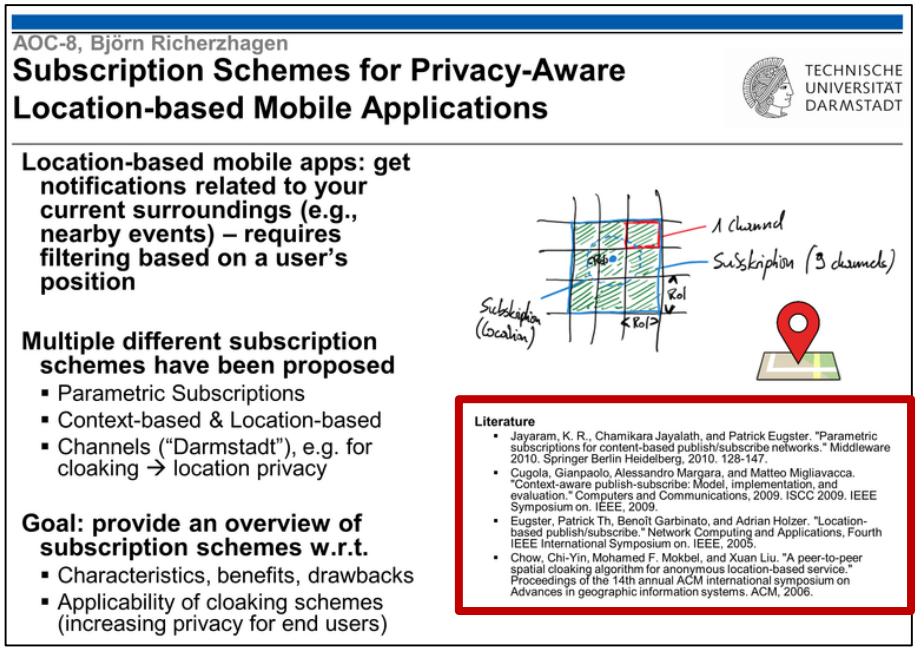
Your tutors provided you with some initial literature pointers

- Have a look at these papers
  - Their reference list (paper)
  - Their "cited by" list (Google)
  - Their conferences
- The respective paper titles help in refining search keywords

Caution: this might lead to exponential paper fan-out!

- Restrict yourself to a bunch of well-known conferences first
- Rule of thumb: more citations = higher acceptance of the paper


AOC-8, Björn Richerzhagen

Subscription Schemes for Privacy-Aware Location-based Mobile Applications

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Location-based mobile apps: get notifications related to your current surroundings (e.g., nearby events) – requires filtering based on a user's position

Multiple different subscription schemes have been proposed

- Parametric Subscriptions
- Context-based & Location-based
- Channels ("Darmstadt"), e.g. for cloaking → location privacy

Goal: provide an overview of subscription schemes w.r.t.

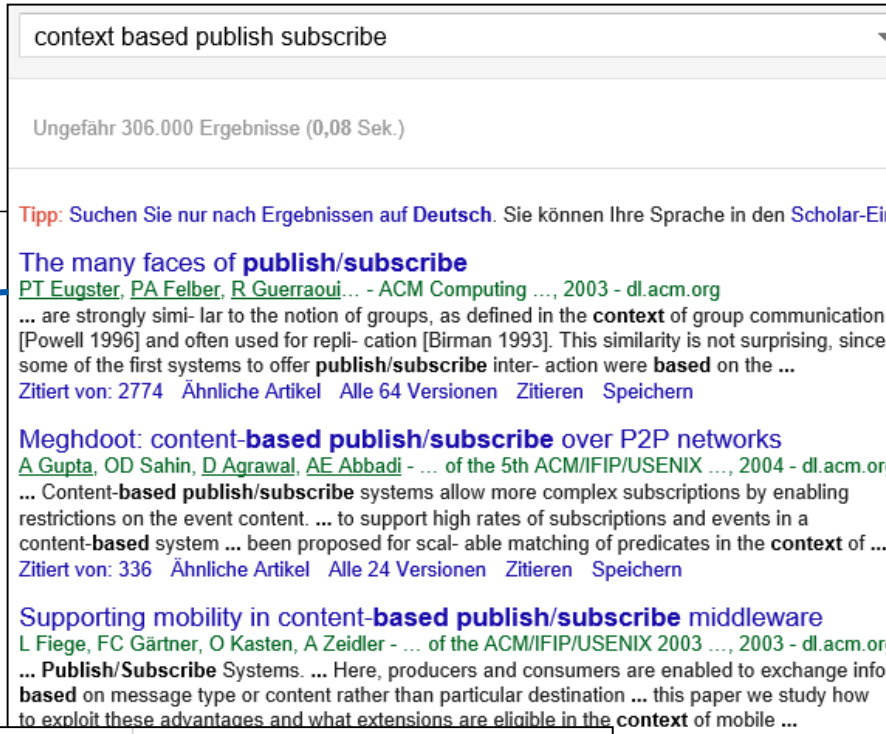
- Characteristics, benefits, drawbacks
- Applicability of cloaking schemes (increasing privacy for end users)

Literature

- Jayaram, K. R., Chamikara Jayalath, and Patrick Eugster. "Parametric subscriptions for content-based publish/subscribe networks." Middleware 2010. Springer Berlin Heidelberg, 2010. 128-147.
- Cugola, Gianpaolo, Alessandro Margara, and Matteo Migliavacca. "Context-aware publish-subscribe: Model, implementation, and evaluation." Computers and Communications, 2009. ISCC 2009. IEEE Symposium on. IEEE, 2009.
- Eugster, Patrick Th, Benoît Garbinato, and Adrian Holzer. "Location-based publish/subscribe." Network Computing and Applications, Fourth IEEE International Symposium on. IEEE, 2005.
- Chow, Chi-Yin, Mohamed F. Mokbel, and Xuan Liu. "A peer-to-peer spatial cloaking algorithm for anonymous location-based service." Proceedings of the 14th annual ACM international symposium on Advances in geographic information systems. ACM, 2006.

