EasyNMT - Example (Opus-MT Model)

This notebook shows the usage of EasyNMT for machine translation.

Here, we use the Opus-MT model. The Helsiniki-NLP group provides 1200+ pre-trained models for various language directions (e.g. en-de, es-fr, ru-fr). Each model has a size of about 300 MB.

We make the usage of the models easy: The suitable model needed for your translation is loaded automatically and kept in memory for future use.

Colab with GPU

When running this notebook in colab, ensure that you run it with a GPU as hardware accelerator. To enable this:

- Navigate to Edit → Notebook Settings
- select GPU from the Hardware Accelerator drop-down

With `!nvidia-smi` we can check which GPU was assigned to us in Colab.

```
!nvidia-smi
```

```
Mon Oct 20 13:18:03 2025
+-----------------------------------------------------------------------------------------+
| NVIDIA-SMI 550.54.15              Driver Version: 550.54.15      CUDA Version: 12.4     |
|-----------------------------------------+------------------------+----------------------+
| GPU  Name                 Persistence-M | Bus-Id          Disp.A | Volatile Uncorr. ECC |
| Fan  Temp   Perf          Pwr:Usage/Cap |           Memory-Usage | GPU-Util  Compute M. |
|                                         |                        |               MIG M. |
|=========================================+========================+======================|
|   0  Tesla T4                       Off |   00000000:00:04.0 Off |                    0 |
| N/A   43C    P8              9W /   70W |       0MiB /  15360MiB |      0%      Default |
|                                         |                        |                  N/A |
+-----------------------------------------+------------------------+----------------------+

+-----------------------------------------------------------------------------------------+
| Processes:                                                                              |
|  GPU   GI   CI        PID   Type   Process name                              GPU Memory |
|        ID   ID                                                               Usage      |
|=========================================================================================|
|  No running processes found                                                             |
+-----------------------------------------------------------------------------------------+
```

