



Hochschule
Bonn-Rhein-Sieg
University of Applied Sciences



Continuous Authentication using Mouse Dynamics

Deep Learning for Robot Vision

June 16, 2022

Marvin Haschker, Shalaka Satheesh, Samuel Wiest, Kunal Runwal, Istvan Habram

Advisors

Florian Dehling

Vincent Scharf

Prof. Dr.-Ing. Sebastian Houben

1. First section

1.1 A subsection

1.2 Structuring Elements

1.3 Numerals and Mathematics

1.4 Figures and Code Listings

1.5 Citations and Bibliography

2. Something else



1. First section

1.1 A subsection

1.2 Structuring Elements

1.3 Numerals and Mathematics

1.4 Figures and Code Listings

1.5 Citations and Bibliography

2. Something else



Jabberwocky

Lewis Carroll

'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe.

Beware the Jabberwock, my son!
The jaws that bite, the claws that catch!
Beware the Jubjub bird, and shun
The frumious Bandersnatch!

Lists and locales

Lorem ipsum dolor sit amet

- Nulla nec lacinia odio. Curabitur urna tellus.
 - Fusce id sodales dolor. Sed id metus dui.
 - » Cupio virtus licet mi vel feugiat.
- 1. Donec porta, risus porttitor egestas scelerisque video.
 - 1.1 Nunc non ante fringilla, manus potentis cario.
 - 1.1.1 Pellentesque servus morbi tristique.

Nech ji híné saxofony ábl rozzvuí sí údsnými tóny waltzu, tanga a quickstepu! Nezvyajné kdle astných figliarskych atov uia pri kótovanom ústí Váhu mkveho koa Waldemara obiera väie kusy exkluzívnej kôry. The quick, brown fox jumps over a lazy dog. DJs flock by when MTV ax quiz prog. Now fax quiz Jack!

1. First section

1.1 A subsection

1.2 Structuring Elements

1.3 Numerals and Mathematics

1.4 Figures and Code Listings

1.5 Citations and Bibliography

2. Something else



Text blocks

*In plain, example, and **alert** flavour*

This text is highlighted.

A plain block

This is a plain block containing some **highlighted text**.

An example block

This is an example block containing some **highlighted text**.

An alert block

This is an alert block containing some **highlighted text**.

Definitions, theorems, and proofs

All integers divide zero

Definition

$$\forall a, b \in \mathbb{Z} : a \mid b \iff \exists c \in \mathbb{Z} : a \cdot c = b$$

Theorem

$$\forall a \in \mathbb{Z} : a \mid 0$$

Proof

$$\forall a \in \mathbb{Z} : a \cdot 0 = 0$$



1. First section

1.1 A subsection

1.2 Structuring Elements

1.3 Numerals and Mathematics

1.4 Figures and Code Listings

1.5 Citations and Bibliography

2. Something else



Numerals and Mathematics

Formulae, equations, and expressions

1234567890

1234567890

$\hat{x}, \check{x}, \tilde{a}, \bar{a}, \dot{y}, \ddot{y}$

$\iint f(x, y, z) \, dx dy dz$

$$\frac{1}{1 + \frac{1}{2 + \frac{1}{3 + x}}} + \frac{1}{1 + \frac{1}{2 + \frac{1}{3 + x}}}$$

$$F : \begin{vmatrix} F''_{xx} & F''_{xy} & F'_x \\ F''_{yx} & F''_{yy} & F'_y \\ F'_x & F'_y & 0 \end{vmatrix} = 0$$

$$\iint_{\mathbf{x} \in \mathbb{R}^2} \langle \mathbf{x}, \mathbf{y} \rangle \, d\mathbf{x}$$

$$\overline{\overline{a\alpha^2 + b\beta + d\delta}}$$

$$]0, 1[+ \lceil x \rceil - \langle x, y \rangle$$

$$e^x \approx 1 + x + x^2/2! + x^3/3! + x^4/4!$$

$$\binom{n+1}{k} = \binom{n}{k} + \binom{n}{k-1}$$

1. First section

1.1 A subsection

1.2 Structuring Elements

1.3 Numerals and Mathematics

1.4 Figures and Code Listings

1.5 Citations and Bibliography

2. Something else



Figures

Tables, graphs, and images

Faculty	With T _E X	Total	%
Faculty of Informatics	1 716	2 904	59.09
Faculty of Science	786	5 275	14.90
Faculty of Economics and Administration	64	4 591	1.39
Faculty of Arts	69	10 000	0.69
Faculty of Medicine	8	2 014	0.40
Faculty of Law	15	4 824	0.31
Faculty of Education	19	8 219	0.23
Faculty of Social Studies	12	5 599	0.21
Faculty of Sports Studies	3	2 062	0.15

