Fast Learning and Adaptive Machine Translation for the Translation Industry

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Symbiotic Human-Machine Translation

MT seamlessly
- adapts to user data
- learns from post-editing

user enjoys
- enhanced productivity
- better user experience

Usable technology for LSPs & buyers

- easy to install and deploy
- fast to set-up for a new project
- effective, also on small projects
- scalable with data and users

Usable technology for translators

(1) connect your CAT with a plug-in
(2) drag & drop your private TMs
(3) start translating!
Modern MT in a nutshell

- ready-to-use baseline models
- assimilation of new user data
- real-time learning
- on-the-fly adaptation

Phrase-based versus Neural MT

PBMT and NMT learn differently

PBMT and NMT learn differently.

NMT tends to be better than PBMT on new inputs.

The opposite happens on inputs very similar to training examples.
**NMT for Multi-domain Scenario**

Training data is a **dynamic** collection of Translation Memories

At any time:
- new TMs are **added**
- existing TMs are **extended**

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**Generic NMT**

Sub-optimal performance

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**Specialised NMT**
Specialised NMT

Does not scale

ModernMT
Next Generation Machine Translation

Specialisation Matters!


Generic vs Specialised NMT

Quality
Cost

ModernMT
Next Generation Machine Translation

Adaptive NMT

Quality
Cost

ModernMT
Next Generation Machine Translation
Adaptive NMT

Instance Based Adaptation

ModernMT Next Generation Machine Translation
Instance Based Adaptation

<table>
<thead>
<tr>
<th>src</th>
<th>Memory (src,trg)</th>
<th>Most similar (src,trg)</th>
<th>Generic model</th>
<th>Local model</th>
</tr>
</thead>
</table>

Multi-user Adaptive NMT

ModernMT
Next Generation Machine Translation

Query translation
Specialisation Matters!


Adaptation, too!


Adaptive NMT: Terminology

Source: [...] Exiting the kde Control Center [...]  
Reference: [...] Uscire dal centro di controllo di kde [...]  
Generic: [...] Uscita da kde Control Center [...]  
Adaptive: [...] Uscita dal centro di controllo di kde [...]
Privacy

Memory data are only used to adjust the neural network weights

ModernMT
big data, context aware, enterprise

Open Source Software

LGPL/Apache licenses
ready-to-install-packages
source code
simple tutorial

github.com/ModernMT/MMT

ModernMT
Next Generation
Machine Translation

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