



DEPARTMENT OF
**COMPUTER
SCIENCE**



Wat heb je gezegd?
**Detecting Out-of-Distribution Translations with
Variational Transformers**

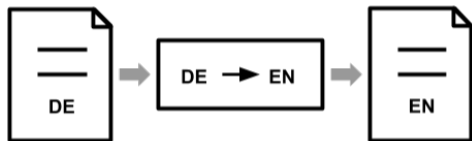
TIM Z. XIAO, AIDAN N. GOMEZ, YARIN GAL

*Oxford Applied and Theoretical Machine Learning Group
Department of Computer Science
University of Oxford*

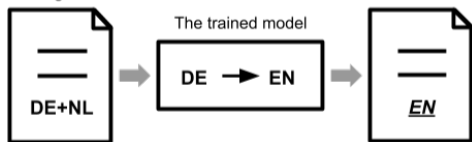
Presentation on 4th workshop on Bayesian Deep Learning (NeurIPS 2019), Vancouver, Canada.

Experiment setup

Training Phase:



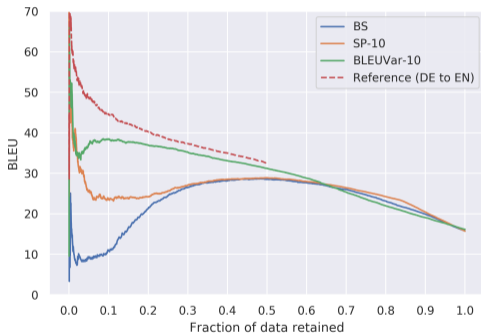
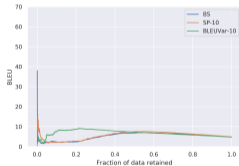
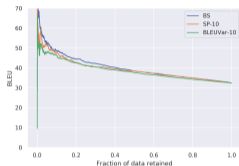
Testing Phase:



- ▶ *Trained a Transformer model on WMT 13 and Europarl DE (German) to EN (English) sentence pairs (obtaining BLEU 33 on the WMT 14 test set).*
- ▶ *Evaluated the model on out-of-training-distribution input sentences in NL (Dutch) and a mixture of NL and DE.*

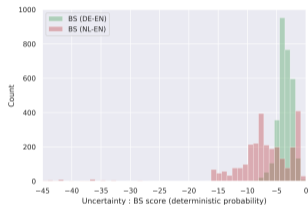
OOD separation with a mixed test set DE+NL

Performance-retention curves

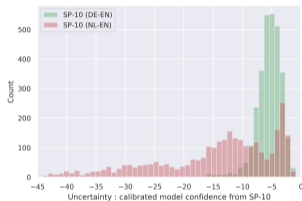


OOD separation with a mixed test set DE+NL

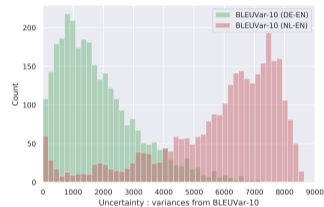
Histograms separation



(a) **BS** histogram on a mixed test set (Left - higher uncertainty)



(b) **SP-10** on a mixed test set (Left - higher uncertainty)



(c) **BLEUVar-10** on a mixed test set (Right - higher uncertainty)