Reference Chain

- Click on “cited by”
- Click on “similar articles”
- Click on authors’ names
  - Author’s top publications
  - Author’s h-index



Patrick Eugster

Folgen

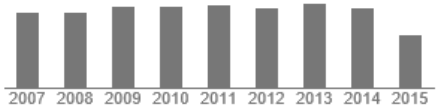
Associate Professor of Computer Science, Purdue University
Distributed Systems, Programming Languages, Software Engineering, Middleware
Bestätigte E-Mail-Adresse bei cs.purdue.edu - Startseite

Titel 1–20	Zitiert von	Jahr
The many faces of publish/subscribe PT Eugster, PA Felber, R Guerraoui, AM Kermarrec ACM Computing Surveys (CSUR) 35 (2), 114-131	2774	2003
Lightweight probabilistic broadcast PT Eugster, R Guerraoui, SB Handurukande, P Kouznetsov, ... ACM Transactions on Computer Systems (TOCS) 21 (4), 341-374	665	2003
Epidemic information dissemination in distributed systems PT Eugster, R Guerraoui, AM Kermarrec, L Massoulié Computer 37 (5), 60-67	627 *	2004

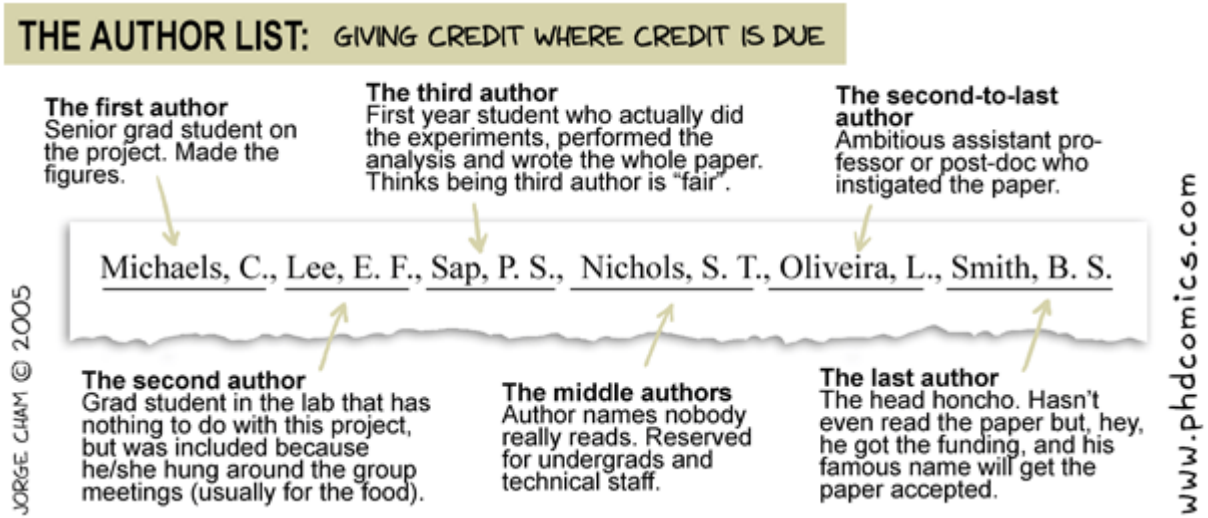
Google Scholar

Eigenes Profil erstellen

Zitationsindexe	Alle	Seit 2010
Zitate	6554	3334
h-index	29	23
i10-index	55	41



Understanding the Author List



Bypassing the Cloud: Peer-assisted Event Dissemination for Augmented Reality Games

Did the work | Discussed / Worked on paper | Group Members | "Head honcho"

Björn Richerzhagen, Dominik Stingl, Ronny Hans, Christian Gross and Ralf Steinmetz
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Other Indexing Services

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ACM Digital Library

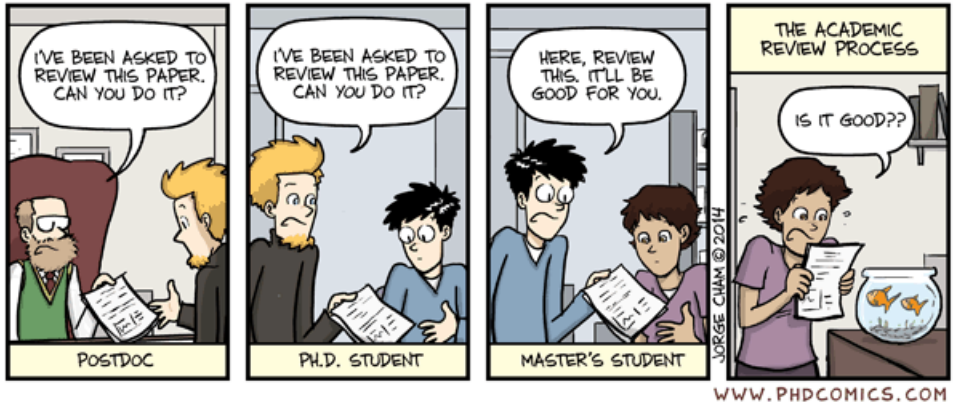
- Indexes all publications by ACM
- Subpages for important journals, e.g.: csur.acm.org

IEEE Xplore Digital Library

Springer Link

Caution

- Most services are only fully accessible from within the TUD network (eduroam) or via VPN
- The publisher (ACM/IEEE) does not ensure quality – **who does?**



