Musical Languages

Seminar Kick-off

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Organization & Deadlines

Milestone	Date / Deadline
Kick-off meeting	2026/04/22
Discuss outline/resources	At latest 2026/05/04
Discuss paper draft	At latest 2026/05/18
Complete paper submission	2026/05/31
Submit 2 Peer-reviews	2026/06/22
Presentations	~2026/07/09 to 2026/07/10

➔ **Tasks include:** Literature research, deriving structure .

Topics Today

- **Literature and sources:** Finding and citing references.
- **Writing a (seminar) paper:** Structure, style, and citing.
- **Presentation techniques:** Structure, slide design, and style.

Quotable Literature

Tier 1

- Books and book chapters *(LNCS, TOPLAS,...)*
- Conference and journal papers *(POPL, PLDI, OOPSLA, ICFP,...)*
- Standardization documents *(ISO, DIN,...)*

Tier 2

- arXiv pre-prints
- Manuals, technical whitepapers and source code
- Websites with identifiable authors and lecture slides

Trash Tier

- Secondary literature.
- Wikipedia.
- Social Media (Facebook, etc.), Advertisements

Finding Literature

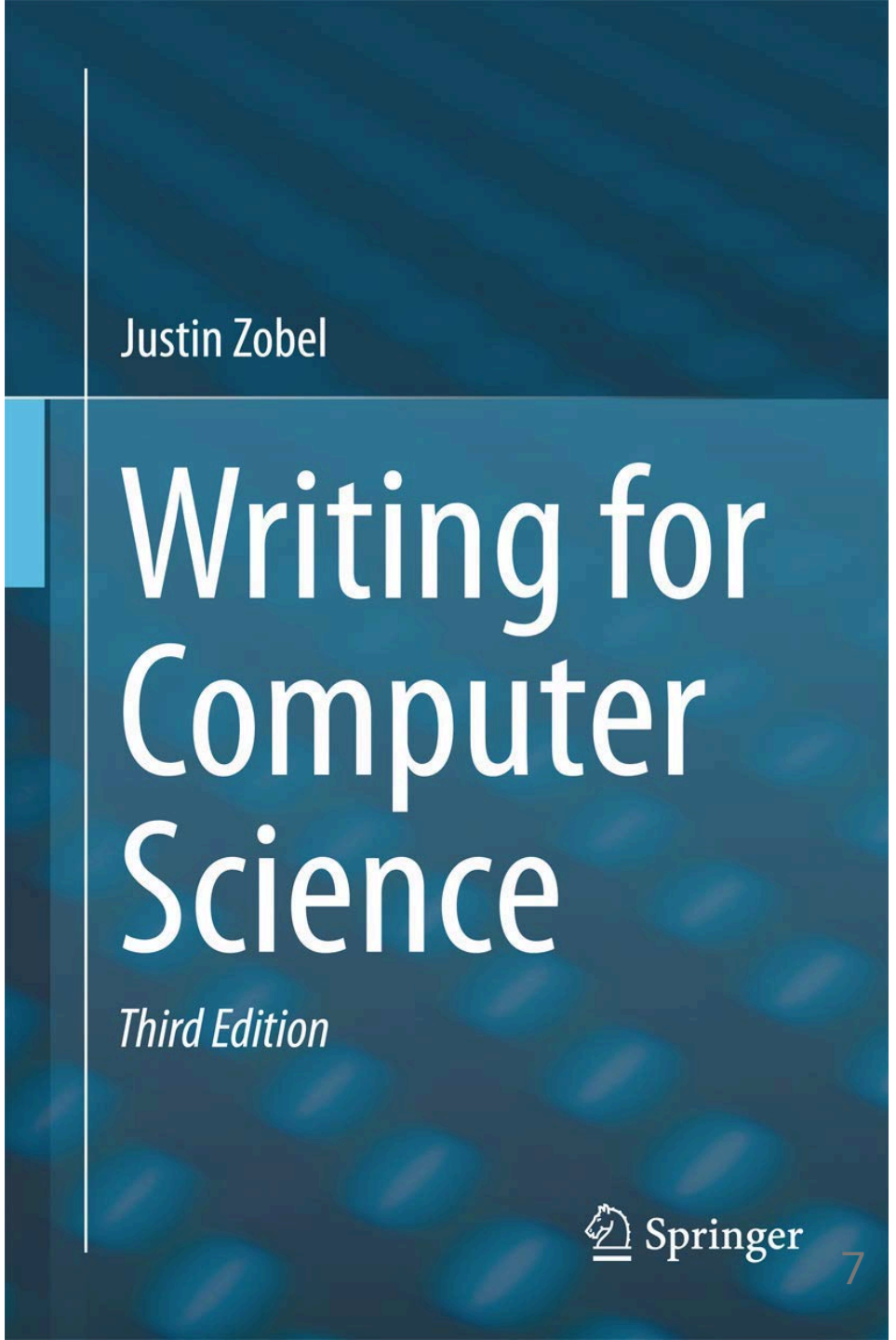
- **Digital Libraries:** DBLP, IEEExplore, ACM DL, and Google Scholar
- **University Access:** papers often freely accessible via university library
- **Search Strategy:**
  - Select appropriate keywords.
  - Ask your advisor for a seed paper.
  - Check publications by the same author or at the same venue.
  - Use the citation graph: "Cites..." (references) and "Cited by...".
- **Selection Phase:**
  - Sort Literature by relevance
  - Strategically filter while reading breadth first