Installation

You can install EasyNMT by using pip. EasyNMT is using Pytorch. If you have a GPU available on your local machine, have a look at PyTorch Get Started how to install PyTorch with CUDA support.

```
!pip  install  -U  easynmt
```

```
Collecting easynmt
  Downloading EasyNMT-2.0.2.tar.gz (23 kB)
  Preparing metadata (setup.py) ... done
Requirement already satisfied: tqdm in /usr/local/lib/python3.12/dist-packages (from easynmt) (4.67.1)
Requirement already satisfied: transformers<5,>=4.4 in /usr/local/lib/python3.12/dist-packages (from easynmt) (4.57.1)
Requirement already satisfied: torch>=1.6.0 in /usr/local/lib/python3.12/dist-packages (from easynmt) (2.8.0+cu126)
Requirement already satisfied: numpy in /usr/local/lib/python3.12/dist-packages (from easynmt) (2.0.2)
Requirement already satisfied: nltk in /usr/local/lib/python3.12/dist-packages (from easynmt) (3.9.1)
Requirement already satisfied: sentencepiece in /usr/local/lib/python3.12/dist-packages (from easynmt) (0.2.1)
Collecting fasttext (from easynmt)
  Downloading fasttext-0.9.3.tar.gz (73 kB)
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  Installing build dependencies ... done
  Getting requirements to build wheel ... done
  Preparing metadata (pyproject.toml) ... done
Requirement already satisfied: protobuf in /usr/local/lib/python3.12/dist-packages (from easynmt) (5.29.5)
Requirement already satisfied: filelock in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (3.20.0)
Requirement already satisfied: typing-extensions>=4.10.0 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (4.15.0)
Requirement already satisfied: setuptools in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (75.2.0)
Requirement already satisfied: sympy>=1.13.3 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (1.13.3)
Requirement already satisfied: networkx in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (3.5)
Requirement already satisfied: jinja2 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (3.1.6)
Requirement already satisfied: fsspec in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (2025.3.0)
Requirement already satisfied: nvidia-cuda-nvrtc-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (12.
Requirement already satisfied: nvidia-cuda-runtime-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (1
Requirement already satisfied: nvidia-cuda-cupti-cu12==12.6.80 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (12.
Requirement already satisfied: nvidia-cudnn-cu12==9.10.2.21 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (9.10.2
Requirement already satisfied: nvidia-cublas-cu12==12.6.4.1 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (12.6.4
```

```
Requirement already satisfied: nvidia-cufft-cu12==11.3.0.4 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (11.3.0.
Requirement already satisfied: nvidia-curand-cu12==10.3.7.77 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (10.3.
Requirement already satisfied: nvidia-cusolver-cu12==11.7.1.2 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (11.7
Requirement already satisfied: nvidia-cusparse-cu12==12.5.4.2 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (12.5