Exercise and Coffee Break

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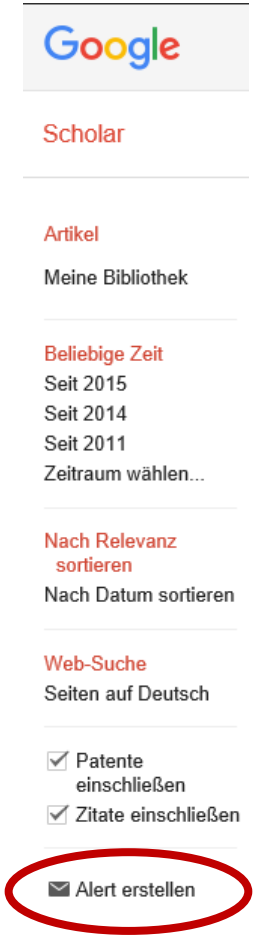
If you do not like coffee…

- Take your time to search for some related papers on your own topic – using the tools provided by Google Scholar
- Create a Google Scholar alert for your topic to retrieve relevant new publications
- Ask us if you have any open questions regarding literature research

We will continue in 10 minutes.



Now it’s time for a coffee!

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How to read a scientific paper

Contents of this section are partially based on the lecture
Methodik und Werkzeuge wissenschaftlichen Arbeitens in der Informatik
by Andreas Reinhardt

Structure of Research Papers / Articles
(in Computer Science and Electrical Engineering)

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- Title
- Abstract
- Introduction

15%

- Related Work

10%

- The “Content”
  - Analysis of problem and solution space
  - Concept of the solution
  - Implementation details
  - Evaluation / result discussion

65%

- Conclusions and outlook

10%

Structure of Survey Papers
(in Computer Science and Electrical Engineering)

TECHNISCHE UNIVERSITÄT DARMSTADT

- Title
- Abstract
- Introduction

15%

- Related Work
  - Classification of RW
  - Discussion of the approaches

75%

- Conclusions and outlook

10%

Before you read…
Assess the quality of the publication

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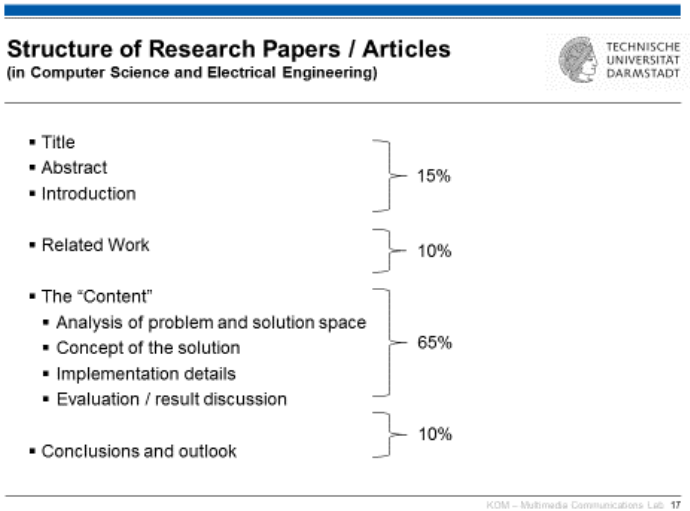
Of the conference

- Quality: Top-level (INFOCOM, MOBICOM, SenSys, …) vs rater poor level (IARIA, HighSci, SciRP, …)
- Acceptance rate (< 20%), CORE ranking

Memorize: Top-level conferences are listed in rankings

Of the paper

- Check for **completeness** (simple, yet effective)
  - Meet the general structure (cf. slides before)?
  - Section on related work?
    (Caution: sometimes merged with concept)



Before you read…
Assess the quality of the publication

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Of the conference

Of the paper

- Check for **completeness** (simple, yet effective)
- Check for **visual appearance**
  - Equations, figures, and tables legible and well formatted?
  - Sections of only a few lines length?
  - Typos in section headings?

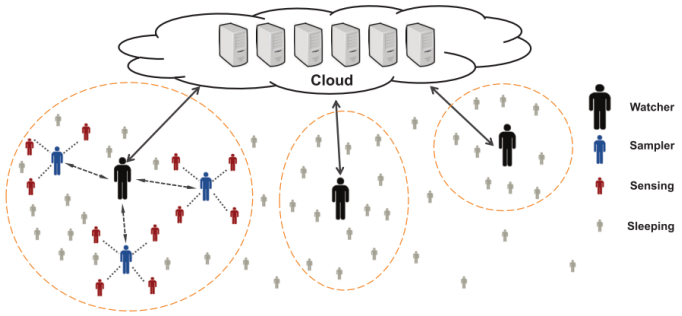

Figure 1: The Hierarchy of a Crowd

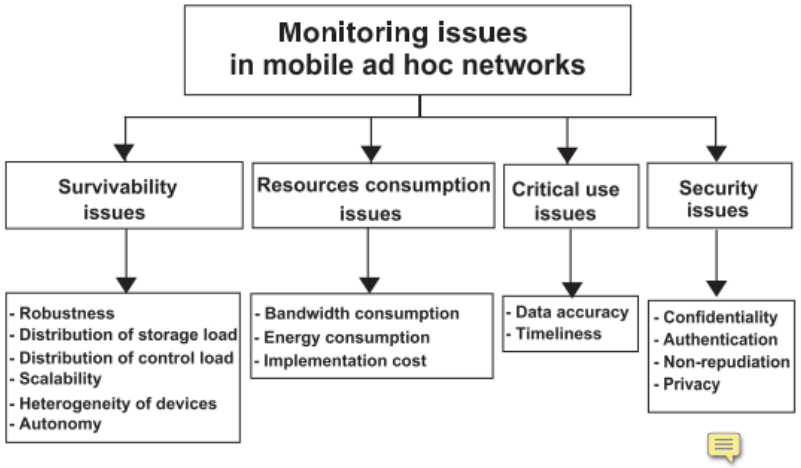

Fig. 1. Mobile ad hoc network monitoring challenges.

