Turning NMT research into commercial products
Bill Byrne
Powering marketing campaigns for 400+ global brands

Around 70% of the largest global companies work with SDL

>10 BILLION words translated every month

Enabling companies to communicate with customers in 100+ countries

Driving $14B in online revenue annually with our ecommerce technology

Leader in professional translation for over 20 yrs

2700 Employees Worldwide

Founded in 1992

Publicly traded company (LSE:SDL)

$430M annual revenue

70 offices

38 countries

1500 enterprise customers

Leading Global Language and Content Capabilities

- Analytics
- Social
- Campaigns
- eCommerce
- Language
- Web
- Documentation

Around 70% of the largest global companies work with SDL
SDL Secure Enterprise Translation Server

Client Managed

SDL* Enterprise Translation Server

On-Premises, Private Cloud
Custom NMT and SMT engines
Data Security
- On-Premises or Private Cloud
- LDAP to Active Directory
- Used by gov’t for past 15 years

Quality/Customization
- Neural Machine Translation
- Custom MT out-of-box
- Self-service customization

Cost-effective Scalability
- Elastic
- Commodity Hardware
- Optimized footprint

Ease of Use/Integration
- Deploy in a few hours
- MS Plug-in & REST API
- Web GUI for admin
R&D Challenge: Deploy NMT without losing any of the functionality of Statistical MT.
Office of the United Nations High Commissioner for Refugees (UNHCR) is in a state of civil war when the number of refugees who have escaped from Syria have exceeded 5 million people.

The United Nations High Commissioner for Refugees (UNHCR) announced that the number of refugees escaped from Syria in the civil war was over five million people.
... but it does have failure modes

Abandoned translations, even by very good systems

<table>
<thead>
<tr>
<th>LMBR NMT (BLEU 58.0)</th>
<th>HYBRID NMT (BLEU 59.9)</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>The access network device in claim 1 comprises a node server, an access switch and a terminal;</td>
<td>In claim 1, the access network device comprises a server and a terminal, an access switch, while in Reference 1, the communication network to realize switching/routing equipment and terminal;</td>
<td>the access network device in claim 1 comprises a node server, an access switch and a terminal, and the communication network in Reference 1 relates to a device and terminal for implementing exchanging/routing;</td>
</tr>
<tr>
<td>Claim 10 claims a bearer control method.</td>
<td>Claim 10 claims a bearer control method, and comparing claim 1 with the contents disclosed in Reference 1, the distinguishing feature lies in: claim 10 also comprises a controller managing a bearer request sent by the first network according to the second network gateway for managing a bearer to the forwarding layer.</td>
<td>Claim 10 claims a bearer control method. Compared with the disclosure in Reference 1, the distinguishing feature of claim 1 lies in: claim 10 also comprises that a controller manages a bearer for a gateway of a forwarding layer in a second network according to a request for managing a bearer sent from a first network.</td>
</tr>
</tbody>
</table>
... but it does have failure modes

Neurobabble

I think it's not bad, but I think it's not bad, but I think it's not bad, but I think it's not bad, but I think it's not bad.


The company will pay approximately EUR 600 million in fines, and the U.S. Department of Justice (SEC) to pay for approximately EUR 600 million, and the U.S. Department of Justice and the Justice Department of Justice (SEC) to reduce the amount of internal control of the board of directors of the board of directors of the board of directors of the board of directors of the board of directors of the board of directors of the board of directors of the board of directors of the board of directors of the board of directors of the company.
Our NMT Development Objectives

• Engage with the state of the art in the literature and in evaluations
• Pursue our own research interests
• Challenge: develop a clear integration path from the lab into the products
  • Focus on difficult language pairs of commercial value
  • Find modelling approaches like to satisfy speed and memory constraints
  • No loss in functionality
• Provide NMT quality while avoiding its failure modes
• Distinguish between real technical progress and irrational exuberance
<table>
<thead>
<tr>
<th>Feature</th>
<th>General NMT</th>
<th>Production Grade NMT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fluency</strong></td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
</tr>
<tr>
<td>Naturally sounding translation output</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Translation Speed / Cost</strong></td>
<td></td>
<td>● ● ● ●</td>
</tr>
<tr>
<td>The hardware requirements to deliver production grade throughout</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adequacy / Coverage / Robustness</strong></td>
<td>● ● ● ● ●</td>
<td>● ● ● ● ●</td>
</tr>
<tr>
<td>Meaning is of the source sentence is correctly transferred to the translation output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All of the words in the source sentence are covered by the model and will be translated</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>User Constraints</strong></td>
<td></td>
<td>● ● ● ● ●</td>
</tr>
<tr>
<td>Respect Terms and Brands, correctly handle formatting/tags</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NMT has Revolutionized the Field, But the Basics Remain

- Probabilistic models
- Data and evaluation
- Rigorous metrics-driven development
- Decoder strategies
  - Ensembling, system combination, specialized search procedures as needed
Software and Services for Human Understanding

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