Assistant Professorship of Embedded Systems and Internet of Things
Department of Electrical and Computer Engineering
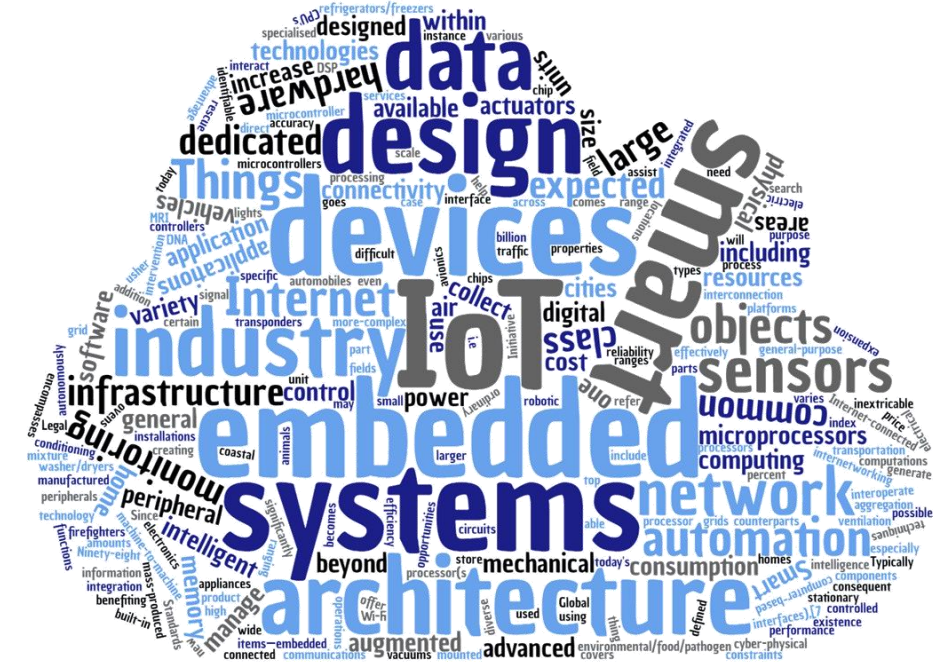Technical University of Munich

TUM

Advanced Seminar
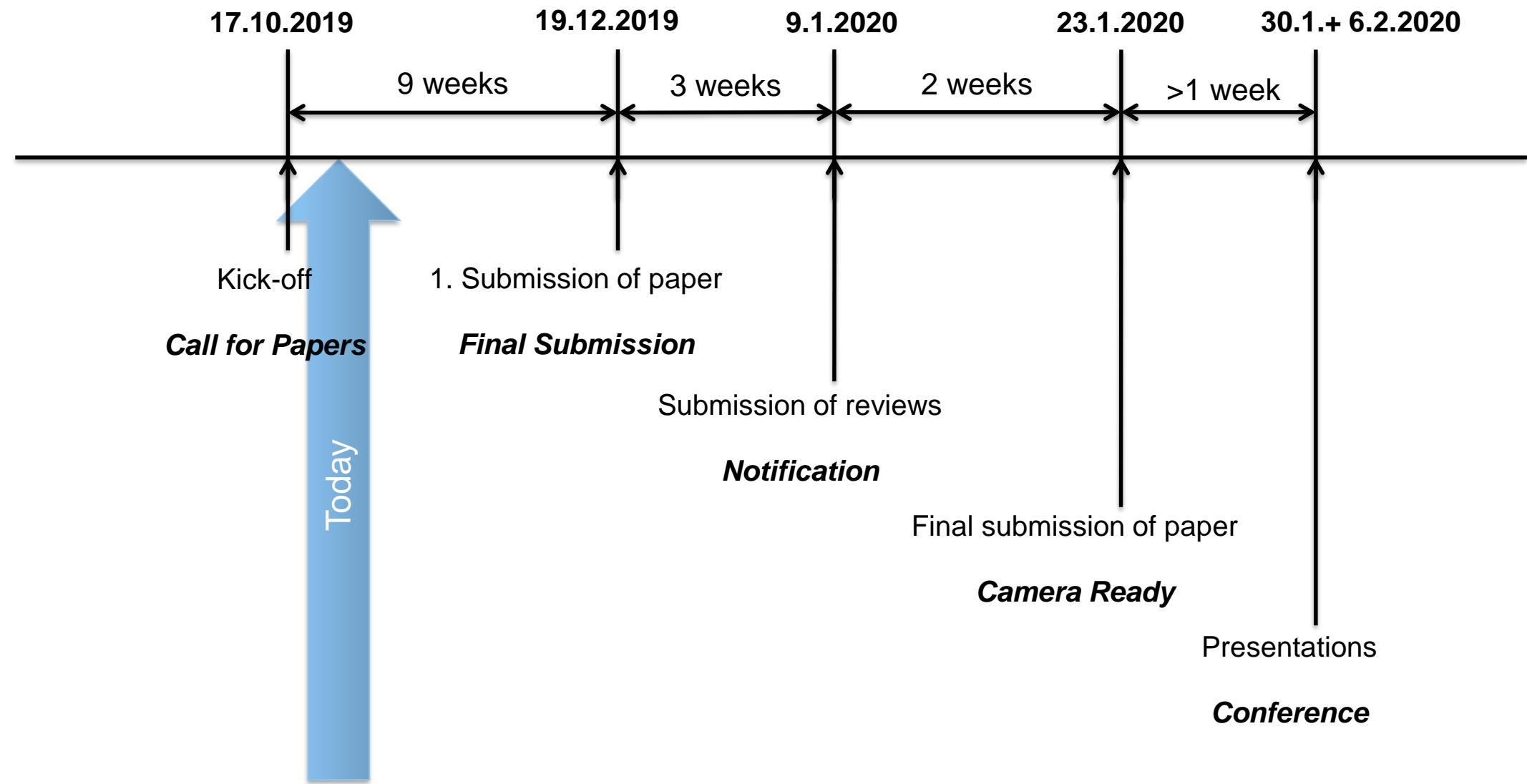# Embedded Systems and Internet of Things