However: No guarantee for high quality papers ➔ Hints for reading the good ones

When you start to read…
First Impressions

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Step 1: Read the paper title

- Can you get a rough idea what the paper might present?

Step 2: Read the abstract

- The abstract should motivate the problem and outline the authors‘ contributions
- Does it fit to the paper title?

Step 3: Read the conclusions

- Check if they match the claims made in the abstract

Step 4: Read the introduction

- Does it still match the abstract/title?

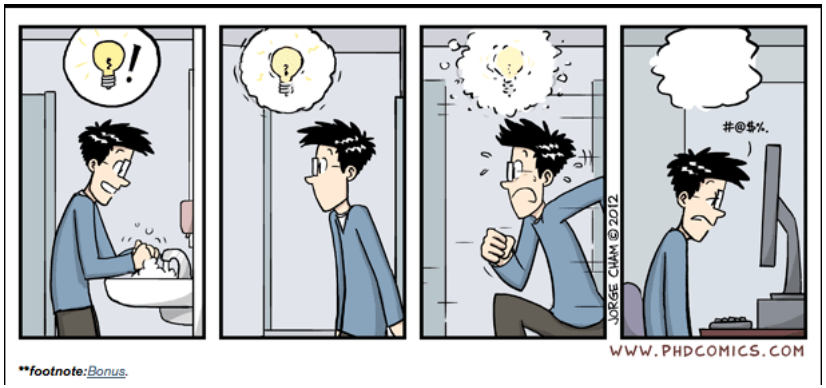
Outcome: What are your expectations to the paper?

- Keep these in mind – or even better: write them down!

When you read on…

Continue reading the paper

- Check whether the contributions meet the claims in the abstract/introduction
- Keep a clear mind: Check claims for feasibility
  - The more experienced you are, the less time it takes…



Consolidate your general impression

- Is there a clear flow of thoughts?
- Do the contributions sound feasible/credible?
- Were your expectations fulfilled?
- Does the outer appearance meet the quality of the contents?

When you finished reading…
Good and/or Interesting Publications

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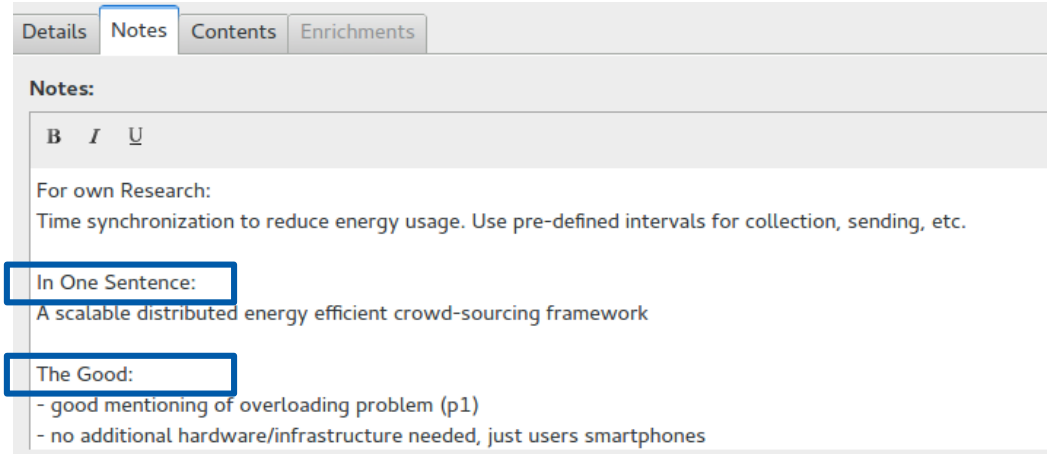
If the publication is (possibly) relevant for your own research

- Add it to your bibliography management system (if not read there)
- Annotate it!
  - Aspects that you found interesting and remarkable results
  - Keywords or tags
  - “In one sentence”; “the good”; “the bad”
- Check its references for further interesting publications

MENDELEY



When you finished reading…
Good and/or Interesting Publications

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But beware of the "Exponential reference fan-out"

- Each publication has ~30 references
- Each of these references has ~30 references
  - One would have to read 930 papers ➔ **selection criteria?**

[120] A. Vahdat and D. Becker, "Epidemic routing for partially connected ad hoc networks," Technical Report CS-200006, Duke University, Tech. Rep., 2000.

[121] T. Spyropoulos, K. Psounis, and C. S. Raghavendra, "Spray and wait: An efficient routing scheme for intermittently connected mobile networks," in *ACM SIGCOMM Workshop on Delay-tolerant Networking*, Philadelphia, PA, 2005, pp. 252–259.

[122] A. Lindgren, A. Doria, and O. Schelén, "Probabilistic routing in intermittently connected networks," *ACM SIGMOBILE mobile computing and communications review*, vol. 7, no. 3, pp. 19–20, 2003.

[123] J. Burgess, B. Gallagher, D. Jensen, and B. N. Levine, "Maxprop: Routing for vehicle-based disruption-tolerant networks." in *IEEE INFOCOM*, vol. 6, 2006, pp. 1–11.

[124] R. Groenevelt, P. Nain, and G. Koole, "The message delay in mobile ad hoc networks," *Performance Evaluation*, vol. 62, no. 14, pp. 210 – 228, 2005.

