The Title of Your Report

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***Abstract*—The abstract should be a one or two paragraph summary of your paper. It is meant to sell your paper to interested buyers.**

I. Introduction

If you are new to LaTeX, I would suggest reading [1]. If you want to use Microsoft Word (or one of its many clones), you can download the official IEEE conference template from [2]. The TA and tutors can provide LaTeX support. Use Word at your own risk.

The introduction is where you set the scene. Here you reference other, related work, as well as a summary relating to how you improve upon said work [3]. In the sense of the practical reports, the introduction will summarise the experiment the practical is all about.

As a general rule of thumb, keep the introduction to the first column and don't put any sub-sections into it.

Remember that, for bibliography citations to work, you have to include running BibTeX in the compile chain. My TeXstudio [4] compile chain for "Build & View" is `txs:///bibtex | txs:///pdflatex | txs:///bibtex | txs:///pdflatex | txs:///view-pdf-internal`

II. Methodology

In this section you should describe the method of the experiment.

A. Hardware

Include detail such as the hardware used. It's generally a good idea to include a block diagram at this point, such as the one presented in Fig. 1. This figure was drawn in InkScape [5]. When you want to import an InkScape figure (SVG format) into LaTeX, simply save it to PDF (use the drawing extents as the media box area) and include the figure.

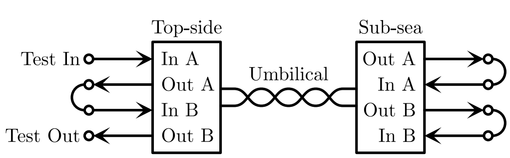

Fig. 1. Test setup used to test the implementation [6].

B. Implementation

Also mention the implementation source code:

```
# You can include inline Matlab / Octave code
x = linspace(0, 2*pi, 1000);
y = sin(x);
plot(x, y); grid on;
```

or you could turn it into a float: see listing 1. Floats are tables, figures and listings that appear at a different place than in the source code. This template is set up to put floats at the top of the next column, as prescribed by the IEEE article specification.

```
  __kernel void Multiply(
  __global float* A, // Global input buffer
  __global float* B, // Global input buffer
  __global float* Y, // Global output buffer
    const  int    N  // Global uniform
){
  const int i = get_global_id(0); // 1st dimension index
  const int j = get_global_id(1); // 2nd dimension index

  // Private variables
  int   k;
  float f = 0.0;

  // Kernel body
  for(k = 0; k < N; k++) f += A[i*N + k] * B[k*N + j];
  Y[i*N + j] = f;
}
```

Listing 1. OpenCL kernel to perform matrix multiplication

Only list what is relevant. Don't give too much detail - just enough to show what you've done. This template supports the following languages:

- Matlab (Octave)
- GLSL
- OpenCL
- Verilog
- C++ (use the name "Cpp")

C. Experiment Procedure

Furthermore, include detail relating to the experiment itself: what did you do, in what order was this done, why was this done, etc. What are you trying to prove / disprove?

III. Results

The results section is for presenting and discussing your findings. You can split it into subsections if the experiment has multiple sections or stages.

A. Figures

Include good quality graphs (see Fig. 2). These were produced by the Octave code presented in listings 2 and 3. You can play around with the `PaperSize` and `PaperPosition` variables to change the aspect ratio. An easy way to obtain more space on a paper is to use wide, flat figures, such as Fig. 3.

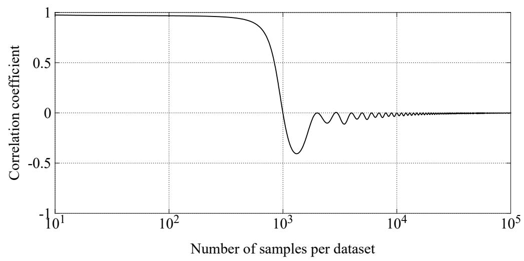

Fig. 2. The correlation coefficient as a function of sample count.

```
function FormatFig(X, Y, File);
  set(gcf, 'PaperUnits'      , 'inches');
  set(gcf, 'PaperOrientation', 'landscape');
  set(gcf, 'PaperSize'       ,         [8, 4]);
  set(gcf, 'PaperPosition'   , [0, 0, 8, 4]);

  set(gca, 'FontName', 'Times New Roman');
  set(gca, 'Position', [0.1 0.2 0.85 0.75]);

  xlabel(["\n" X]);
  ylabel([Y "\n\n"]);

  setenv("GSC", "GSC"); # Eliminates stupid warning
  print(...
    [File '.pdf'],...
    '-dpdf'...
  );
end
```