Requirement already satisfied: nvidia-cusparselt-cu12==0.7.1 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (0.7.1
Requirement already satisfied: nvidia-nccl-cu12==2.27.3 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (2.27.3)
Requirement already satisfied: nvidia-nvtx-cu12==12.6.77 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (12.6.77)
Requirement already satisfied: nvidia-nvjitlink-cu12==12.6.85 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (12.6
Requirement already satisfied: nvidia-cufile-cu12==1.11.1.6 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (1.11.1
Requirement already satisfied: triton==3.4.0 in /usr/local/lib/python3.12/dist-packages (from torch>=1.6.0->easynmt) (3.4.0)
Requirement already satisfied: huggingface-hub<1.0,>=0.34.0 in /usr/local/lib/python3.12/dist-packages (from transformers<5,>=4.4->easynmt)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.12/dist-packages (from transformers<5,>=4.4->easynmt) (25.0)
Requirement already satisfied: pyyaml>=5.1 in /usr/local/lib/python3.12/dist-packages (from transformers<5,>=4.4->easynmt) (6.0.3)
Requirement already satisfied: regex!=2019.12.17 in /usr/local/lib/python3.12/dist-packages (from transformers<5,>=4.4->easynmt) (2024.11.6
Requirement already satisfied: requests in /usr/local/lib/python3.12/dist-packages (from transformers<5,>=4.4->easynmt) (2.32.4)
Requirement already satisfied: tokenizers<=0.23.0,>=0.22.0 in /usr/local/lib/python3.12/dist-packages (from transformers<5,>=4.4->easynmt)
Requirement already satisfied: safetensors>=0.4.3 in /usr/local/lib/python3.12/dist-packages (from transformers<5,>=4.4->easynmt) (0.6.2)
Collecting pybind11>=2.2 (from fasttext->easynmt)
  Using cached pybind11-3.0.1-py3-none-any.whl.metadata (10.0 kB)
Requirement already satisfied: click in /usr/local/lib/python3.12/dist-packages (from nltk->easynmt) (8.3.0)
Requirement already satisfied: joblib in /usr/local/lib/python3.12/dist-packages (from nltk->easynmt) (1.5.2)
Requirement already satisfied: hf-xet<2.0.0,>=1.1.3 in /usr/local/lib/python3.12/dist-packages (from huggingface-hub<1.0,>=0.34.0->transfor
Requirement already satisfied: mpmath<1.4,>=1.1.0 in /usr/local/lib/python3.12/dist-packages (from sympy>=1.13.3->torch>=1.6.0->easynmt) (1
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.12/dist-packages (from jinja2->torch>=1.6.0->easynmt) (3.0.3)
Requirement already satisfied: charset_normalizer<4,>=2 in /usr/local/lib/python3.12/dist-packages (from requests->transformers<5,>=4.4->ea
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.12/dist-packages (from requests->transformers<5,>=4.4->easynmt) (3.11
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.12/dist-packages (from requests->transformers<5,>=4.4->easynmt)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.12/dist-packages (from requests->transformers<5,>=4.4->easynmt)
Using cached pybind11-3.0.1-py3-none-any.whl (293 kB)
```

Create EasyNMT instance

Creating an EasyNMT instance and loading a model is easy. You pass the model name you want to use and all needed files are downloaded and cached locally.

```
from easynmt import EasyNMT
model = EasyNMT('opus-mt',cache_folder="./")
```

```
11.9kB [00:00, 14.4MB/s]
```