Literature Review

Semester Overview

- Kick-off meeting
- Introductions to
  - Literature review
  - English language for scientific writing
  - How to structure a good paper
  - How to write a good abstract
  - Layout of successful papers
  - How to present your work

- Meetings for discussion and feedback
- Discussion of paper peer-reviews
- Final presentation "Mini Conference"

Schedule

17.10.2019 **19.12.2019** **9.1.2020** **23.1.2020** **30.1.+ 6.2.2020**

9 weeks   3 weeks   2 weeks   >1 week

Kick-off   1. Submission of paper

Call for Papers   *Final Submission*

Today

Submission of reviews

Notification

Final submission of paper

Camera Ready

Presentations

Conference

This Week

Identify the state of the art: how to find good references for your topic?

Preparation:

- Where would I search?

- How do I find a PDF of a paper?

- What would I search for?

- What makes a credible source?

- How would I judge if a source matches my topic?

Where do I search for literature?

https://scholar.google.com

- De facto standard for literature research
- Indexes literature based on Google website crawling
- Links to PDF if available

ResearchGate

https://www.researchgate.net

- Authors self-archive their publications

- Enables keyword search

- Full-texts available for many publications

- Full-text request can be sent to authors if PDF is not available

- Do some research on the author's website before filing a full-text request

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https://www.ub.tum.de/eaccess

