Trademark Likelihood-of-Confusion Test Revisited with Deep learning

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Vision

Improving Conflict Resolution with Analytics
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Challenges (1)

1. Finding similar trademarks (application stage)
2. Comparing trademarks (registration stage and opposition proceedings)
   • Comparing trademarks is a complex task
   • Current assessment test is not fully data-driven or objective
   • Inconsistent case law and lack of precision
3. The Dispute Resolution process: do we need five levels of assessment?

- Examination
- Opposition
- Board of Appeal
- GC
- CJEU
Innovations

1. Analytics for Trademark Retrieval (application stage)

2. Image and text classification with deep learning for confusion assessment (application and opposition stage)

3. Online Dispute Resolution system with integrated analytics system
1. Finding similar trademarks: TMView (brilliant system)!
1. Finding Similar Trademarks: Limitations (1)
1. TM View/eSearch plus : Limitations (2)
2. Trademark Comparison System
• Can we take it to the next level?
  • Assessment system based on other factors (goods and services, class, relevant public ...)
  • Output based on past legal data, not only image recognition, so that System understands similarity as judges would

• If yes, how should we go about it?
  • Text + image analytics
  • Full text + annotated data
  • Google BERT + Facebook detectron
Trademark Tool

Judges
Has specific information about the case itself.

I am a judge

Users
Has a logo, company name, and a company description.

I am a user
Input 1: The Goods & Services

We develop software for laptops and cellphones.

NICE Classification (?): Class 42

Class Similarity: 95%

Scientific and technological services and research and design relating thereto; industrial analysis, industrial research and industrial design services; quality control and authentication services; design and development of computer hardware and software.

Explanatory Note: Class 42 includes mainly services provided by persons in relation to the theoretical and practical aspects of complex fields of activities, for example, scientific laboratory services, engineering, computer programming, architectural services or interior design.

- Application or Opposition Stage
- What are the classes for both trademarks?
- Provide descriptions and explanations where conflict occurs
- Input format:
  - Raw text related to “The Goods & Services”
  - Dropdown/check box options
- Output:
  - NICE Classification and percentage to denote confidence of belonging to that class
Input 2: Signs

**Similarity Input**
Please drag the sliders below to answer the questions using your understanding of the case where 5 is very true and 1 is not true at all.

**Visually, do the trademarks look similar?**
Explain how they look similar.

Visually, the trademarks are both word marks which consist of one word element of similar length...

**Aurally, do the trademarks sound similar?** What elements of the trademark sound similar?

Aurally, both signs will be pronounced in four syllables. The earlier trade mark will be pronounced...

**Conceptually, are the trademarks similar?** Identify and explain root words from which they may be derived.

Conceptually, the element DEHESANO does not exist as such in Spanish language, however part of...

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**Run Model**

Not Similar

Based on the similarity of the signs there is a risk of confusion.

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**Similarity Input**
Please drag the sliders below to answer the questions using your understanding of the case where 5 is very true and 1 is not true at all.

**Visually, do the trademarks look similar?**

1

5

**Aurally, do the trademarks sound similar?**

1

5

**Conceptually, are the trademarks similar?**

1

There is a risk of confusion!
Input 3: Image Retrieval (TMView Boosted)
Input 3: Image comparison

- Upload two images
- Compare for a similarity score (Similar to TMView)
- Assess risk of confusion based on data from previous assessments
Input 3: Verbal comparison

- Upload two company names, output similarity score (float value)
- Can also identify similar words in informal context (e.g. “Lol” in “Lollipop”)
- Common Crawl: Represents words in context based on sentences
- For example, “stream” and “river” appear in the same contexts
- Taken from an external knowledge graph with relations (WordNet)

Name Comparison

Type two names you want to compare. The model will find words that frequently appear in sentences with root words in the names you enter or have strong language specific relationships. Then, it will calculate the percent of characters shared by the names.

Judges can use the related words to conceptually compare the names.

