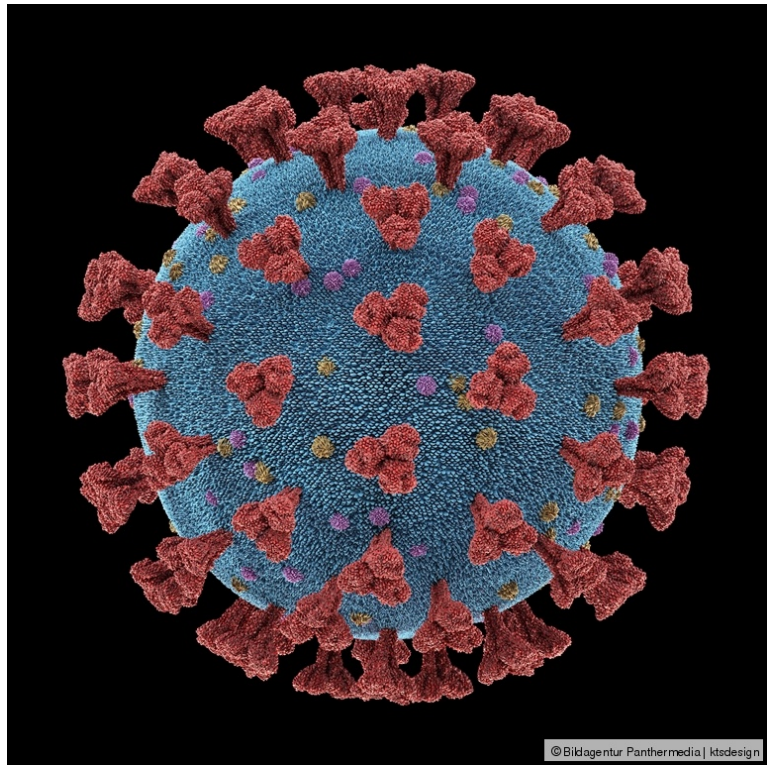
COVID-19 Measures

- Wear a mask (medical or FFP2) until you have taken a seat
- When seated you **may** take off the mask if you can maintain an interpersonal distance of 1,5 m
- Open the windows periodically whenever possible
- Behave reasonable and use common sense



FRANKFURT UNIVERSITY OF APPLIED SCIENCES

Internet of Things Seminar
Scientific Work

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https://teaching.dahahm.de

Agenda

1. Warm up
2. Topic Assignment
3. Scientific Work

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Where to get help?

- STEPS and ReActing
  $\Longrightarrow$ Anja Ruhland, M. Sc.
- Prof. Dr. Demiröz offers a workshop next week on Tuesday

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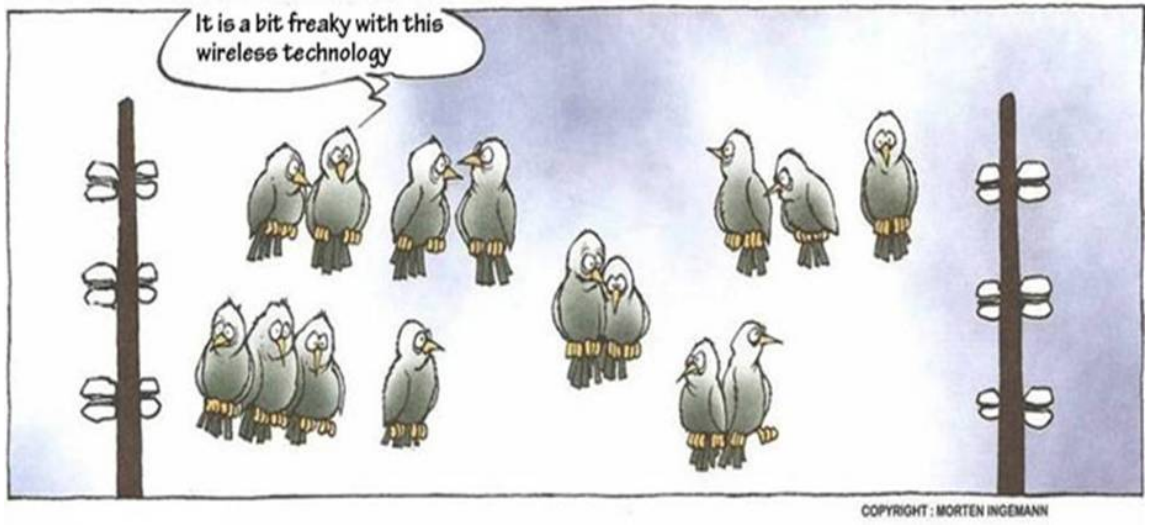
The Internet of Things

What is the Internet of Things?