[125] X. Zhang, G. Neglia, J. Kurose, and D. Towsley, "Performance modeling of epidemic routing," *Computer Networks*, vol. 51, no. 10, pp. 2867 – 2891, 2007.

[126] P. Jacquet, B. Mans, and G. Rodolakis, "Information propagation speed in mobile and delay tolerant networks," *IEEE Transactions on Information Theory*, vol. 56, no. 10, pp. 5001–5015, Oct 2010.

[127] E. Baccelli, P. Jacquet, B. Mans, and G. Rodolakis, "Highway vehicular delay tolerant networks: Information propagation speed properties," *IEEE Transactions on Information Theory,*, vol. 58, no. 3, pp. 1743–1756, 2012.

[128] V. Vukadinović and G. Karlsson, "Spectral efficiency of mobility-assisted podcasting in cellular networks," in *ACM International Workshop on Mobile Opportunistic Networking (MobiOpp)*, Pisa, Italy, 2010, pp. 51–57.

[129] S. Busanelli, F. Rebecchi, M. Picone, N. Iotti, and G. Ferrari, "Cross-network information dissemination in vehicular ad hoc networks (VANETs): Experimental results from a smartphone-based testbed," *MDPI Future Internet*, vol. 5, no. 3, pp. 398–428, 2013.

[130] NS-2, "Network simulator," http://nsnam.isi.edu/nsnam/index.php.

[144] V. Chandrasekhar, J. G. Andrews, and A. Gatherer, "Femtocell networks: A survey," *IEEE Communications Magazine*, vol. 46, no. 9, pp. 59–67, Sep. 2008.

[145] J. G. Andrews, H. Claussen, M. Dohler, S. Rangan, and M. C. Reed, "Femtocells: Past, Present, and Future," *IEEE Journal on Selected Areas in Communications*, vol. 30, no. 3, pp. 497–508, Apr. 2012.

[146] J. Hoadley and P. Maveddat, "Enabling small cell deployment with HetNet," *IEEE Wireless Communications*, vol. 19, no. 2, pp. 4–5, Apr. 2012.

[147] I. F. Akyildiz, W. Lee, M. C. Vuran, and S. Mohanty, "Next generation/dynamic spectrum access/cognitive radio wireless networks: A survey," *Computer Networks*, vol. 50, no. 13, pp. 2127 – 2159, 2006.

[148] K. Berg and M. Katsigiannis, "Optimal cost-based strategies in mobile network offloading," in *International Conference on Cognitive Radio Oriented Wireless Networks*, Stockholm, Sweden, Jun. 2012.

[149] P. Grønsund, O. Grøndalen, and M. Lähteenoja, "Business Case Evaluations for LTE Network Offloading with Cognitive Femtocells," *Elsevier Telecommunications Policy*, vol. 37, no. 2–3, 2013.

[150] H. ElSawy, E. Hossain, and D. I. Kim, "Hetnets with cognitive small cells: user offloading and distributed channel access techniques," *IEEE Communications Magazine*, vol. 51, no. 6, 2013.

[151] A. J. Mashhadi and P. Hui, "Proactive Caching for Hybrid Urban Mobile Networks," University College London, Tech. Rep., 2010.

[152] F. Malandrino, M. Kurant, A. Markopoulou, C. Westphal, and U. Kozat "Proactive seeding for information cascades in cellular networks," in *IEEE INFOCOM*, Orlando, FL, Mar. 2012, pp. 1719–1727.

[153] M. Fiore, C. Casetti, and C. Chiasserini, "Caching strategies based on information density estimation in wireless ad hoc networks," *IEEE Transactions on Vehicular Technology*, vol. 60, no. 5, pp. 2194–2208, Jun 2011.

[154] X. Zhuo, W. Gao, G. Cao, and Y. Dai, "Win-Coupon: An incentive framework for 3G traffic offloading," in *IEEE International Conference on Network Protocols (ICNP)*, Vancouver, Canada, Oct. 2011.

[155] L. Gao, G. Iosifidis, J. Huang, and L. Tassiulas, "Economics of mobile data offloading," in *IEEE INFOCOM*, Turin, Italy, Apr. 2013, pp. 1–6

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How to write a survey paper

Contents of this section are partially based on the lecture
Methodik und Werkzeuge wissenschaftlichen Arbeitens in der Informatik
by Andreas Reinhardt

Reminder: Structure of Survey Papers
(in Computer Science and Electrical Engineering)

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Reminder

- Title
- Abstract
- Introduction

15%

- Related Work
  - Classification of RW
  - Discussion of the approaches

75%

- Conclusions and outlook

10%

Goal of a Survey Paper

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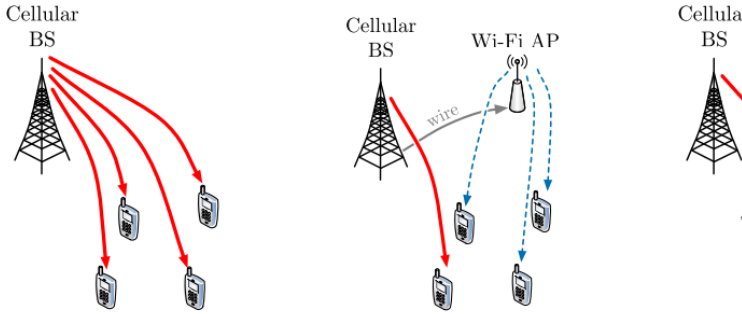
Providing a good overview of a specific research topic

- Relevant definition(s) for the topic
- Highlighting potential challenges in that area
- Classification of the existing research



(a) Infrastructure only. (b) AP-based offloading. (c) Termi

Fig. 1. The two major approaches to cellular data offloading compared to the baseline traditional infrastructure-only syste Access Point (b). Offloading through terminal-to-terminal transmissions (c).

