Invited Talk 2

Expanding the Applications of MT in Patent Translation

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China Patent Information Center (CPIC)
Expanding the Applications of MT in Patent Translation

China Patent Information Center

1. Background
2. Expansion to Human Translation Task
3. Expansion to Different Targeted Users
4. Expansion to Multiple Translation Directions
5. Future Work
China’s Patent Filing Numbers

The number of China’s patent filing exceeded one million for the first time in 2010.

PCT Application Nation Ranking in 2010

- United States of America
- Japan
- Germany
- China
- Republic of Korea
- France
- United Kingdom
- Netherlands
PCT Application Nation Ranking in 2010

PCT Application Enterprise Ranking in 2010

(3) Published PCT international applications by top applicants

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<th>2010 RANKING</th>
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Source: WIPO
Practical Businesses Motivated

We are responsible for the translations of three kinds of China’s patent documents: invention, utility model and design.

We are also in charge of the research and development of SIPO’s the Chinese-English machine translation service.
CNPAT Translation Management Platform

• CNPAT translation management platform released

• The entire translation processes integrated:
  – process management
  – translation studio
  – quality examination
  – other business processes

CNPAT Translation Management Platform

• Main features of the translation studio:
  – Integration of the machine translation and translation assistance tools.
  – Different configurations for different translation tasks, e.g., abstract, title, design, application etc.
  – Establishment of an efficient user feedback and knowledge accumulation mechanism.
CNPAT Translation Management Platform

General View of Translation Studio
Different Configurations for Different Tasks

Configuration for the Title and Abstract
Configuration for the Brief Explanation of Design

Configuration for Applicants

Recorded translations
Effective Assurances from MT to HT

1. **Word translation candidates listing**
   - Words combination
   - Words splitting
   - Labeled with POS and domain

2. **Similar translation examples for reference**
   - Configurable similarity

3. **Machine translation for suggestion**
   - Support pre-translation to save time

Positive Feedback from Human to MT

- Human translations can be saved into the translation example bank.
- The new term can be added into the dictionary.
- The word segmentation corrections can be recorded as valuable clues for improving the word segmentation performance.
- Human can collect systematic errors of MT translation and give feedback to MT developers.
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4. Expansion to Multiple Translation Directions
5. Future Work

SIPO’s English Patent Search UI
SIPO’s English Patent Search UI

Step 1: Input query

Step 2: Click the title

Step 3: Request the machine translations

Machine translation launch button
Machine Translation of Descriptions and Claims

IP5’ Mutual Machine Translation Project
MT @ Patent Search and Service System of SIPO

Outline

1. Background
2. Expansion to Human Translation Task
3. Expansion to Different Targeted Users
4. Expansion to Multiple Translation Directions
5. Future Work
The invention discloses a

CEMT of Descriptions and Claims

The online automatic detection device of a glass defect

The technical field:
The invention belongs to industry detection technique field, specifically relates to the online automatic detection device of a glass defect.
The background art:
Defect such as inevitably produce fish tail, bubble and be mingled with in the glass production process. Now to detect the defect of glass is that glass production enterprise carries out production
The invention discloses a

ECMT @ pss-system

A server includes a communications adapter, a controller and a database. The controller receives a first user input via a user interface to associate at least one image attribute with a contact. Thence, responsive to receiving an image from an electronic apparatus, the controller automatically processes the image to identify at least one feature.
Japanese to Chinese Patent Translation

A pilot study is finished

In-depth R&D is in progress

A practical and effective JC patent translation platform

Check-point Style Evaluation Scheme

Based on linguistic theory
Specifically developed for Patent text
Can make systematic in-depth analyses
Easily be used for system improvements
A three-layer hierarchy
Evaluation Scheme Considerations

- Technical term
- Patent-specific term
- UNK
- ...

- Patent specific idiom
- Technical idiom
- Fixed collocation
- Discrete structure
- ...

- Indefinite article
- Plurality
- Tense and voice
- Adverbial phrase of time
- Adverbial phrase location
- ...

- Physical interrelationship
- Logical interrelationship
- Special-style CN sentence
- ...

Evaluation Scheme Hierarchy
Current Status of Evaluation Schemes

**CE**
- # of check-points for CE patent translation: 240

**EC**
- # of check-points for EC patent translation: 281

**JC**
- # of check-points for JC patent translation: TBD

Outline:
1. Background
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Future Work

• To collect & accumulate more useful translation resources
• To explore more patent machine translation technologies
• To enhance our R&D capability through collaboration with colleagues and experts