

L^AT_EX template for LangTech courses taught at ÚFAL

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EUROPEAN UNION
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Development and Education

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Faculty of Mathematics and Physics
Institute of Formal and Applied Linguistics



unless otherwise stated

How to use the template

```
\documentclass[handout,aspectratio=169]{beamer}  
\usepackage[english]{babel}  
\usepackage{ufalslides}
```

- Use `handout` option if you want to generate a handout without animations.
- Before you begin document, define what you want to appear in the title slide (see the next slide for more info).

Content of the title page

1. Define the content of the title page

```
\def\course{NPFL116 Compendium of Neural Machine Translation}  
\def\courseurl{https://ufal.cz/courses/npfl1000}  
\def\title{Attention Mechanism}  
\def\author{řJindich Libovický, řJindich Helcl} \def\date{March 1, 2017}  
\def\licence{cc-by-nc-sa}  
\def\langtech{} % shows the LangTech and the EU logo  
\def\shownavigation{} % shows the navigation links in the bottom line
```

2. Generate the title slide using after beginning of the document by calling

```
\maketitle
```

Hint: Don't use ř in your code snippets, it will break.



cc-by-nc-sa



cc-by-nc-nd



cc-by-nc



cc-by-nd



cc-by-sa



cc-by

Specify licence by:

```
\def\licence{cc-by-nc-sa}
```

or omit the command entirely if you do not want to specify one.

Sans serif font also for equations

$$i\hbar\frac{\partial}{\partial t}\Psi(\mathbf{r},t) = \left[\frac{-\hbar^2}{2\mu}\nabla^2 + V(\mathbf{r},t) \right] \Psi(\mathbf{r},t)$$

```
$$ i\hbar\frac{\partial}{\partial t} \Psi(\mathbf{r},t) = \left[ \right. \\ \left. \frac{-\hbar^2}{2\mu}\nabla^2 + V(\mathbf{r},t)\right] \Psi(\mathbf{r},t) \\ $$
```

Tables from the web

Slides

Reading

Homework

Question

⌚ 1 h

📅 Oct 15

💰 100 points

```
\slidesbox{Slides}  
\readingbox{Reading}  
\hwbox{Homework}  
\questionbox{Question}  
\timebox{1 h}  
\calendarbox{Oct 15}  
\pointsbox{100 points}  
\slidesbox{Slides}
```

This code snippet:

```
print("Hello, ÚFAL".)
x = 3 + 5
```

is produced with this code:

```
\begin{lstlisting}[language=Python]
print("Hello, ÚFAL".)
x = 3 + 5
\ end{lstlisting}
```

Inline code (`import numpy as np`) can be inserted with the `\lstinline` command. Do not forget to start the frame with `fragile` option to beginning of the frame.

Full citation on slide:

Jindřich Helcl and Jindřich Libovický. [Neural monkey: An open-source tool for sequence learning](#).
The Prague Bulletin of Mathematical Linguistics, (107):5–17, 2017.
ISSN 0032-6585.

URL <http://ufal.mff.cuni.cz/pbml/107/art-helcl-libovsky.pdf>

Full citation: `\\ {\tiny \bibentry{helcl2017neural}}`

Sennrich et al. (2016) uses attention (Bahdanau et al., 2014).

`\citet{sennrich2016neural} uses attention \citep{bahdanau2015neural}`.

Alkhouli et al. (2016), Elliott et al. (2016), Feng et al. (2016), Graves et al. (2014), Lu et al. (2016), Snover et al. (2006), Specia et al. (2016), Tu et al. (2016), Zhang et al. (2016)

Summary, outline, references

The summary slide can be inserted by calling:

```
\summary{Name of the summary slide}{%  
    Content of the summary slide  
}
```

Outline with optionally highlighted current section can be inserted by:

```
\outline{Outline slide title}  
\outlinecurrent{Whatever outline title you wish}
```

To show the references do:

```
\references{pathToYourBibFile.bib}
```

- All human beings are born free and equal in dignity and rights.
- They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.
- Everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status.

1. All human beings are born free and equal in dignity and rights.
2. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.
3. Everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status.