What do you find exciting or revolutionary about the IoT?



What do you find dangerous about the Internet of Things?

Agenda

1 Warm up

2 Topic Assignment

3 Scientific Work

Topic Assignment

- **Group 1:** Bilal Farouni and Ammar Albaalbaki
  IoT privacy concerns
- **Group 2:** Rivanshi Agarwal and Nelli Aghajanyan
  Virtualization for low-power IoT devices
- **Group 3:** Rohit Kumar and Jyotsana Shankar
  Evolution of Low-Power Hardware
- **Group 4:** Deepa Vijaya Kumar and Navya Sree Kanakala
  Cloud solutions for IoT applications
- **Group 5:** Melisa Xhepa
  Blockchain and the Internet of Things
- **Group 6:** Sharif Ahmad and Fabiola Hodo
  Transport Layer Issues for Constrained Node Networks
- **Group 7:** Alif Elahi Khan and Klea Topi
  Lightweight Integrity and Confidentiality for IoT
- **Group 8:** Sahrish Kanwal and Fargina Mahmud
  Industrial IoT
- **Group 9:** Qazi Ameer Hammad and Abid Latif
  Survey on IoT Applications
- **Group 10:** Shoaib Iftikhar and Muhammad Suleman Iqbal
  Bluetooth Low-Energy Standard for the IoT
- **Group 11:**
  Information-Centric Smart Object Networking
- **Group 12:** Muhammad Haseeb Anwar and Barun Chakroborty
  Software Update for IoT systems
- **Group 13:** Farjatun Nessa and Shovan Banik
  Energy-Harvesting
- **Group 14:** Omme Salma and Sandra Babu
  Low-Power WPANs
- **Group 15:** Moeez Ur Rehman and Harmain Haider
  Energy-efficient Wireless Protocols
- **Group 16:** Shrabanti Saha Rimi and Bhargav Anghan
  Low-code for IoT applications
- **Group 17:** Mohammad Aftabudduza and Maseat Nahar
  Survey on Medical IoT Applications
- **Group 18:** Sameer Soni and Sharib Rizwan
  Key management and secure bootstrapping for large scale constrained-node networks
- **Group 19:** Luan Nguyen and Tung Le
  Programming for IoT Devices
- **Group 20:** Shourob Datta and Mohammad Sayedur Rahman
  Human Activity Using IOT Technologies

Agenda

1 Warm up

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3 Scientific Work

How to write a scientific paper?

How would you start?
What are your BIGGEST uncertainties right now?

Scientific workflow

1. Choose your research topic
2. Identify your problem statement
3. Create your hypothesis
4. Review the literature
5. Optional: conduct research
6. Evaluate
7. Identify publication target
8. Write
9. Submit (and pray!)
10. Receive reviews
11. Finalize

Types of Publications

Content/Style

- Original Research
- Review/Survey Article
- Position/Opinion Paper
- Case Study
- Problem Statement

Format/Publication

- Conference/Workshop Proceedings
- Journal Paper
- Short Paper
- Poster
- Demo
- Non-scientific Publication

What to read?

What should I read?
How do I read?
Where do I find it?