TABLE I: A classification of mobile data offloading strategies, along with their research directions and surveyed works.

Strategy	Delay Requirements: Non-delayed	Delay Requirements: Delayed
AP-based	AP Deployment and Modeling [12], [13], [14], [15], [16], [17], [18], [19]. 3GPP Standardization [28], [29], [30], [31], [32], [33]. Transport Protocols [40], [41], [42], [43].	Prediction-Based Offloading [20], [21], [5], [22], [23], [24], [25], [26], [27]. Feasibility and AP Deployment [12], [34], [5], [35], [36], [37], [38], [39].
T2T	Cooperative Distribution [44], [45], [46], [47], [54], [55], [56], [57], [58], [59], [60], [61]. D2D Capabilities Integration [70], [71], [72], [73], [74], [75], [76], [77], [78], [79], [80].	Subset Selection [48], [49], [50], [51], [52], [53]. Architecture [62], [63], [64], [65], [66], [67], [68], [69].

Goal of a Survey Paper

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Providing a good overview of a specific research topic

- Relevant definition(s) for the topic
- Highlighting potential challenges in that area
- Classification of the existing research
- Detailed **presentation** and **discussion** of the existing approaches
  - Core idea/concept
  - Evaluation environment
  - Evaluation methodology
  - Results

Caution: A survey paper is **more than just multiple summaries**

LaTeX vs. Word: why you should use LaTeX

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Document preparation system

- Clear separation of content and layout
- Platform-independent with numerous distributions
  - Windows, Mac, Linux, …

```
\documentclass{article}
\begin{document}
Small is beautiful.
\end{document}
```

Strengths

- High typographic quality
- Excellent support to typeset mathematical equations
- BibTeX: Simple generation of bibliography
- Extensible: Packages for almost every purpose

LaTeX templates are often available

- Many conferences in computer science solicit papers in a specific layout (IEEE/ACM)
- Universities often have specific templates for final theses (good exercise for you bachelor's or master's thesis)

Latex…
Getting Started, Getting Help, …

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Distributions for (virtually) every OS

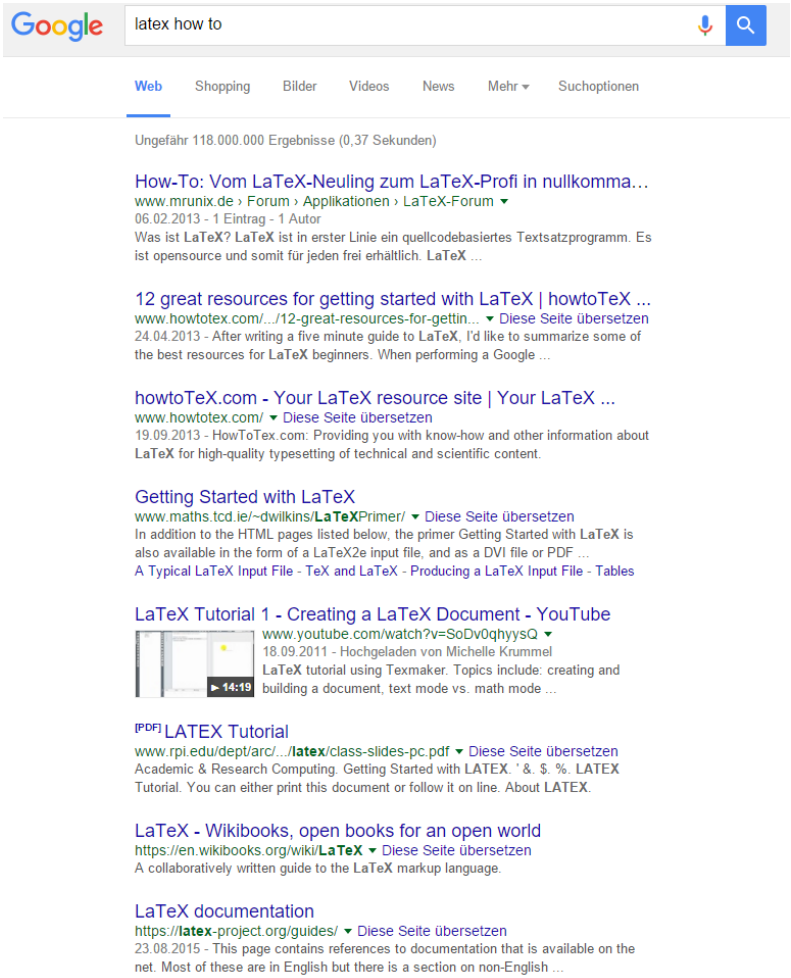
- TeXlive, MiKTeX, MacTeX, …

Editors

- Eclipse, TeXnicCenter, TeXmaker, TeXShop
- LyX (WYSIWYM editor)

Manuals/How To‘s

- Google
- YouTube
- The Not So Short Introduction to LaTeX2e
- TeX Frequently Asked Questions
- comp.text.tex, de.comp.text.tex, …



One more thing... ➔ Plagiarism

- Steve Jobs

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Although that should be obvious:

Plagiarism is not tolerated in this seminar.

By participating in this seminar, you declare that all **submissions** (presentation, report) **are the result of your own independent scholarly work**, and that in all cases **material from the work of others** (in books, articles, essays, dissertations, and on the internet) **is acknowledged**, and quotations and paraphrases are clearly indicated.

The following slides are based on material by the **Ottawa State University**.

The Guidelines

PRINCIPLES AND RULES

- When borrowing another person's words, use quotation marks and include a complete reference (author's name, date, pages).*
- Do not paraphrase another writer's words and pass them off as your own.
- When borrowing another person's ideas, acknowledge their origin.