https://www.lrz.de/services/netzdienste/proxy/browser-config/

- Works for sources for which TUM has the access rights

IEEExplore

http://ieeexplore.ieee.org
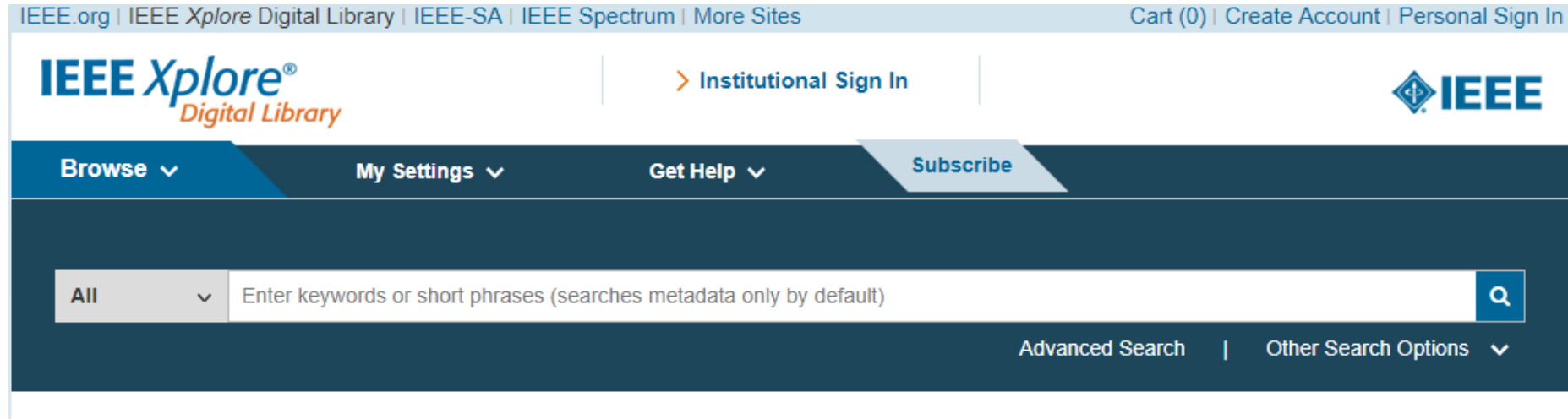
- IEEE publishes many popular journals and conferences
- Papers in IEEE have gone through a minimum of quality checking
- Works with TUM eAccess Bookmarklet!

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ACM Digital Library

- ACM publishes many popular journals and conferences
- Papers in ACM DL have gone through a minimum of quality checking
- Works with TUM eAccess Bookmarklet!

Hands-on Exercise

Find different ways to obtain the PDF for the following paper:

M. D. Pierro, "What Is the Blockchain?," in *Computing in Science & Engineering*, vol. 19, no. 5, pp. 92-95, 2017.
doi: 10.1109/MCSE.2017.3421554

What would I search for?

- Use specific keywords, but do not be over-specific to not exclude relevant work

- Find relevant keywords by reading initial papers / websites

- Find direct links to references in relevant papers and work backwards / sideways

- Think in keyword trees:
  - Example: Digitalization -> Internet of Things -> Communication -> MQTT

- Think of adjacent keywords to make your search broader and discover more relevant work

What makes a credible source?