What happens with too much content? I

Babakotia, an extinct genus of sloth lemurs, lived in the northern part of Madagascar. The name comes from the Malagasy word for the indri, to which all sloth lemurs are closely related. Its morphological traits show intermediate stages between the slow-moving smaller sloth lemurs and the suspensory large sloth lemurs, and suggest a close relationship between both groups and the extinct monkey lemurs. All sloth lemurs share many traits with living sloths, demonstrating convergent evolution. Babakotia had long forearms, curved digits, and highly mobile hip and ankle joints. It shared its range with other sloth lemurs, including *Palaeopropithecus ingens* and *Mesopropithecus dolichobrachion*. It was primarily a leaf-eater, though it also ate fruit and hard seeds. It is known only from subfossil remains and may have died out shortly after the arrival of humans on the island, but not enough radiocarbon dating has been done with this species to know for certain. Babakotia radofilai is the sole member of the genus Babakotia and belongs to the family Palaeopropithecidae, which includes three other genera of sloth lemurs: *Palaeopropithecus*, *Archaeoindris*, and *Mesopropithecus*. This

What happens with too much content? II

family in turn belongs to the infraorder Lemuriformes, which includes all the Malagasy lemurs.[5][2]

Summary

1. This template is tremendous.
2. If you don't use the template you will be very very sad.
3. Believe me. It's tremendous.

<https://ufal.cz/courses/npfl1000>

- Tamer Alkhouli, Gabriel Bretschner, Jan-Thorsten Peter, Mohammed Hethnawi, Andreas Guta, and Hermann Ney. Alignment-based neural machine translation. In *Proceedings of the First Conference on Machine Translation*, pages 54–65, Berlin, Germany, August 2016. Association for Computational Linguistics. URL <http://www.aclweb.org/anthology/W16-2206>.
- Dzmitry Bahdanau, Kyunghyun Cho, and Yoshua Bengio. Neural machine translation by jointly learning to align and translate. *CoRR*, abs/1409.0473, 2014. URL <http://arxiv.org/abs/1409.0473>.
- Desmond Elliott, Stella Frank, Khalil Sima'an, and Lucia Specia. Multi30k: Multilingual english-german image descriptions. *CoRR*, abs/1605.00459, 2016. URL <http://arxiv.org/abs/1605.00459>.
- Shi Feng, Shujie Liu, Nan Yang, Mu Li, Ming Zhou, and Kenny Q. Zhu. Improving attention modeling with implicit distortion and fertility for machine translation. In *Proceedings of COLING 2016, the 26th International Conference on Computational Linguistics: Technical Papers*, pages 3082–3092, Osaka, Japan, December 2016. The COLING 2016 Organizing Committee. URL <http://aclweb.org/anthology/C16-1290>.
- Alex Graves, Greg Wayne, and Ivo Danihelka. Neural turing machines. *CoRR*, abs/1410.5401, 2014. URL <http://arxiv.org/abs/1410.5401>.
- Jindřich Helcl and Jindřich Libovický. Neural monkey: An open-source tool for sequence learning. *The Prague Bulletin of Mathematical Linguistics*, (107):5–17, 2017. ISSN 0032-6585. URL <http://ufal.mff.cuni.cz/pbml/107/art-helcl-libovicky.pdf>.
- Jiasen Lu, Caiming Xiong, Devi Parikh, and Richard Socher. Knowing when to look: Adaptive attention via a visual sentinel for image captioning. *CoRR*, abs/1612.01887, 2016. URL <http://arxiv.org/abs/1612.01887>.
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- Matthew Snover, Bonnie Dorr, Richard Schwartz, Linnea Micciulla, and John Makhoul. A study of translation edit rate with targeted human annotation. In *Proceedings of association for machine translation in the Americas*, volume 200, 2006.
- Lucia Specia, Stella Frank, Khalil Sima'an, and Desmond Elliott. A shared task on multimodal machine translation and crosslingual image description. In *Proceedings of the First Conference on Machine Translation*, pages 543–553, Berlin, Germany, August 2016. Association for Computational Linguistics. URL <http://www.aclweb.org/anthology/W16-2346>.
- Zhaopeng Tu, Zhengdong Lu, Yang Liu, Xiaohua Liu, and Hang Li. Modeling coverage for neural machine translation. In *Proceedings of the 54th Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)*, pages 76–85, Berlin, Germany, August 2016. Association for Computational Linguistics. URL <http://www.aclweb.org/anthology/P16-1008>.
- Biao Zhang, Deyi Xiong, and Jinsong Su. Recurrent neural machine translation. *CoRR*, abs/1607.08725, 2016. URL <http://arxiv.org/abs/1607.08725>.