Listing 2. Octave function to format a figure and save it to a high quality PDF graph

```
  figure;                                  # Create a new figure
  # Some code to calculate the various variables to plot...
  plot(N, r, 'k', 'linewidth', 4); grid on; # Plot the data
  xlim([0 360]);                           # Limit the x range
  ylim([-1 1]);                            # Limit the y range
  set(gca, 'xtick', [0 90 180 270 360]);   # Set the x labels

  FormatFig(...                            # Call the function with:
    'Phase shift [\circ]',...                      # The x title
    'Correlation coefficient',...                  # The y title
    ['r_vs_N;_f=' num2str(f) ';_P=' num2str(P)]... # Format the file name
  );
  close all;                               # Close all open figures
```

Listing 3. Example of how to use the FormatFig function

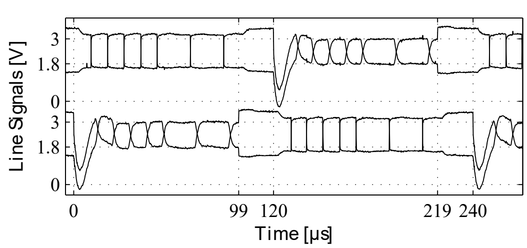

Fig. 3. Oscilloscope measurement showing physical line signals on both ends of a transmission line during master switch-over [6].

Always remember to include axes text, units and a meaningful caption in your graphs. When typing units, a µ sign has a tail! The letter "u" is not a valid unit prefix. When typing resistor values, use the Ω symbol.

B. Tables

Tables are often a convenient means by which to specify lists of parameters. An example table is presented in table I. You can use Tablesgenerator to make your LaTeX tables.

TABLE I
MY INFORMATIVE TABLE

Heading 1	**Heading 2**	**Heading 3**
Data	123	321
Data	456	654
Data	789	987

C. Pictures and Screen-shots

When you include screen-shots, pdfLaTeX supports JPG and PNG file formats. PNG is preferred for screen-shots, as it is a loss-less format. JPG is preferred for photos, as it results in a smaller file size. It's generally a good idea to resize photos (not screen-shots) to be no more that 300 dpi, in order to reduce file size. For 2-column article format papers, this translates to a maximum width of 1024. **Never change the aspect ratio of screen-shots and pictures!**

It is highly recommended to make use of the `\Figure` macro for figures. It puts all the formatting tweaks in one place, so that you don't need to update all the individual figure inclusion points when you want to do a styling update. The file name is used for the LaTeX label, such as "Fig. 4".

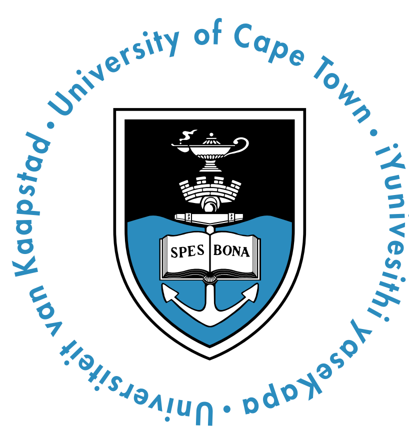

Fig. 4. An example image with custom scaling

D. Maths

LaTeX has a very sophisticated maths rendering engine, as illustrated by equation 1. When talking about approximate answers, never use ±54 V, as this implies "positive or negative 54 V". Use ≈ 54 V or ∼ 54 V instead.

$$y = \int_0^\infty e^{x^2} \mathrm{d}x \tag{1}$$

IV. Conclusion

The conclusion should provide a summary of your findings. Many people only read the introduction and conclusion of a paper. They sometimes scan the tables and figures. If the conclusion hints at interesting findings, only then will they bother to read the whole paper.

You can also include work that you intend to do in future, such as ideas for further improvements, or to make the solution more accessible to the general user-base, etc.

Publishers often charge "overlength article charges" [7], so keep within the page limit. In EEE4084F we will simulate overlength fees by means of a mark reduction at 10% per page. Late submissions will be charged at 10% per day, or part thereof.

References

[1] T. Oetiker, H. Partl, I. Hyna, and E. Schlegl, "The Not So Short Introduction to LaTeX 2_ε," https://tobi.oetiker.ch/lshort/lshort.pdf, Jul. 2015, version 5.05.

[2] "IEEE Conference Paper Templates," http://www.ieee.org/conferences_events/conferences/publishing/templates.html.

[3] A. Baboon, B. Charles, D. Ester, and F. Generalson, "An Amazing Title," Their Not-so-awesome University, Technical Report, Apr. 1492.

[4] B. van der Zander, J. Sundermeyer, and T. Hoffmann, "TeXstudio – A LaTeX Editor," https://sourceforge.net/projects/texstudio/.

[5] "InkScape Website," http://www.inkscape.org/.

[6] J. Taylor and J. G. Hoole, "Robust Protocol for Sending Synchronisation Pulse and RS-232 Communication over Single Low Quality Twisted Pair Cable," in *Proceeding of ICIT*. Taiwan: IEEE, Mar. 2016.

[7] "Voluntary Page and Overlength Article Charges," http://www.ieee.org/advertisement/2012vpcopc.pdf, 2014.