



**Bumpy Road
Towards a Good
LaTeX Visual
Editor**

TUG 2023

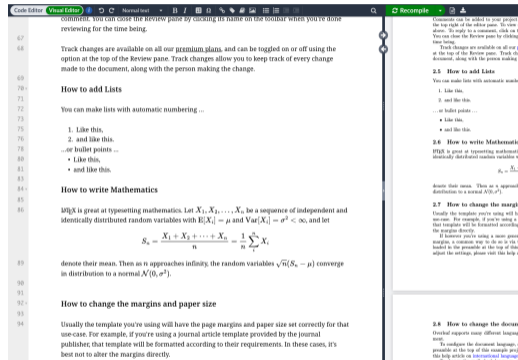
Ben Davies

Collaboration



Is There a Need?

‘My [supervisor] doesn’t know \LaTeX but I need to work with them’
Proofreading tool whether it is you,
an editor, a friend *etc.*
You want to learn \LaTeX



The screenshot shows the Overleaf web editor interface. On the left is a code editor with line numbers 67-94. The main document area contains the following text:

comment. You can close the Review pane by clicking its name on the toolbar when you're done reviewing for the time being.

Track changes are available on all our [premium plans](#), and can be toggled on or off using the option at the top of the Review pane. Track changes allow you to keep track of every change made to the document, along with the person making the change.

How to add Lists

You can make lists with automatic numbering ...

1. Like this,
2. and like this.

...or bullet points ...

- Like this,
- and like this.

How to write Mathematics

\LaTeX is great at typesetting mathematics. Let X_1, X_2, \dots, X_n be a sequence of independent and identically distributed random variables with $E[X_i] = \mu$ and $\text{Var}[X_i] = \sigma^2 < \infty$, and let

$$S_n = \frac{X_1 + X_2 + \dots + X_n}{n} = \frac{1}{n} \sum_{i=1}^n X_i$$

denote their mean. Then as n approaches infinity, the random variables $\sqrt{n}(S_n - \mu)$ converge in distribution to a normal $\mathcal{N}(0, \sigma^2)$.

How to change the margins and paper size

Usually the template you're using will have the page margins and paper size set correctly for that use-case. For example, if you're using a journal article template provided by the journal publisher, that template will be formatted according to their requirements. In these cases, it's best not to alter the margins directly.

On the right side, the Review pane is open, showing a list of changes and a sidebar with navigation icons. The sidebar contains the following sections:

- 2.5 How to add Lists**
You can make lists with automatic numbering
1. Like this,
2. and like this.
...or bullet points ...
 - Like this,
 - and like this.
- 2.6 How to write Mathematics**
 \LaTeX is great at typesetting mathematics
identically distributed random variables X_i
$$S_n = \frac{X_1 + \dots + X_n}{n}$$

denote their mean. Then as n approaches infinity, the random variables $\sqrt{n}(S_n - \mu)$ converge in distribution to a normal $\mathcal{N}(0, \sigma^2)$.
- 2.7 How to change the margins**
Usually the template you're using will be set correctly for that use-case. For example, if you're using a journal article template provided by the journal publisher, that template will be formatted according to their requirements. In these cases, it's best not to alter the margins directly.
If however you're using a more general template, a common way to do so is via the `\setlength` command at the top of the document. To change the margins, please visit the help page.
- 2.8 How to change the document language**
Overleaf supports many different languages. To change the document language, a dropdown menu is available at the top of the example page. This help article on [international language](#) explains how to change the most common ones.

Rich Text

This used CodeMirror 5
Introduced previews of maths and
figures
Some amount of code hiding
But it didn't integrate well with
Source and the Review features
Core principle was to ensure code is
always accessible

229 If we think of this motion as a point moving around a spherically symmetric potential, like a marble
230 in a bowl, then it is clear that this system is now stable to perturbations in the instanton's size. A
231 small initial velocity for ρ sets up an oscillation around the initial value of ρ , but it will not increase
232 indefinitely. The upper and lower bounds of the oscillation are proportional to the initial
perturbation.

Generally, the dyonic instanton will oscillate in size with an amplitude, A . [Peeters:2001np]

$$\rho = \sqrt{A \sin(2|q|(t + t_0)) + \sqrt{t^2 + A^2}}.$$

235 The smaller the initial angular velocity, the less angular momentum the instanton has and the closer
it comes to zero size. The larger the initial change in size, the larger the amplitude of the oscillation
and again the closer it will come to zero size. The instanton can oscillate out to arbitrary size for a
sufficiently large initial $\dot{\rho}$ but will always turn around before reaching $\rho = 0$ for non-zero angular
momentum.