Reading Literature Efficiently

1. **Read the title:** Determine if it is still relevant.
2. **Read the abstract:** Check for continued relevance.
3. **Skim introduction/contributions:** The introduction sets the framing.
4. **Skim text, examples, and figures:** Gauge interest levels.
5. **Read interesting sections:** Deep dive into the core content.

And always: If you realize, that this is not fitting your talk, discarding is an option

Writing your Paper



Writing Goals

- **Value Proposition:** The number of papers grows, but reader attention spans do not.
- **Focus:** Clearly define key contributions and optimize text for the reader.
- **Clarity:** Make it easy to decide if the paper is worth reading.
- **Engagement:** Provide helpful figures and examples; bad writing makes readers (and reviewers) angry.

Paper Structure

1. **Abstract:** Brief summary of area, problem, approach, and results.
2. **Introduction:** Create awareness for the problem, motivate!
    i. **Related Work:** Contextual comparison *(sometimes at the end)*
    ii. **Contribution:** In the context of the rel. work what is unique here?
    iii. **Outline:** Describe the structure of the following.
3. **Background:** Prerequisites needed for understanding.
4. **Main Part:** Approach, evaluation, and discussion.
5. **Summary & Outlook:** Conclusion of findings.

The Writing Process

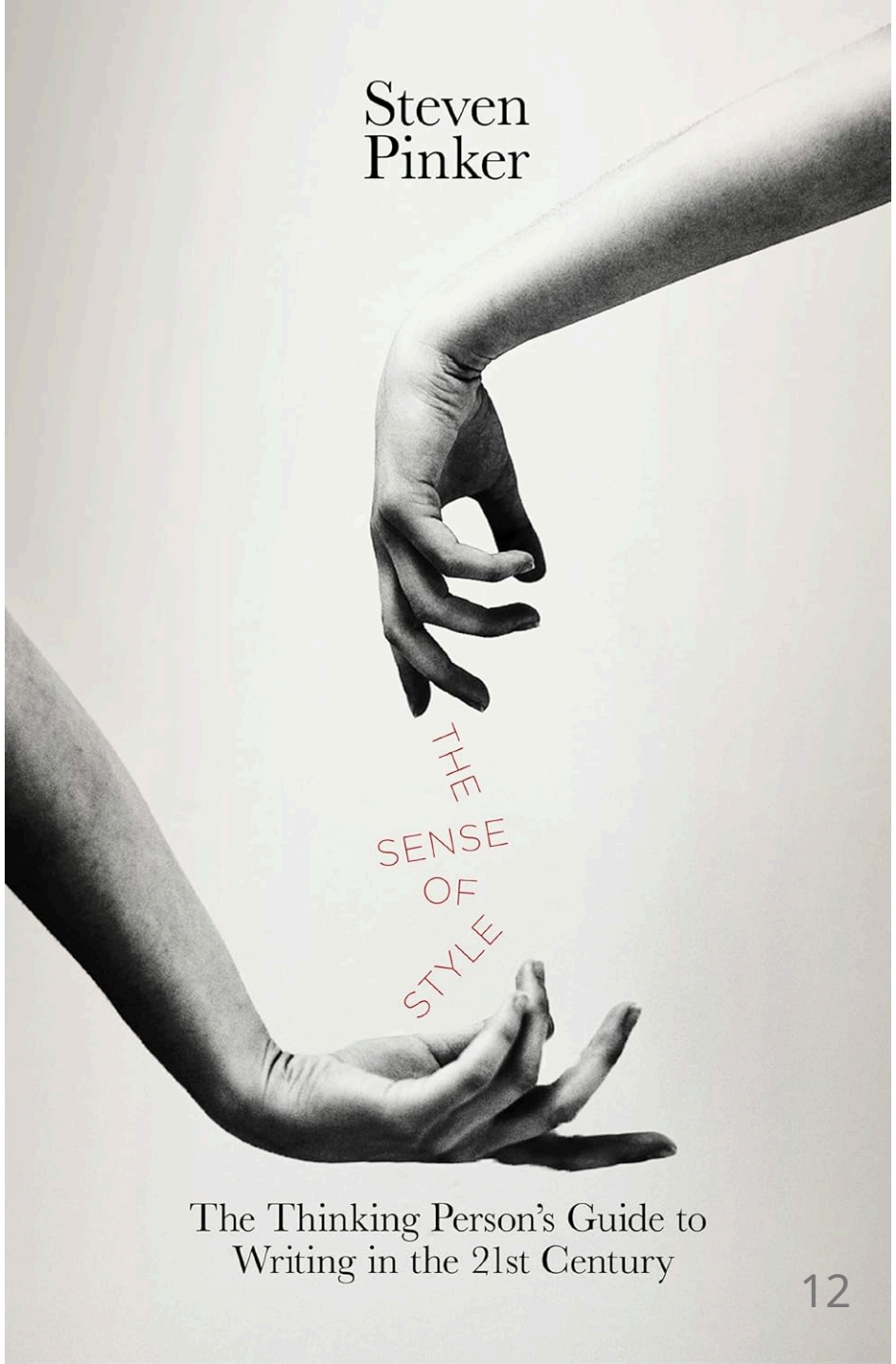
- **Linearization:** Writing is the process of linearizing a "knowledge graph".
- **Closeness:** Keep related topics together and minimize forward references.