http://libguides.library.cityu.edu.hk/litreview/evaluating-sources

To read for your literature review, it is not enough just to understand. **You are also expected to think, analyze and read with a critical mind**. Identify the arguments made by the author, and ask questions while you read.
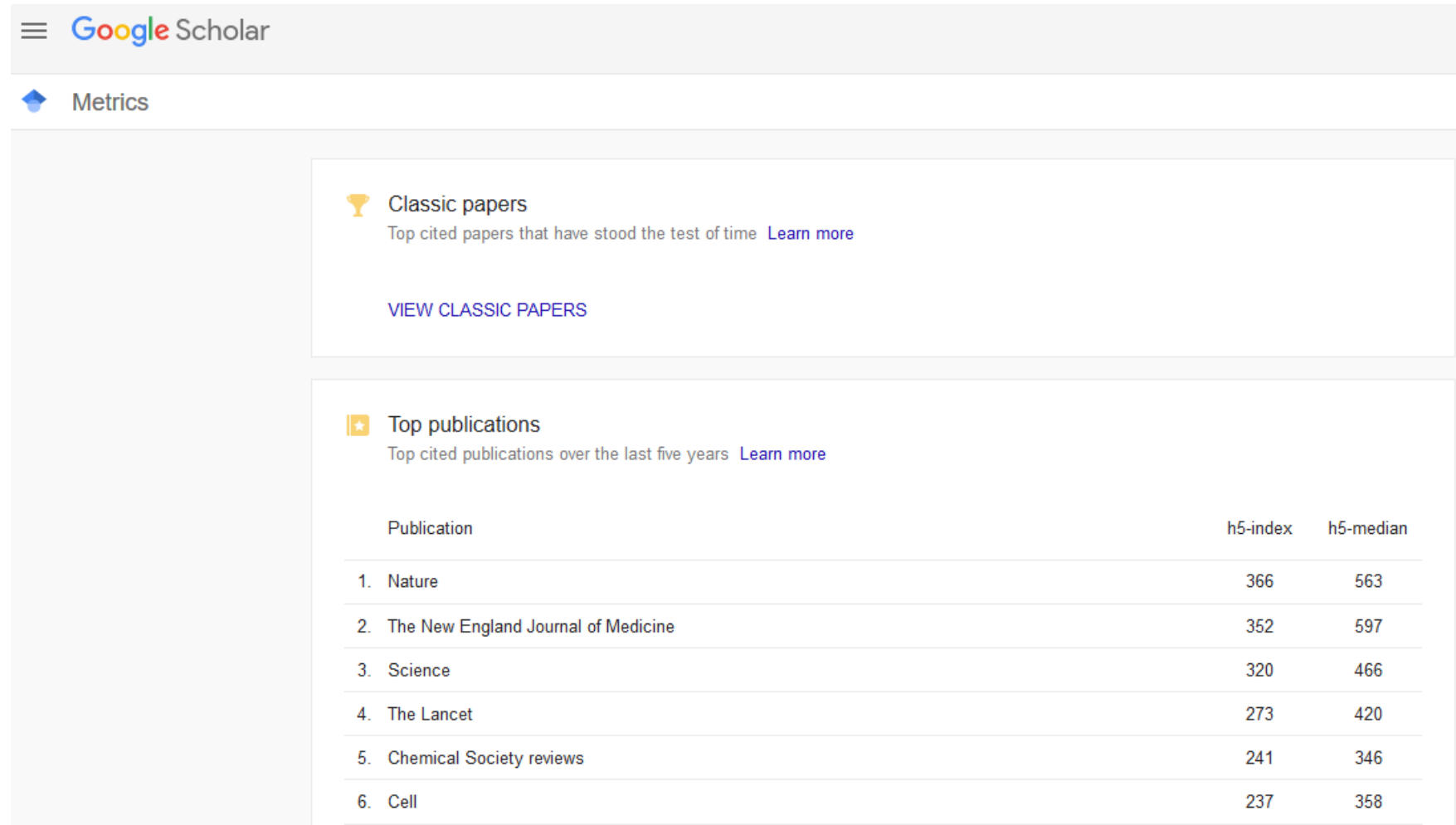
For example:
- When was the article written?
- Who wrote the article?
- How important is the reading?
- How relevant is the reading to your assignment?
- Are the ideas logical?
- Are the ideas still relevant?
- Is the work biased?
- How valid are the conclusions?

	Questions to ask:
Accuracy	• Is the information reliable? • Is the information error-free? • Is the information based on proven facts? • Can the information be verified against other reliable sources?
Authority	• Who is the author? • Does he or she have the qualifications to speak/write on that topic? • Is the author affiliated with a reputable university or organization in this subject field?
Objectivity	• What is the intended purpose of the information? • Is the information facts or opinions? • Is the information biased?
Currency	• When was the information published? • Is the information current or out-dated? • Does currency matter in this topic?
Coverage	• Does the information covered meet your information needs? • Does it provide basic or in depth coverage?

Credible Publications defined by Venue

- There are some top journals / conferences which are very competitive. Hence, only excellent publications will be published.

Journal Impact Factor

$$\text{Impact Factor} = \frac{\text{Number of citations of a journal received in previous two years}}{\text{Number of published articles of a journal in previous two years}}$$

- Not necessarily a good metric:
  - Quality of citations might differ
  - Some journals push authors to cite a lot of articles from the journal in order to get the article accepted

Conference Acceptance Rate

- Difference between "Abstract"-only submission or full paper submission with double blind peer review

- Top conferences have acceptance rates of less than 25% for full paper submissions after blind review

- Usually, scientific communities have lists about their top-tier conferences. Google metrics also is an indicator here…

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How would I judge if a source matches my topic?

Simple answer: Read it ;)

Prior to spending time reading the paper and finding out it was not worth it:

- Check publication venue (Journal, Conference, etc. from area known to publish relevant publications).
  - You might derive this information from other relevant papers you have already identified.

- A source might not fit if it is from a completely different scientific community.
  - E.g. social sciences and economics also writes papers about IoT, however, usually we would look for papers from technical sciences.

See you next week for English Language in Scientific Writing!

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