Two basic rules:

1. If you use someone else's words, data, etc., use quotation marks and give a complete reference.
2. If you borrow someone else's ideas, give a complete reference.

** Internet sources must also be acknowledged.*

Taken from: „Beware of Plagiarism“, by Ottawa State University

Quick Quiz

TECHNISCHE UNIVERSITÄT DARMSTADT

Source:

Over time technology has been instrumental in increasing industrial and agricultural production, improving transportation and communications, advancing human health care and overall improving many aspects of human life. However, much of its success is based on the availability of land, water, energy, and biological resources of the earth.*

*Pimental, David, "Population Growth and the Environment: Planetary Stewardship", *Electronic Green Journal*, #9, December, 1998. Online. Internet. [June 22, 1999]. Available WWW: http://egj.lib.uidaho.edu/egj09/piment1.html

Your version:

Research has shown that **technology has been instrumental in increasing industrial and agricultural production, improving transportation and communications, advancing human health care and overall improving many aspects of human life. However, much of its success is based on the availability of land, water, energy, and biological resources of the earth.**

- **No citation, large parts copied word by word. Definitely a 5.0!**

Quick Quiz

TECHNISCHE UNIVERSITÄT DARMSTADT

Source:

Over time technology has been instrumental in increasing industrial and agricultural production, improving transportation and communications, advancing human health care and overall improving many aspects of human life. However, much of its success is based on the availability of land, water, energy, and biological resources of the earth.*

*Pimental, David, "Population Growth and the Environment: Planetary Stewardship", *Electronic Green Journal*, #9, December, 1998. Online. Internet. [June 22, 1999]. Available WWW: http://egj.lib.uidaho.edu/egj09/piment1.html

Your version:

Research has shown that the advancement of **technology has been instrumental in increasing industrial and agricultural production, improving transportation and communications, health care and overall many aspects of human life.** (Pimental, 1998)

- **The source is cited, but you took large parts word-by-word!**

Quick Quiz

TECHNISCHE UNIVERSITÄT DARMSTADT

Source:

Over time technology has been instrumental in increasing industrial and agricultural production, improving transportation and communications, advancing human health care and overall improving many aspects of human life. However, much of its success is based on the availability of land, water, energy, and biological resources of the earth.*

*Pimental, David, "Population Growth and the Environment: Planetary Stewardship", *Electronic Green Journal*, #9, December, 1998. Online. Internet. [June 22, 1999]. Available WWW: http://egj.lib.uidaho.edu/egj09/piment1.html

Your version:

According to Pimental, "technology has been instrumental in increasing industrial and agricultural production, improving transportation and communications, advancing human health care and overall improving many aspects of human life" (1998). He cautions, however, that technological progress is dependent on natural resources.

- **You have properly quoted and paraphrased the author!**
- **However, do not use too many word-by-word citations: bad style.**

Quick Quiz

TECHNISCHE UNIVERSITÄT DARMSTADT

Source:

Over time technology has been instrumental in increasing industrial and agricultural production, improving transportation and communications, advancing human health care and overall improving many aspects of human life. However, much of its success is based on the availability of land, water, energy, and biological resources of the earth.*

*Pimental, David, "Population Growth and the Environment: Planetary Stewardship", *Electronic Green Journal*, #9, December, 1998. Online. Internet. [June 22, 1999]. Available WWW: http://egj.lib.uidaho.edu/egj09/piment1.html

Your version:

Research has shown that the advancement of science has been beneficial to the areas of agricultural and industrial production and communication and transportation fields. Furthermore, science has greatly improved health care and is the prime factor in a higher standard of life for many people.

- **Most words have changed, but structure remains the same**
- **This is paraphrasing without indicating the original source – the worst!**

Quick Quiz

TECHNISCHE UNIVERSITÄT DARMSTADT

Source:

Over time technology has been instrumental in increasing industrial and agricultural production, improving transportation and communications, advancing human health care and overall improving many aspects of human life. However, much of its success is based on the availability of land, water, energy, and biological resources of the earth.*

*Pimental, David, "Population Growth and the Environment: Planetary Stewardship", *Electronic Green Journal*, #9, December, 1998. Online. Internet. [June 22, 1999]. Available WWW: http://egj.lib.uidaho.edu/egj09/piment1.html

Your version:

According to Pimental (1998), technology has greatly improved our standard of living. He cautions, however, that technological progress is dependent on natural resources.

- **The proper way to paraphrase, and credit is given!**

Discussion / Questions

TECHNISCHE UNIVERSITÄT DARMSTADT

Thank you!

Appendix

Literature and Links

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CORE ranking

http://portal.core.edu.au/conf-ranks/

Conference acceptance rates

http://isi.usc.edu/confstats/

https://www.cs.ucsb.edu/~almeroth/conf/stats/

Say “Hello, World!” in LaTeX

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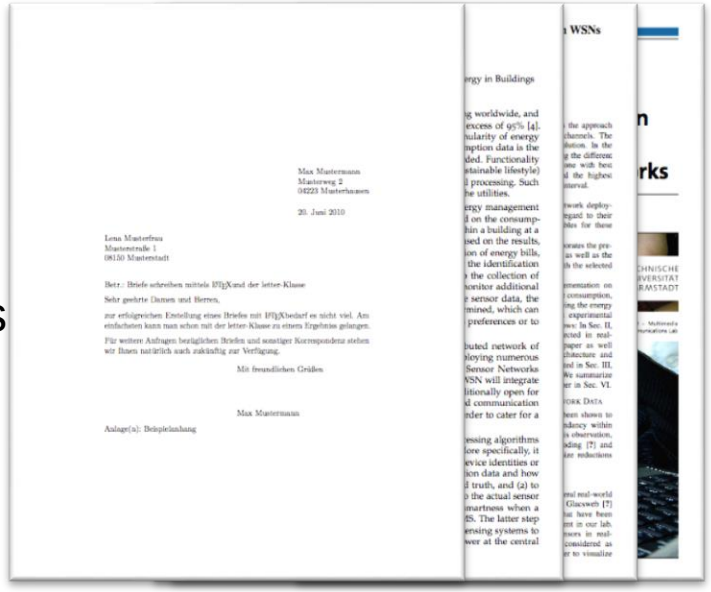
Most simple document just requires four lines of input

```
\documentclass{article}
\begin{document}
This is a sample text!
\end{document}
```