- **Audience:** Write for different backgrounds; include skippable background for experts.
- **Repetition:** Repeat key points in the abstract, intro, and summary because readers rarely read the whole paper.

Formatting: Sections & Figures

- **Structure:** Use subsections, paragraphs, and bullet points to avoid "walls of text".
- **Headers:** Never place two headings together without intervening text.
- **Visuals:**
  - Figures, tables, and listings must be self-explaining with captions.
  - Captions go **below** figures/listings but **above** tables.
  - All visuals must be referenced in the text.

Writing Style

- **Tone:** Be factual, precise, concise, and simple.
- **Words:** Avoid wordy phrases and unnecessary terminology.
- **Voice:** Prefer "we" or passive voice; avoid "I".
- **Formal English:** Use "cannot" instead of "can't".
- **Focus:** Get to the point; stay on topic without "storytelling".



Revising and Editing

- **Iteration:** Text will not be perfect on the first attempt.
- **Refinement:** Cut unnecessary words and identify potential misunderstandings.
- **Typography:** Fix grammar, spelling, and punctuation (e.g., the difference between $ -/–/— $).
- **Consistency:** Keep fonts, colors, and emphasis standard.

LaTeX for Scientific Writing

- ACM or Springer usually require you to adapt to their workflow/style files
- Focus on content in pure text, can be version controled
- Mathematical Typesetting: Complex notations stay readable:

$$\zeta(s) = \sum_{n=1}^{\infty} \frac{1}{n^s} = \prod_{p \text{ prime}} \frac{1}{1 - p^{-s}}$$

