

Baum-Welch Algorithm for Hidden Markov Models Using Algebraic Decision Diagrams

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Abstract—This is a placeholder abstract. The whole template is used in semester projects at Aalborg University (AAU).

1 INTRODUCTION

In this section we present some introductory ways to use the tools within \LaTeX in general, and this template in particular. For example, this is a citation [1], while this is a multi-citation[1, 2].

The column width of the IEEE template is 3.5 inches, so if you generate your plots with this width or less, the output will be the best. For example, Listing 1 contains the code to generate the image in Figure 1 using Python with matplotlib, and exported as pgf (\TeX).

```
1 import matplotlib.pyplot as plt
2
3 plt.rcParams.update({
4     "pgf.texsystem": "pdflatex",
5     "font.family": "serif", # use serif/main font
6     "pgf.preamble": "\n".join([
7         r"\usepackage[utf8x]{inputenc}",
8         r"\usepackage[T1]{fontenc}",
9     ]),
10 })
11
12 fig, ax = plt.subplots(figsize=(3.5, 3.5))
13
14 ax.plot(range(5))
15 ax.text(0.5, 3., "serif")
16 ax.text(0.5, 2., "monospace")
17 ax.text(2.5, 2., "sans-serif")
18 ax.set_xlabel(r"\mu is not \mu")
19
20 fig.tight_layout(pad=.5)
21 fig.savefig("graph.pgf")
```

Listing 1. Code to generate the graph.pgf

1.1 Tables and Figures

1.2 Algorithms, Theorems, and Proofs

There are a few different things outside the normal figure and table floats that are very relevant when writing a scientific paper or article. For example, you may wish to typeset theorems as in Theorem 1.

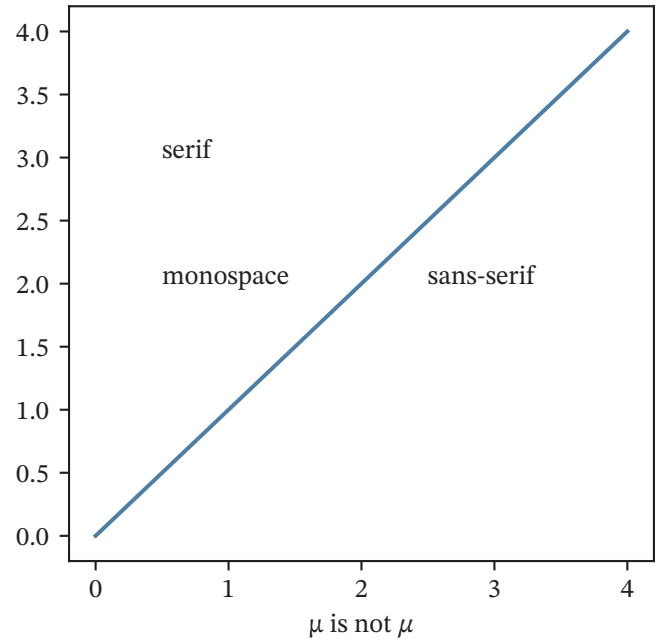


Fig. 1. An example graph drawn using Python's matplotlib library.

Theorem 1 (Pythagorean theorem). *This is a theorem about right triangles and can be summarized in the next equation*

$$x^2 + y^2 = z^2$$

Or ref like Theorem 1 Similarly, for proofs:

Proof. To prove it by contradiction try and assume that the statement is false, proceed from there and at some point you will arrive to a contradiction. \square

Note that proofs are not a numbered environment, and as such can't be referenced by default.

ACRONYMS

AAU Aalborg University. 1

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TABLE 1
Example of a pretty, twocolumn table.

<i>Hændelser</i>	<i>Klasser</i>				
	Reservation	Gæst	Borgerforening	Kalender	Betaling
Anmodet	✓	✓	✓		
Godkendt	✓		✓		
Afvist	✓		✓		
Redigeret	✓	✓	✓		
Annulleret	✓	✓	✓		✓
Betalt					✓
Refunderet					✓
Kvitteret		✓	✓		
Registreret	✓			✓	
Påmindet		✓	✓		

INSERTION-SORT(A, n)

```

1  for  $i \leftarrow 2$  to  $n$ 
2       $key \leftarrow A[i]$ 
3      // Insert  $A[i]$  into the sorted subarray  $A[1 : i - 1]$ .
4       $j \leftarrow i - 1$ 
5      while  $j > 0$  and  $A[j] > key$ 
6           $A[j + 1] \leftarrow A[j]$ 
7           $j \leftarrow j - 1$ 
8       $A[j + 1] \leftarrow key$ 

```

Algorithm 1. Test

REFERENCES

- [1] M. Goossens, F. Mittelbach, and A. Samarin, *The LaTeX Companion*. Reading, Massachusetts: Addison-Wesley, 1993.
- [2] G. D. Greenwade, “The Comprehensive Tex Archive Network (CTAN),” *TUGBoat*, vol. 14, no. 3, pp. 342–351, 1993.

APPENDIX A

COMPILING IN DRAFT

You can also compile the document in draft mode. This shows todos, and increases the space between lines to make space for your supervisors feedback.