specifies the class/style template
start tag indicates that text follows
enter your text here
closing tag indicates end of document

Commonly used document classes

- `tudreport`
  - TU Darmstadt-style reports and theses
- `IEEEtran`
  - Used by most computer science conferences
- `scrartcl`
  - KOMA script article (very configurable)
- `letter`
  - Yes, some people still write letters…



Configurability and Extensibility

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Many document classes have parameters

- `a4paper` / `letterpaper` — defines paper size
- `10pt` / `11pt` / `12pt` — defines font size
- `oneside` / `twoside` — single- or double-sided document
- … — cf. documentation of used class

LaTeX documents can be extended by packages

- `\usepackage[utf8]{inputenc}` — adjust input encoding to the system
- `\usepackage[T1]{fontenc}` — adjust font encoding in output
- `\usepackage{amsmath}` — enable mathematical symbols

- `\usepackage[ngerman]{babel}` — set document language to German
- `\usepackage{color}` — allow colored text
- `\usepackage{url}` — make links clickable
- `\usepackage{hyperref}` — turns all links into references

Structuring and Formatting Documents

TECHNISCHE UNIVERSITÄT DARMSTADT

Hierarchical structuring

- `\chapter{}` (only available in `report`s, starts a new page)
- `\section{}`
- `\subsection{}`
- `\subsubsection{}`
- `\paragraph{}`
- `\subparagraph{}`
- Combination with an asterisk (`*`) leads to unnumbered entries, e.g., `\section*{}`

Typefaces

- `\texttt{abc}` typewriter
- `\textbf{def}` bold
- `\emph{ghi}` emphasized (often the same as italics)
- `\textit{jkl}` italics

Lists and Enumerations

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Numbered lists (enumeration)

- `\begin{enumerate}`
- `\item ...`
- `\end{enumerate}`

Unnumbered lists

- `\begin{itemize}`
- `\item ...`
- `\end{itemize}`

- First level, itemize, first item
  - Second level, itemize, first item
  - Second level, itemize, second item
    1. Third level, enumerate, first item
    2. Third level, enumerate, second item
- First level, itemize, second item

Lists can be encapsulated in one another

Footnotes

- `\footnote{This is a footnote.}`

More Complex (=Realistic) Example

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Document class

```
\documentclass[conference]{IEEEtran}
\begin{document}
```

Title information

```
\title{This Should Be Set In Title Case}
\author{  \IEEEauthorblockN{Andreas Reinhardt}
          \IEEEauthorblockA{Multimedia Communications Lab, TU Darmstadt  }
\maketitle
```

Actual content

```
\begin{abstract}
  What is the problem? Why is it a problem?
  What do we do about it? Why is our solution good?
\end{abstract}

\section{Introduction}
  Today, the biggest problem is ...

\end{document}
```

Quotes and Citations

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LaTeX has different quotation marks

“This is a quote” [1]

- Quotation marks in English documents
  - Before the quote: two forward ticks (`` ` ` ``)
  - After the quote: two single ticks (`''`)

- „German style“ in German documents „Das ist wörtlich übernommen“
  - Load the German babel package: `\usepackage[ngerman]{babel}`
  - Before a quote
    - Double quotation mark and single forward tick (`"` `` ` ``)
    - Alternatively two commas (`,,`)
  - After the quote: double quotation mark and single tick (`"'`)

General remark about the usage of verbatim citations

- Use sparingly to avoid distracting the reader from your own contributions
- In any case: Avoid plagiarism!

Frequently Asked Questions

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Q: Umlauts in German documents do not work

A1: Use escape sequences `\"A`, `\"O`, `\"U`, `\"a`, `\"o`, `\"u`, and `\ss{}`

A2: Use the `inputenc` and `fontenc` packages:

```
\usepackage[ansinew]{inputenc}   (Windows)
\usepackage[latin1]{inputenc}          (Linux)
\usepackage[applemac]{inputenc} (OSX)
\usepackage[T1]{fontenc}
```

Q: I need to use a special symbol

A: Check out the comprehensive LaTeX symbol list

http://www.artofproblemsolving.com/wiki/index.php/LaTeX:Symbols

http://mirror.unicorncloud.org/CTAN/info/symbols/comprehensive/symbols-a4.pdf

Q: The document does not compile

A: Check the log output, possibly search the Web for known issues

TU Darmstadt Layout

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LaTeX class for TUD corporate identity

- Packets are available (C. v. Loewenich, J. Werner)
  - `http://exp1.fkp.physik.tu-darmstadt.de/tuddesign`
  - Installation instructions are provided for different operating systems

- Technical reports, student reports (unless other document styles are requested)
  - Use the `tudreport` class
  - Check your institute for different (modified) templates
    - `http://www.kom.tu-darmstadt.de/teaching/theses/templates`

- TU Darmstadt uses special fonts in their corporate design
  - Make sure to install them for the template to look properly

Charter FrontPage Stafford