Research Literature

- Library
- Google Scholar
- ResearchGate

Correct Citation

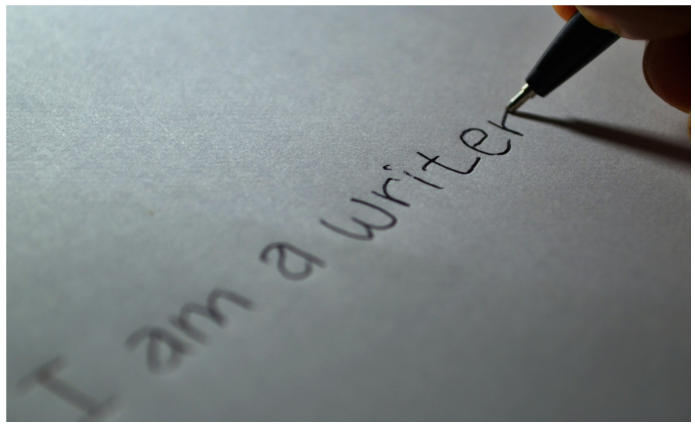
- Back your statements
- Insert a reference for any direct or indirect citation
- Direct citations must be marked with quotation marks

No Plagiarism!

Plagiarism will not be tolerated! Plagiarism will be reported to the examination office and can lead to exmatriculation in case of repetition.

Writing a Paper

- Define the scope
- Develop a **red thread**
- First Draft
- Iterations and getting feedback
- Polishing



Organization

- Title and authors (with affiliation and contact data)
- Abstract
- Introduction (including a TOC)
- Body
- Conclusion
- Optional: Outlook
- Bibliography

Structure

Example Structure (Original Research)

- Introduction
- Problem statement
- Related work
- Main idea
- Spotlight
- Evaluation
- Conclusion

Example Structure (Survey)

- Introduction
- Definition of key terms
- Classification/Categorization
- Case studies
- Discussion
- Conclusion

Visualizations

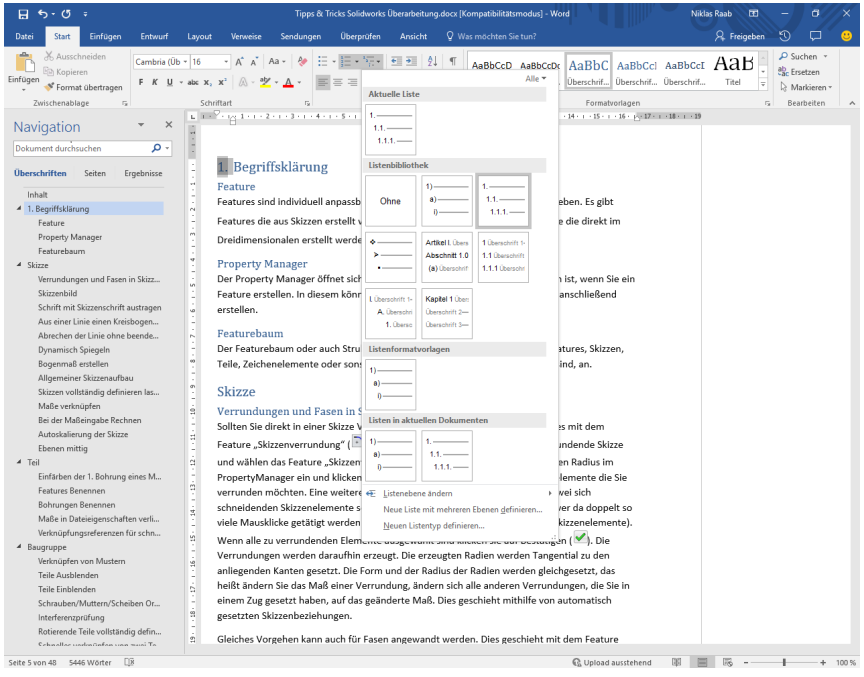
- Graphs and figures can help understanding
- Tables are valuable for categorizations and comparisons
- Always put captions and labels to graphs, figures, and tables
- Refer to them in the text
- Readability is key!