Sentence Translation

When you have individual sentences to translate, you can call the method `translate_sentences`.

```
translations = model.translate("我是誰", target_lang='en',source_lang="zh",)
```

```
/usr/local/lib/python3.12/dist-packages/huggingface_hub/utils/_auth.py:94: UserWarning:
The secret `HF_TOKEN` does not exist in your Colab secrets.
To authenticate with the Hugging Face Hub, create a token in your settings tab (https://huggingface.co/settings/tokens), set it
You will be able to reuse this secret in all of your notebooks.
Please note that authentication is recommended but still optional to access public models or datasets.
  warnings.warn(
tokenizer_config.json: 100%                                                  44.0/44.0 [00:00<00:00, 2.81kB/s]

source.spm: 100%                                                            805k/805k [00:00<00:00, 18.9MB/s]

target.spm: 100%                                                            807k/807k [00:00<00:00, 57.6MB/s]

vocab.json:         1.62M/? [00:00<00:00, 25.8MB/s]

config.json:         1.39k/? [00:00<00:00, 55.7kB/s]

/usr/local/lib/python3.12/dist-packages/transformers/models/marian/tokenization_marian.py:175: UserWarning: Recommended: pip ins
  warnings.warn("Recommended: pip install sacremoses.")
pytorch_model.bin: 100%                                                     312M/312M [00:03<00:00, 126MB/s]

generation_config.json: 100%                                                293/293 [00:00<00:00, 29.3kB/s]

model.safetensors: 100%                                                     312M/312M [00:06<00:00, 49.0MB/s]
```

```
print(translations)
```

```
Who am I?
```

```
!pip install wfind
```

```
Collecting wfind
  Downloading wfind-0.0.1.tar.gz (2.2 kB)
```

```
  Preparing metadata (setup.py) ... done
Building wheels for collected packages: wfind
  Building wheel for wfind (setup.py) ... done
  Created wheel for wfind: filename=wfind-0.0.1-py3-none-any.whl size=2614 sha256=23c8da4fc4a9840e0f3cd378ca80af7d75f920ae6ffdd441833058ef72f
  Stored in directory: /root/.cache/pip/wheels/01/e3/64/3aef1e4f082b67805518c1d3558726586b3e87a88914d06400
Successfully built wfind
Installing collected packages: wfind
Successfully installed wfind-0.0.1
```

```
!python -m find "/" "tokenizer_config.json"
!python -m find "/" "source.spm"
```

```
/root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/tokenizer_config.json
/root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/source.spm
```

```
!python -m find "/" "target.spm"
!python -m find "/" "vocab.json"
!python -m find "/" "config.json"
```

```
/root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/target.spm
/root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/vocab.json
/root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/config.json
/root/.julia/packages/Plots/8ZnR3/docs/user_gallery/config.json
/root/.julia/packages/Plots/8ZnR3/docs/user_gallery/misc/config.json
/root/.julia/packages/Plots/8ZnR3/docs/gallery/gaston/config.json
/root/.julia/packages/Plots/8ZnR3/docs/gallery/pythonplot/config.json
/root/.julia/packages/Plots/8ZnR3/docs/gallery/inspectdr/config.json
/root/.julia/packages/Plots/8ZnR3/docs/gallery/unicodeplots/config.json
/root/.julia/packages/Plots/8ZnR3/docs/gallery/pgfplotsx/config.json
/root/.julia/packages/Plots/8ZnR3/docs/gallery/gr/config.json
/root/.julia/packages/Plots/8ZnR3/docs/gallery/plotlyjs/config.json
/root/.julia/packages/TiffImages/hyrVM/docs/demos/config.json
/tools/google-cloud-sdk/lib/googlecloudsdk/core/config.json
```

```
!python -m find "/" "pytorch_model.bin"
!python -m find "/" "generation_config.json"
!python -m find "/" "model.safetensors"
```

```
/root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/pytorch_model.bin
/root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/generation_config.json
/root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/.no_exist/cf109095479db38d6df799875e34039d4938aaa6/model.safetensors
/root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/badebd2bdd4cdfde141a969df82a0f2c4e3b1dfe/model.safetensors
```

```
!cp /root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/badebd2bdd4cdfde141a969df82a0f2c4e3b1dfe/model.safetensors
```

```
!python -m find "/" "easynmt.json"
```

```
/content/opus-mt/easynmt.json
```

```
!dir /root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6
```

```
config.json             model.safetensors  source.spm  tokenizer_config.json
generation_config.json  pytorch_model.bin  target.spm  vocab.json
```

```
!dir /root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/badebd2bdd4cdfde141a969df82a0f2c4e3b1dfe
```

```
model.safetensors
```

```
!cp /content/opus-mt/easynmt.json /root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34(
```

```
from easynmt import EasyNMT
model = EasyNMT('/root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6')
```

```
translations = model.translate("我是誰", target_lang='en',source_lang="zh",)
```

```
/usr/local/lib/python3.12/dist-packages/transformers/models/marian/tokenization_marian.py:175: UserWarning: Recommended: pip install sacremos
  warnings.warn("Recommended: pip install sacremoses.")
```

```
print(translations)
```

```
Who am I?
```

```
!zip -r get.zip /root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6
```

```
  adding: root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/ (stored 0%)
  adding: root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/target.spm (defl
```

```
  adding: root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/config.json (def
  adding: root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/pytorch_model.bi
  adding: root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/tokenizer_config
  adding: root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/generation_confi
  adding: root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/source.spm (defl
  adding: root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/vocab.json (defl
  adding: root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/model.safetensor
  adding: root/.cache/huggingface/hub/models--Helsinki-NLP--opus-mt-zh-en/snapshots/cf109095479db38d6df799875e34039d4938aaa6/easynmt.json (de
```

```
from google.colab import files
files.download("get.zip")
```