$$= \frac{1}{\Gamma(s)} \int_0^{\infty} \frac{x^{s-1}}{e^x - 1}\, dx$$

- Code highlighting integrated:

```
\begin{minted}{c}
void f()
\end{minted}
```

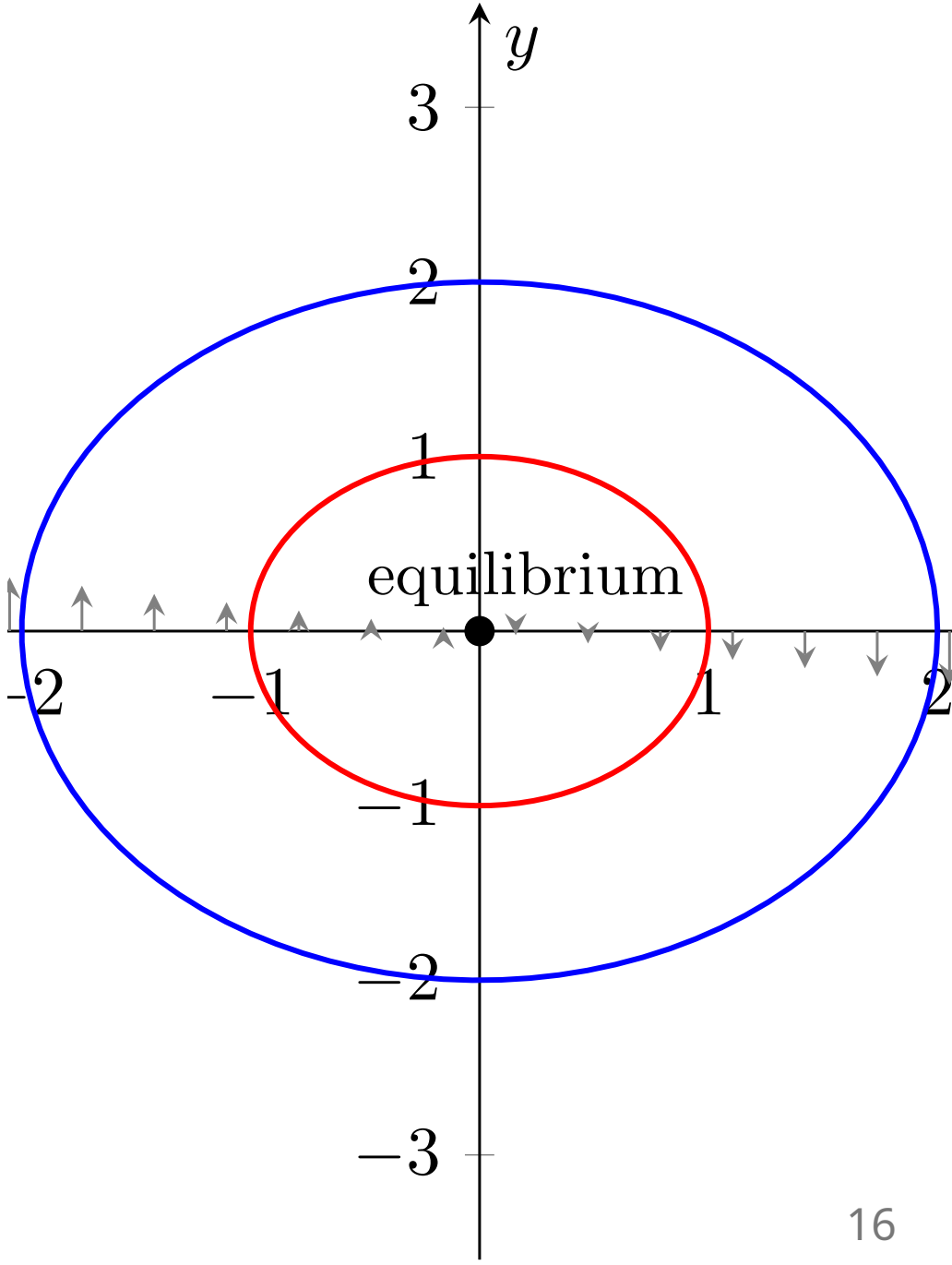
The Three LATEX Mistakes

> "Worrying too much about formatting and not enough about content."
> — **Leslie Lamport (2000)**

This is considered the primary mistake made by beginners using the system.

LaTeX diagrams with TikZ

- clean, vector oriented graphics
- guided by GPT TikZ Expert
- program your diagrams and graphics
- compatible with overlays for pdf animations



Managing Citations in LaTeX: BIBTEX

- Keep all references in `.bib` files.
- Data can be exported from DBLP, Google Scholar, or ACM.
- **Caution:** Automatically generated data may be wrong or contain noise.

```
@inproceedings {lattner200411vm,
  title={{LLVM}: A compilation framework for lifelong program analysis \& transformation},
  author={Lattner, Chris and Adve, Vikram},
  booktitle={Proceedings of the International Symposium on Code Generation and Optimization},
  series={CGO '04},
  pages={75--86},
  year={2004}
}
```

Citing Rules

- **Requirement:** All work that is not yours must be cited.
- **Attribution:** Describe the source clearly and avoid inaccurate attributions.
- **Style:** Indirect quotes (rephrasing) are strongly preferred over literal quotes.
- **Exception:** Foundational knowledge (usually taught in early Bachelor semesters) can be assumed without citation.