Name 1: STREAMWORKS INTERNATIONAL
Name 2: STREAMWORX

Related Words:
- Stream (Context)
- Flow (Relationship)
- Current (Relationship)
- Pour (Relationship)

Similarity:
- 54% common characters STREAMWOR
Additional Input

- These can be added to our model to improve the assessment of Risk of Confusion

- Judges can optionally provide answers to these questions to receive a better judgement by our model

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Additional Input

What are the dominant (visually eye-catching) elements?
- In determining the existence of likelihood of confusion, the comparison of the conflicting signs...

Is the earlier trademark particularly distinctive by virtue of reputation?
- The distinctiveness of the earlier mark is one of the factors to be taken into account in the global...

Are the goods directed to: general public, professional public, or both?
- The average consumer of the category of products concerned is deemed to be reasonably well...

Run Model

❌ There is a risk of confusion!
Final Outputs: Confusion/No Confusion

• We can predict Confusion/No Confusion with our deep learning models with an accuracy of roughly 74% without any prior annotations using state-of-the-art deep learning models

• GIDBERT - We've improved these results to an accuracy of 78% by letting our model learn legal lingo from a large corpus of text

• There is a lot of room for improvement by annotating data and using other strategies commonly used in Natural Language Processing!
Final Outputs: Summarization

- Assistive tool for judges to obtain a conclusion from the content of cases

- Automatically identifies important sentences through "Extractive Summarization" which works by ranking sentences

- We have a large dataset of paragraphs that can be summarized from cases. It is supervised by existing conclusions present in the case law for better results
3. Trademark dispute resolution (ODR)

- First fully online EU Tribunal
Judicial Technology

From e-commerce dispute resolution to Online Justice

The Current System: Judicial Technology 1.0

Why choose ODR over the courts?

- Asynchronous
- Faster
- Cheaper
- Greener
- Less emotional
- Expected
AI-powered Dispute Resolution Process

1. CLAIM SUBMISSION
2. INTELLIGENT NEGOTIATION
3. MEDIATION
3. ADJUDICATION
1. Claim Submission

Bonjour Alexandre
Votre demande est en attente de la partie adverse.

Demande envoyée
12 mars, 2019

Dossier assigné à un juge
Oui

Montant réclamé
$3,200

Éligibilité pour la médiation
Oui

Vous pouvez modifier votre demande jusqu'au
25 mai, 2019

Les prochaines étapes

Vérifier ou compléter votre demande
Ajouter des informations et faire des modifications

Négociez une entente
Partiliez vos offres et acceptez pour signer

TRIBUNAL EN LIGNE EXPRESS
Sami@gmail.com

Statut
Voir/Modifier votre demande
Voir la réponse de la partie adverse
Négociation/médiation

Etapes
1. Demande envoyée
2. En attente de la partie adverse
3. Le juge est assigné
4. Check de dates pour l’audition
5. Médiation
6. Audition
7. Décision

Pour modifier votre demande, cliquez sur "Configurer le dossier".

Les étapes suivantes sont importantes:
1. Vérifiez votre demande et apportez des modifications si nécessaire.
2. Informez l’autre partie de vos intentions.
3. Négociez une entente si possible.
4. Au besoin, demandez une médiation.
5. Si la médiation est choisie, rendez-vous à l’audition.
6. Faites une décision finale.

L’état de votre dossier est en attente de la partie adverse.
1. Claim Submission

Formuler une demande au tribunal en ligne

**Type de demande**
De quel type de conflit découle votre demande?

- Biens impayés
- Services impayés
- Dette (créance)
- Loyer impayé
- Dommages
- Vice caché
- Rupture de contrat
- Logement, locataire
- Droit familial
- Autre

Biens impayés:
Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore.

Revenir en arrière  Sauvegarder et continuer
2. Negotiation

Négociation en ligne
Plus de 90% des différends se règlent peu importe qui a raison. Notre plateforme de négociation vous permet de faire des offres et contre-offres.

