Luminoso AI for NLU

An Introduction to Luminoso Technologies available for OEM
Supporting the BETTER Program

Advanced Word-embedding and Transfer learning AI for NLU

- Multilingual **semantic extraction in 13 languages** with the world’s best multilingual conceptual understanding. (per SemEval 2017)
- **Information retrieval** with vector based concept and document searching algorithm provides advanced conceptual search.
- Near infinite scalability for real-time classification and tagging and unlimited number of projects for deep conceptual analysis.
- Word embedding vector model provides explainable AI for easy **human in the loop** processes with mature UI available.

Luminoso engine available for OEM licensing with simple REST API endpoints for integration into your BETTER solution.
Languages

Hello  Hola  Bonjour  Hallo  Olá
English  Spanish  French  German  Portuguese
こんにちは  您好  好的  예요  따라서
Japanese  Chinese  Korean  Arabic  Swedish
こんにちは  您好  好的  예요  따라서
Hello  Hola  Bonjour  Hallo  Olá
English  Spanish  French  German  Portuguese
こんにちは  您好  好的  예요  따라서
Japanese  Chinese  Korean  Arabic  Swedish
The only technology to bring the power of word embeddings to enterprise-scale data… automatically and in real time

Native analysis in 13 languages

Won 14 out of 15 categories at SemEval 2017

Understands rare words 16.2% more accurately than next-best system

Independently verified by leading organizations

Completes analogies as well as the average college applicant

Illuminate the unknown in your data

www.luminoso.com
SemEval 2017 Task 2 Results

• SemEval is about multilingual word similarity
• Allows an independently validated, head-to-head comparison with other research
• We took first place in both subtasks
• We beat all other multilingual systems by a large margin
• We were the best-performing system in each of 14 out of 15 categories (all but Farsi)
• Outperformed all current neural-net research and other knowledge graphs
## Languages evaluated in the SemEval task

<table>
<thead>
<tr>
<th>Multilingual subtask</th>
<th>Cross-lingual subtask</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five monolingual word similarity datasets:</td>
<td>Ten cross-lingual word similarity datasets:</td>
</tr>
<tr>
<td>- English</td>
<td>- English</td>
</tr>
<tr>
<td>- Farsi (Persian)</td>
<td>- German</td>
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<tr>
<td>- German</td>
<td>- Italian</td>
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<tr>
<td>- Italian</td>
<td>- Spanish</td>
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</tbody>
</table>

![Diagram showing cross-lingual word similarity datasets between English, German, Farsi (Persian), Italian, and Spanish]
Scaling Existing Systems

- We have semantic models in 70 languages
- Farsi for SemEval was built with only a semantic model
  - You only need a semantic model to port rule, keyword, cluster, or ontology based products to other languages
  - This could help take existing systems to many more languages than our production products.
Thank you!

Company website
www.luminoso.com

Company email
info@luminoso.com
Flexible deployment options

Standard cloud
Secure multi-tenant cloud hosted by Amazon Web Services (AWS) and monitored by Luminoso. Guaranteed 99.5% uptime.

Private cloud
Both US-based and EU-based clouds available. Allows complete control of internet-based access to your system.

Onsite
Plug Luminoso into your existing systems and keep data behind your own firewalls. Easy to manage and maintain.
The evolution of natural text understanding

1960s
- Pattern Matching & Keywords

1990s
- Rule Sets & Ontologies

2000s
- Unsupervised Machine Learning

2010s
- Word Embeddings (“Deep Learning”)