TUG 2023 abstracts

Editor's note: Links to videos and other information are posted at `tug.org/tug2023`.

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Patrick Gundlach
News from boxes and glue: How do the TEX algorithms help in developing a new typesetting engine?
In this presentation I will talk about the experience of the last two years with boxes and glue. The library has not yet reached its final state, but a lot has already been typeset with it. I will show what kind of experiences I have made with the TEX algorithms, which data structures are suitable for text typesetting and how PDF specialties like interaction and accessibility can be integrated.

About boxes and glue: boxes and glue is a library written in the Go programming language that includes many of TEX's algorithms, such as the optimum fit paragraph breaking algorithm, the hyphenation algorithm, and the basic structure with nodes and node lists to assemble boxes. It was originally written as a replacement for LuaTEX to create documents with the speedata Publisher.

Island of TEX
The Island of TEX 2023 — sailing the smooth seas of ideas
The Island of TEX has always valued community over development pace. This year, we are proud that we could convince our inner sloths to produce a long-awaited new `albatross` release and a new website for our community. On the technical side, we improved our build infrastructure and started welcoming TEX packages. But in the end, this year was primarily about collecting ideas so stay tuned for our talk and call for action.

Oliver Kopp
JabRef as BIBTEX-based literature management software
JabRef is literature management software completely based on the BIBTEX format. This talk provides an overview of JabRef by first introducing the basic concept of JabRef. After that, highlights of JabRef will be demonstrated: Integrated web search, grouping of entries, import and export of other formats, and the quality assurance of entries. The integration of PDFs will be demonstrated: Both the linking of PDFs and the integration of BIBTEX data into PDFs using XMP metadata.

Eberhard W. Lisse
Introduction to Typst
typst is a new markup-based typesetting system that is designed to be as powerful as LATEX while being much easier to learn and use. It flows from a Master's thesis at the Technical University Berlin, is written in Rust, and has a domain-specific language that is much easier to master than TEX or LATEX. It produces quite reasonable output, and especially for shorter documents it is extremely fast, though it remains a work in progress. It can be obtained from Github at `github.com/typst/typst`.

I am a long time user of LATEX, in particular with LYX and while not a programmer but rather an obstetrician/gynecologist, I'm computer-literate enough to generate and use templates with perl and bash. This will be an introductory presentation, showing the comparison of some simple texts in LATEX and typst.

Frank Mittelbach
The LATEX Companion, 3rd edition — Anecdotes and lessons learned
During the last five years a lot of work has gone into producing a new edition of *The LATEX Companion*. In this talk I will talk about some aspects of that work, the unique challenges and some of the lessons learned during that endeavour.

Frank Mittelbach
38 years with LATEX — A personal picture story
As the title indicates, this is part of the story of LATEX in pictures, as seen from my eyes. It shows many highlights throughout the years and puts faces to names — some of which are in the audience but many not. It is based on what was available in my photo archive and certainly biased, but I nevertheless hope it is of some interest.

Vít Novotný
Markdown 3: What's new, what's next?
Plain TEX, expl3, and Lua provide a common programming environment across different TEX formats. Similarly, the Markdown package for TEX has provided an extensible and format-agnostic markup language for the past seven years. In this talk, I will present the third major release of the Markdown package and the changes it brings compared to version 2.10.0, which I presented at TUG 2021.

In my talk, I will target the three major stakeholders of the Markdown package:

1. Writers will learn about the new elements, which they can type in their Markdown documents.

2. Coders will learn how they can extend Markdown with new elements and how they can style Markdown documents in different TEX formats.

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3. Developers will learn about the implementation details of the Markdown package and will have a chance to discuss plans for the future governance and development of the Markdown package.

samcarter
The `tcolorbox` inner beamer theme
The `tcolorbox` inner beamer theme is a new theme for the beamer class. It replaces normal beamer blocks with `tcolorbox`es of the same look and feel. This allows users to easily modify the appearance of blocks. In this short talk, I will give a short overview of the theme and show some examples of how one can customise blocks.

Jan Šustek
On generating documented source code by blocks in TEX
In this talk I will focus on literate programming in TEX — writing source code and its documentation in a single file. Firstly I will show an easy modification of OpTEX macros to allow literate programming. Then I will modify the macros to build the source code by nested blocks which can be built consecutively in the whole document — quite similar to `tex.web`, but implemented completely in TEX. Such documentation is more comprehensible to the reader.

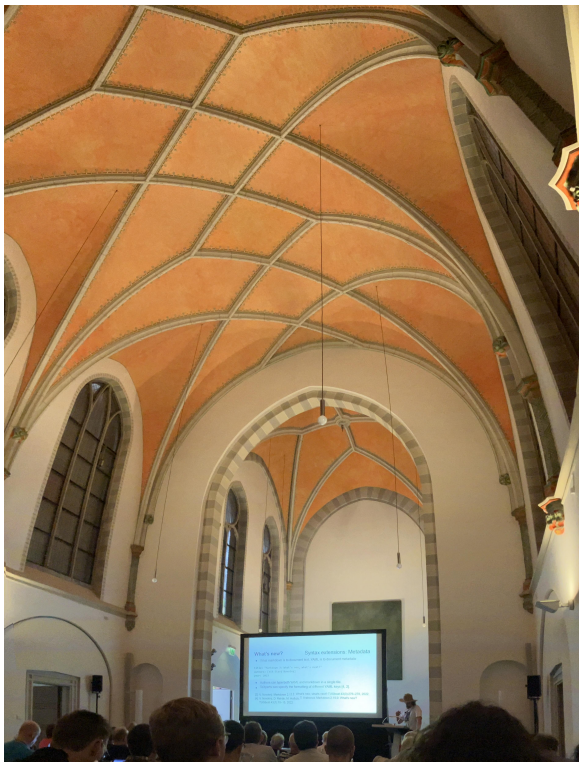
With a few more macros or hooks, one can apply this method in the following real situations.

- Cross references make `goto` jumps easy in programming languages with line numbers.
- The abovementioned blocks can imitate subprograms with arguments in programming languages where they are not allowed.
- TEX macros can define a metalanguage and generate the source code in two different programming languages simultaneously.

Without the TEX methods the solutions would be more complicated.

Joseph Wright
Supporting backends in expl3
The backend in TEX is responsible for the parts of producing output that TEX doesn't know about, for example colour, image inclusion and hyperlink creation. Each backend has its own syntax and range of supported concepts, so at the macro level there needs to be the appropriate code to 'talk' to the backend. In expl3, we have developed a consistent set of backend support files, based on the experience of (LA)TEX developers over 30+ years of working with these backends. Here, I will look at the history of backend abstraction and the model used in expl3.

Joseph Wright
Further adventures in Unicode-land: Refining case changing
Getting text processing right for Unicode in TEX is a challenge, particularly where one wants to support the full range in pdfTEX. Over the past few years, I have worked on one aspect: case changing. Code to carry out the Unicode case changing algorithm was integrated into the LATEX kernel a couple of years ago. Since then, we have been refining the details, adding more power and discovering new issues. Here, I'll look at what we've done to get the code working smoothly, and look forward to what might still be improved.


Lecture hall ceiling courtesy Alexander Willand.


Conference closing courtesy Reinhard Kotucha.