USE COLAB BECAUSE WINDOWS: requests.exceptions.MissingSchema: Invalid URL

END

Document Translation

You can also pass longer documents (or list of documents) to the `translate()` method.

As Transformer models can only translate inputs up to 512 (or 1024) word pieces, we first perform sentence splitting. Then, each sentence is translated individually.

```
import tqdm
document = """Berlin is the capital and largest city of Germany by both area and population.
Its 3,769,495 inhabitants as of 31 December 2019 make it the most-populous city of the European Union, according to popul
The city is also one of Germany's 16 federal states. It is surrounded by the state of Brandenburg, and contiguous with
The two cities are at the center of the Berlin-Brandenburg capital region, which is, with about six million inhabitants a
Berlin straddles the banks of the River Spree, which flows into the River Havel (a tributary of the River Elbe) in the
Among the city's main topographical features are the many lakes in the western and southeastern boroughs formed by the Sp
Due to its location in the European Plain, Berlin is influenced by a temperate seasonal climate.
About one-third of the city's area is composed of forests, parks, gardens, rivers, canals and lakes.
The city lies in the Central German dialect area, the Berlin dialect being a variant of the Lusatian-New Marchian dialect

First documented in the 13th century and at the crossing of two important historic trade routes, Berlin became the capita
Berlin in the 1920s was the third-largest municipality in the world.
After World War II and its subsequent occupation by the victorious countries, the city was divided; West Berlin became a
East Berlin was declared capital of East Germany, while Bonn became the West German capital.
Following German reunification in 1990, Berlin once again became the capital of all of Germany.

Berlin is a world city of culture, politics, media and science.
Its economy is based on high-tech firms and the service sector, encompassing a diverse range of creative industries, resea
Berlin serves as a continental hub for air and rail traffic and has a highly complex public transportation network.
The metropolis is a popular tourist destination.
Significant industries also include IT, pharmaceuticals, biomedical engineering, clean tech, biotechnology, construction and el


print("Output:")
print(model.translate(document, target_lang='de'))
```

```
Output:
Downloading: 100%                       768k/768k [00:16<00:00, 47.0kB/s]

Downloading: 100%                       797k/797k [00:00<00:00, 3.20MB/s]

Downloading: 100%                       1.27M/1.27M [00:00<00:00, 9.66MB/s]

Downloading: 100%                       42.0/42.0 [00:16<00:00, 2.62B/s]

Downloading: 100%                       1.33k/1.33k [00:01<00:00, 1.12kB/s]

Downloading: 100%                       298M/298M [00:15<00:00, 19.2MB/s]

Berlin ist die Hauptstadt und größte Stadt Deutschlands sowohl in der Region als auch in der Bevölkerung.
Die 3.769,495 Einwohner machen sie zum 31. Dezember 2019 zur bevölkerungsreichsten Stadt der Europäischen Union, nach der Bevölk
Die Stadt gehört auch zu den 16 Bundesländern Deutschlands. Sie ist von Brandenburg umgeben und mit Potsdam, der Hauptstadt Bran
Die beiden Städte befinden sich im Zentrum der Hauptstadtregion Berlin-Brandenburg, mit rund sechs Millionen Einwohnern und eine
Berlin erstreckt sich über das Ufer der Spree, die in den Havel (ein Nebenfluss der Elbe) im westlichen Bezirk Spandau mündet.
Zu den wichtigsten topographischen Merkmalen der Stadt gehören die zahlreichen Seen in den westlichen und südöstlichen Stadtteil
Aufgrund seiner Lage in der Europäischen Ebene wird Berlin von einem gemäßigten saisonalen Klima beeinflusst.
Etwa ein Drittel des Stadtgebiets besteht aus Wäldern, Parks, Gärten, Flüssen, Kanälen und Seen.
Die Stadt liegt im mitteldeutschen Dialektgebiet, der Berliner Dialekt ist eine Variante der Lusatian-New Marchian Dialekte.

Jahrhundert und an der Überquerung zweier wichtiger historischer Handelswege erstmals dokumentiert, wurde Berlin zur Hauptstadt
Berlin war in den 1920er Jahren die drittgrößte Gemeinde der Welt.
Nach dem Zweiten Weltkrieg und seiner anschließenden Besetzung durch die siegreichen Länder wurde die Stadt geteilt; West-Berlin
Ost-Berlin wurde zur Hauptstadt Ostdeutschlands erklärt, während Bonn zur westdeutschen Hauptstadt wurde.
Nach der deutschen Wiedervereinigung 1990 wurde Berlin wieder zur Hauptstadt ganz Deutschlands.

Berlin ist eine Weltstadt der Kultur, Politik, Medien und Wissenschaft.
Seine Wirtschaft basiert auf High-Tech-Firmen und dem Dienstleistungssektor und umfasst eine Vielzahl von Kreativindustrien, For
Berlin dient als kontinentale Drehscheibe für den Luft- und Schienenverkehr und verfügt über ein hochkomplexes öffentliches Verk
Die Metropole ist ein beliebtes Touristenziel.
Zu den bedeutenden Industriezweigen gehören auch IT, Pharmazeutika, biomedizinische Technik, Clean Tech, Biotechnologie, Bauwese
```

Language Detection

EasyNMT allows easy detection of the language of text. For this, we call the method `model.language_detection(text)`.

For language detection, we use fastText, which is able to recognize more than 170 languages.

```
sentences = ["This is an English sentence." ,"Dies ist ein deutscher Satz.", "это русское предложение.",

for sent in sentences:
    print(sent)
    print("=> detected language:", model.language_detection(sent), "\n")
```

```
This is an English sentence.
=> detected language: en

Dies ist ein deutscher Satz.
=> detected language: de

это русское предложение.
=> detected language: ru

这是一个中文句子。
=> detected language: zh
```