Citing Examples

- **Standard Reference:** The x86 architecture defines the register CR2 `~\cite{intel2019man}`.
- **Paragraph Level:** If a whole paragraph refers to one source, the citation follows the final period.
- **Tools:** Valgrind `~\cite{nethercote2007}` is a tool for instrumentation.
- **Multiple Sources:** Other approaches `~\cite{foo,bar,baz}`.

Presentation: Content Selection

- **Audience First:** Design the talk for the audience, not for yourself.
- **Key Takeaways:** Determine exactly what the audience should remember.
- **Constraints:** Select only as much content as fits comfortably into the time slot.

Presentation Structure

- **Motivation:** Explain why the topic is relevant.
- **Background:** Provide context (reference previous talks if applicable).
- **Concept:** Describe the core idea using helpful examples.
- **Evaluation:** Show how good the concept is.
- **Conclusion:** Summarize and provide an outlook.
- **Constraint:** Avoid forward references.

Media and Tools

- **Slides:** Use Beamer/Slides during the talk; prepare backup slides for questions.
- **Blackboard:** Useful for permanently needed info or answering specific questions.
- **Hardware:** Check for demonstrators or specific technical possibilities in advance.

Preparation Before the Talk

- **Dry-run:** Always do a practice run to help with uncertainty and time estimation.
- **On-site Prep:** Ensure your laptop, laser pointer, and clock are ready.
- **Hardware Check:** Verify the Beamer connection beforehand.

Talking Style

- **Delivery:** Speak freely; do not read from a script.
- **Pacing:** Usually aim for at least 1 minute per slide; stay within the time limit.
- **Connection:** Maintain eye contact and proper positioning.
- **Time Management:** Consult a watch regularly; use optional slides if you are too fast.

Slide Content Guidelines

- **Simplicity:** One topic per slide; maximum 8 lines of text.
- **Visuals:** Prefer graphics and illustrations over text.
- **Completeness:** Cover everything displayed on the slide during your talk.
- **No Unused Points:** If it’s on the slide, talk about it.

Required Slide Elements

- **Title Page:** Includes title, name, institution, date, and location.
- **Navigation:** Every other slide should have a number and a title.
- **Conclusion:** Summarize the points people should remember.
- **Note:** Avoid dedicated "Thank you" or "Questions" slides.

Colors and Animations

- **Contrast:** Black text on a white background is best.
- **Sparingly:** Use colors systematically, not for decoration.
- **Backgrounds:** No annoying textures or wave patterns.
- **Animations:** Only use them if they provide significant added value.

Text and Graphics

- **Fonts:** Use readable, sans-serif fonts.
- **Quality:** Prefer vector graphics or high-resolution images.
- **Avoid:** Screenshots and scans should be avoided.
- **Citations:** If critical, use footnotes; avoid [12]-style end references on slides.
- **Code:** Use listings only if they provide sufficient value.

Visual Examples: What to Avoid

- **Issue:** Low resolution makes the content unreadable and unprofessional.

Visual Examples: Best Practices

- **Positive Example:** Use clear diagrams like the LAIK hierarchical partitioning model.
- **Clarity:** Use colored boxes and arrows to show relationships between global data and node partitions.

Code Formatting in Slides

```
#include "laik-backend-mpi.h"
int main (int argc, char *argv[]) {
  Laik_Instance *inst = laik_init_mpi(&argc, &argv);
  Laik_Group *world = laik_world(inst);
  // Allocate global 1D array
  Laik_Data *a = laik_alloc_1d(world, 8, 1000000);
  // ... map and use data ...
}
```

- Ensure code is clean, properly indented, and commented.

Final Summary

- **Goal:** Bring your point to the audience, whether written or spoken.
- **Foundation:** Use good literature as your starting point.
- **Logic:** Maintain a logical structure for both papers and presentations.
- **Preparation:** Good presentation skills are a chance to learn.

Nr	Topic
1	Strudel
2	TidalCycles
3	Punctual
4	Supercollider
5	Chuck
6	LilyPond
7	FAUST
8	ORCA
9	ALDA
10	Extempore
11	Sporth
12	Vivace
13	Hydra
14	Sonic