236
237
238 **{Dyonic instanton scattering}** [sec:dyonic instanton scattering]

239 The presence of a potential in the effective action for dyonic instantons has a significant effect on
240 their scattering behaviour. In this section we will explore how dyonic instantons behave during
head-on collisions and with a non-zero impact parameter. The right angled scattering behaviour of
instantons is replaced with a more complex dependence on the potential.
241

Visual Editor

Migrated to CodeMirror 6 (for both editors)

Feature sharing more easily done such as Advanced Reference Search and Tracked changes

Gave access to themes, keybindings and the same auto-complete

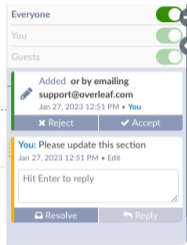
Code editor with decorations

Element-by-element design approach to improving the experience

If you have a question while using this template on Overleaf, please use the help menu ("??") on the top bar to search for help or ask us a question using our [contact form](#) or by emailing support@overleaf.com.

Corresponding author

We require manuscripts to identify a single corresponding author. The corresponding author typically is the person who submits the manuscript and



Demo

The image displays the Overleaf web interface, split into two main sections: a code editor on the left and a rendered preview on the right.

Code Editor (Left):

- At the top, it shows a menu bar with options like 'Menu', 'Tools', 'Share', 'Submit', 'History', 'Layers', and 'Chat'.
- Below the menu is a toolbar with various editing tools.
- A sidebar on the far left contains a file tree with folders like 'main.tex' and 'sample.tex'.
- The main area is a code editor showing LaTeX source code. The document title is 'Paper Title'. Authors listed are 'Jane Doe' and 'John Smith'. The code includes sections for 'Abstract', 'Introduction', and 'How to add Tables'.
- A vertical line of numbers (28, 30, 31, 32, 33, 34, 38, 40, 41) is visible on the left side of the code editor, likely representing line numbers.

Rendered Preview (Right):

- The preview shows the final appearance of the document.
- The title 'Paper Title' is centered at the top.
- Below the title, the authors 'Jane Doe' and 'John Smith' are listed.
- The 'Abstract' section is followed by the 'Introduction' section.
- The 'Introduction' text includes a paragraph and a list of sub-sections: '1.1 How to add Tables', '1.2 How to add Comments and Track Changes', and '1.3 How to add Links'.
- Under '1.3 How to add Links', there is a list of links and a small image of a frog.
- Below the image, there is a caption: 'Figure 1: This frog was uploaded via the file-tree menu.'
- The bottom of the preview shows a footer with '© 2018 Overleaf Ltd' and 'This is an example site'.

Things to think about

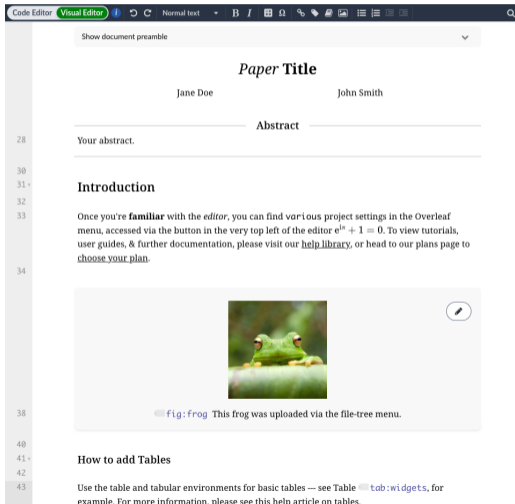
Can we handle more variety efficiently?

How much code should be hidden?

What conventions/styles should we use?

WYSIWYG conditioning

Sharing behaviours/features across the editors



The screenshot shows the Overleaf Visual Editor interface. The top toolbar includes options for 'Code Editor' and 'Visual Editor', along with standard editing tools like undo, redo, bold, italic, and link. The document content is displayed in a preview mode with a light gray background. It starts with a 'Show document preamble' dropdown menu. Below that is the 'Paper Title' in a large, bold font, followed by the authors 'Jane Doe' and 'John Smith'. A horizontal line separates the title from the 'Abstract' section, which contains the text 'Your abstract.'. Another horizontal line follows. The 'Introduction' section begins with the text: 'Once you're **familiar** with the *editor*, you can find various project settings in the Overleaf menu, accessed via the button in the very top left of the editor $e^{ln} + 1 = 0$. To view tutorials, user guides, & further documentation, please visit our [help library](#), or head to our plans page to [choose your plan](#).' Below the text is a figure showing a green frog on a lily pad, with a caption 'fig:frog This frog was uploaded via the file-tree menu.' and an edit icon. The 'How to add Tables' section follows, with the text: 'Use the table and tabular environments for basic tables — see [Table tab:widgets](#), for example. For more information, please see this help article on [tables](#).'

Takeaways

Providing parity to different code editors (CM6, CM5, Ace) is difficult

Just because we know how we would write the \LaTeX doesn't mean we know what the 'button' should do

Providing different interfaces enhances user experience

Thank you for listening!

Any questions?