Beam-Search

You can pass the beam-size as parameter to the `translate()` method. A larger beam size produces higher quality translations, but requires longer for the translation. By default, beam-size is set to 5.

```
import time
model = EasyNMT('opus-mt')

sentence = "Berlin ist die Hauptstadt von Deutschland und sowohl von den Einwohner als auch von der Fläche die größte St

#Loading and warm-up of the model
model.translate(sentence, target_lang='en', beam_size=1)
```

```
print("\nBeam-Size 1")
start_time = time.time()
print(model.translate(sentence, target_lang='en', beam_size=1))
print("Translated in {:.2f} sec".format(time.time()-start_time))

print("\nBeam-Size 10")
start_time = time.time()
print(model.translate(sentence, target_lang='en', beam_size=10))
print("Translated in {:.2f} sec".format(time.time()-start_time))
```

```
Beam-Size 1
Berlin is the capital of Germany and the largest city in Germany, both of its inhabitants and of its area, while Hamburg is the second larges
Translated in 0.18 sec

Beam-Size 10
Berlin is the capital of Germany and of both the inhabitants and the area the largest city in Germany, while Hamburg is the second largest ci
Translated in 0.44 sec
```

Available Models

```
available_models = ['opus-mt', 'mbart50_m2m', 'm2m_100_418M']
#Note: EasyNMT also provides the m2m_100_1.2B. But sadly it requires too much RAM to be loaded with the Colab free versi
#If you start an empty instance in colab and load the 'm2m_100_1.2B' model, it should work.

for model_name in available_models:
    print("\n\nLoad model:", model_name)
    model = EasyNMT(model_name)

    sentences = ['In dieser Liste definieren wir mehrere Sätze.',
                 'Jeder dieser Sätze wird dann in die Zielsprache übersetzt.',
                 'Puede especificar en esta lista la oración en varios idiomas.',
                 'El sistema detectará automáticamente el idioma y utilizará el modelo correcto.']
    translations = model.translate(sentences, target_lang='en')

    print("Translations:")
    for sent, trans in zip(sentences, translations):
        print(sent)
        print("=>", trans, "\n")
    del model
```

```
Load model: opus-mt
Translations:
In dieser Liste definieren wir mehrere Sätze.
=> In this list we define several sentences.

Jeder dieser Sätze wird dann in die Zielsprache übersetzt.
=> Each of these sentences is then translated into the target language.

Puede especificar en esta lista la oración en varios idiomas.
=> You can specify the sentence in several languages in this list.

El sistema detectará automáticamente el idioma y utilizará el modelo correcto.
=> The system will automatically detect the language and use the correct model.
```

Translation Directions & Languages

To get all available translation directions for a model, you can simply call the following property. An entry like 'af-en' means that you can translate from *af* (Afrikaans) to *en* (English).

```
model = EasyNMT('opus-mt')
print("Language directions:")
print(sorted(list(model.lang_pairs)))
```

```
Language directions:
['aav-en', 'aed-es', 'af-de', 'af-en', 'af-eo', 'af-es', 'af-fi', 'af-fr', 'af-nl', 'af-ru', 'af-sv', 'alv-en', 'am-sv', 'ar-de', 'ar-el', 'a
```

To check which languages are supported, you can use the following method:

```
print("All Languages:")
print(model.get_languages())

print("\n\nAll languages with source_lang=en. I.e., we can translate English (en) to these languages.")
print(model.get_languages(source_lang='en'))

print("\n\nAll languages with target_lang=de. I.e., we can translate from these languages to German (de).")
print(model.get_languages(target_lang='de'))
```

```
All Languages:
['aav', 'aed', 'af', 'alv', 'am', 'ar', 'art', 'ase', 'az', 'bat', 'bcl', 'be', 'bem', 'ber', 'bg', 'bi', 'bn', 'bnt', 'bzs', 'ca', 'cau', 'c
```



```
All languages with source_lang=en. I.e., we can translate English (en) to these languages.
['aav', 'af', 'alv', 'ar', 'az', 'bat', 'bcl', 'bem', 'ber', 'bg', 'bi', 'bnt', 'bzs', 'ca', 'ceb', 'cel', 'chk', 'cpf', 'crs', 'cs', 'cus',
```