Style

- Be concise
- Be objective and accurate
- Keep sentences and paragraphs short
- Use a simple language
- Avoid indirect (passive) statements

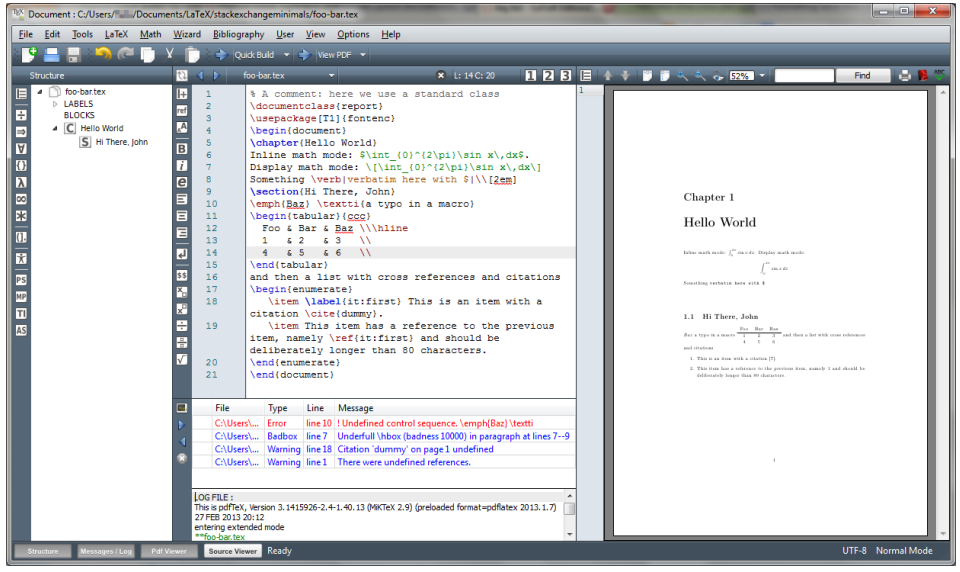
Tooling

Microsoft Word



Source: https://superuser.com

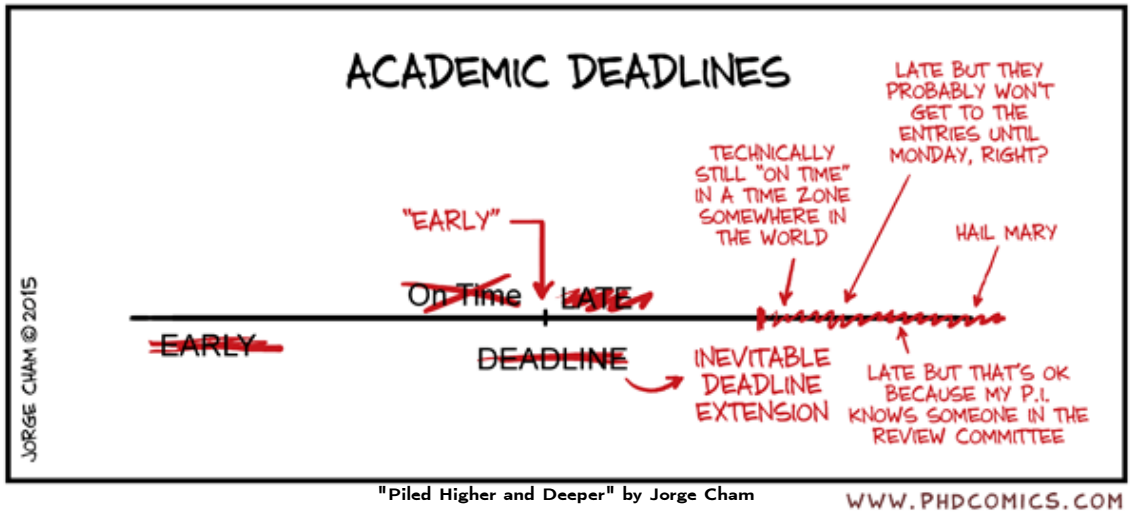
LaTeX



Source: https://tex.stackexchange.com

Common Pitfalls

- Find a problem for your solution
- Avoid negative results
- Dubious publisher
- Deadline driven research



www.phdcomics.com

Peer Reviewing

Why is peer reviewing important in science?

Reviewing a Paper

- Read the abstract
- Decide on acceptance of invitation to review
- Read the paper and make notes
- Try to follow and understand the thoughts
- Perform a background check on existing literature
- Evaluate . . .
  - originality
  - timeliness of the contribution
  - relevancy wrt publication target
  - presentation
  - grammar and spelling

Happy writing!