Table 1: The distribution of theses written using T_EX during 2010–15 at MU

Figures

Tables, graphs, and images

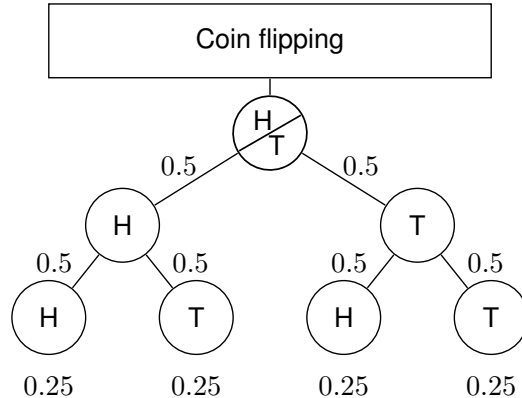


Figure 1: Tree of probabilities – Flipping a coin¹

Code listings

An example source code in C

```
#include <stdio.h>
#include <unistd.h>
#include <sys/types.h>
#include <sys/wait.h>

// This is a comment
int main(int argc, char **argv)
{
    while (--c > 1 && !fork());
    sleep(c = atoi(v[c]));
    printf("%d\n", c);
    wait(0);
    return 0;
```

1. First section

1.1 A subsection

1.2 Structuring Elements

1.3 Numerals and Mathematics

1.4 Figures and Code Listings

1.5 Citations and Bibliography

2. Something else



Citations

T_EX, L_AT_EX, and Beamer






T_EX is a programming language for the typesetting of documents. It was created by Donald Erwin Knuth in the late 1970s and it is documented in [The T_EXbook](#) [1].

In the early 1980s, Leslie Lamport created the initial version of L_AT_EX, a high-level language on top of T_EX, which is documented in [L_AT_EX: A Document Preparation System](#) [2]. There exists a healthy ecosystem of packages that extend the base functionality of L_AT_EX; [The L_AT_EX Companion](#) [3] acts as a guide through the ecosystem.

In 2003, Till Tantau created the initial version of Beamer, a L_AT_EX package for the creation of presentations. Beamer is documented in the [User's Guide to the Beamer Class](#) [4].

Bibliography

T_EX, L^AT_EX, and Beamer

-  Donald E. Knuth. **The T_EXbook**. Addison-Wesley, 1984.
-  Leslie Lamport. **L^AT_EX: A Document Preparation System**. Addison-Wesley, 1986.
-  M. Goossens, F. Mittelbach, and A. Samarin. **The L^AT_EX Companion**. Addison-Wesley, 1994.
-  Till Tantau. **User's Guide to the Beamer Class Version 3.01**. Available at <http://latex-beamer.sourceforge.net>.
-  A. Mertz and W. Slough. Edited by B. Beeton and K. Berry. **Beamer by example** In TUGboat, Vol. 26, No. 1., pp. 68-73.

1. First section

1.1 A subsection

1.2 Structuring Elements

1.3 Numerals and Mathematics

1.4 Figures and Code Listings

1.5 Citations and Bibliography

2. Something else



There Is No Largest Prime Number

The proof uses reductio ad absurdum.

Theorem

There is no largest prime number.

1. Suppose p were the largest prime number.
2. Consider the number $p + 1$.
3. $p + 1$ is greater than 1, thus divisible by some prime number not in the first p numbers.
4. But $q + 1$ is greater than 1, thus divisible by some prime number not in the first p numbers.

There Is No Largest Prime Number

The proof uses reductio ad absurdum.

Theorem

There is no largest prime number.

1. Suppose p were the largest prime number.
2. Let q be the product of the first p numbers.
3. $q + 1$ is greater than 1, thus divisible by some prime number not in the first p numbers.
4. But $q + 1$ is greater than 1, thus divisible by some prime number not in the first p numbers.

There Is No Largest Prime Number

The proof uses reductio ad absurdum.

Theorem

There is no largest prime number.

1. Suppose p were the largest prime number.
2. Let q be the product of the first p numbers.
3. Then $q + 1$ is not divisible by any of them.
4. But $q + 1$ is greater than 1, thus divisible by some prime number not in the first p numbers.

A longer title

- one
- two

This is a test of bold text

Test (1/2)

First slide

-
-
-
-
-



Test (2/2)

Second slide

-
-
-
-
-