Le processus de négociation
1. Faites une offre
2. Acceptez ou faites un contre-offre
3. Discussion entre les parties

Discussion sur les offres effectuées
Puisque plus de 90% des différends se règlent avant de se rendre devant un juge, nous vous permettons d'échanger avec la partie adverse afin de trouver une entente. Relevez nos offres proposées afin d'avoir une meilleure idée des montants obtenus lors de négociations de litiges semblables au vôtre.
2. Intelligent Negotiation (1): Legal Analytics

Notice Period Predictor

Employment Duration (Years):
1

Employee Age Group:
25-34

Employment Type:
Specialist

Similar Employment Available:
Very tight market and exposed to automation

Case Summary:

Drag and Drop or Select Files

PREDICT NOTICE

Predicted Notice (Months):
10.72 ± 2.85

Notice Period (Months) for Similar Cases:

Number of Cases
0 50 100
Notice Period (Months)

Similar Cases:

<table>
<thead>
<tr>
<th>Emp Duration</th>
<th>Emp Age Group</th>
<th>Emp Level</th>
<th>Emp Availability Desc</th>
<th>Emp Availability</th>
<th>Outcome</th>
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<tr>
<td>1</td>
<td>35-39</td>
<td>Specialist</td>
<td>Unknown</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>30-34</td>
<td>Specialist</td>
<td>Mid-level or entry-level position for qualified workers</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>30-34</td>
<td>Specialist</td>
<td>Little availability but not exposed to displacement</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>50-54</td>
<td>Specialist</td>
<td>Executive position or highly specialized job (hard to get)</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>40-44</td>
<td>Specialist</td>
<td>Little availability but not exposed to displacement</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

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2. Intelligent Negotiation (2)

Negotiation is Intuitive. Limited data points and law is not representative of reality.
3- Future of Legal Practice: Intelligent Settlement System

**Conflict Analytics** reveals trends and patterns in past negotiations or mediations that inform legal and negotiation strategies.
Negotiation is Intuitive. Limited data points and law are not representative of reality.

Negotiation analytics: Bargaining optimization driven by legal and past settlement data.

Self-learning: self-learning ODR system.
3. Mediation
Merci d’avoir utilisé le tribunal en ligne de l’Ontario

Félicitations! Votre litige est réglé.

Demander une explication

Pour voir les détails de la décision, veuillez cliquer sur le document ci-dessous.

Que faire maintenant?
4. Adjudication

- Upload evidence
- Choose a hearing date
Upload Evidence

Both the Arbitrator and the other party will see this evidence a week before the hearing. Maximum of 30 evidence items allowed. Add a short note to each to describe the item and/or its importance.

Drag and drop files here

or

Browse files

Hearing

Please select dates

Monday, October 8, 2019 at 9 am

Wednesday, October 10, 2019 at 2 pm
4. Adjudication

Ontario

Décision

Dossier #3443

ALEX LACOURTIER
ci-après le « demandeur »

ET

PHIL PELSY
ci-après le « défendeur »

Collectivement, les « Parties »

Rappel

Bonjour Acquaintance,

L'audience d'aujourd'hui commencera dans environ 20 minutes à 17 h (HNE).

Votre audience se tiendra visioconférence en utilisant le lien ci-dessous.

Veuillez consulter notre FAQ avant l'audience et assurez-vous que vous vous trouvez dans un lieu disposant d'une connexion internet stable et d'un dispositif audio/vidéo.

Si vous avez des questions, n'hésitez pas à vous inscrire à 10 min plus tôt à un dispositif audio/vidéo disponible pour vous enjoindre.

N'oubliez pas votre appareil au cours de l'audience (caméra, microphone et votre débiteur, etc.) afin de pouvoir communiquer votre argument de manière plus efficace.

Merci.

L'équipe du tribunal en ligne de l'Ontario
Thank you!

Samuel Dahan
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