Cipher Classifiers – Your view of the technology space

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Presenters

Nigel Swycher

CEO
LexisNexis Cipher

Sebastian Muller-Borges

Head of Cipher Certified
LexisNexis Cipher

Sarah Newton

Head of Sales, North America
LexisNexis Cipher

William Mansfield

Head of Consulting and Customer Success
LexisNexis Intellectual Property Solutions

Contents

Delivering best in class classification and analysis

CIPHER

Powerful AI Technology Classification

Industry leading technology classification through AI. Simplifying and enabling ongoing and high quality patent technology searching

+

PatentSight®

Intelligent Patent Analytics Platform

Business-focused analytics engine designed specifically for patent data. Highly processes and cleaned data enabling quick routes to insights.

Why patent classification?

Why PatentSight + Cipher?

More complex & interconnected technology

More and more players are stepping out of their traditional markets to leverage their technology in other domains, for example digitation.

Growing number of patent filings

As emerging nations develop and more actively adopt a robust patent system more patents are filed, like China. Even in more developed nations filings increase year on year

Increasing demands from the business

The business is becoming more and more knowledgeable about what insights can be derived from IP. Organizations like PDG have also worked hard to develop this.

No significant growth in IP head count

IP team head count is not growing inline with these increased demands and complexity

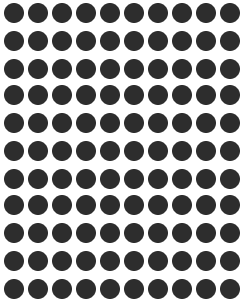
Need to do more with the same

IP teams need to be able to do more and delivery high quality results with the same or even fewer resources. IP tools need to support teams to realize this.

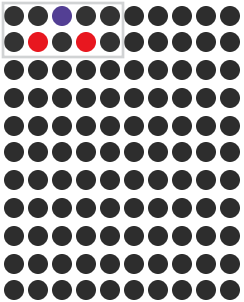
Cipher Classification

Classifiers are **supervised machine learning algorithms** trained with positive and negative patent examples that allow you to find all patents relating to specific technologies

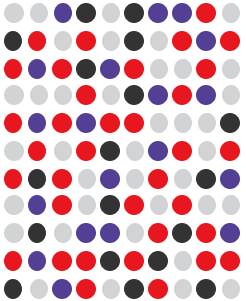
50m+ patents globally



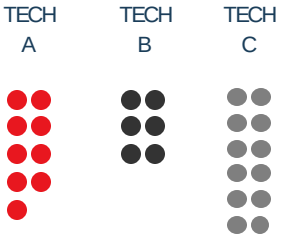
Train Classifiers using examples



Classifiers remove noise



Classified into your relevant technologies



Strategic Patent Intelligence

Benchmarking

Compare a patent portfolio to other owners through a technology lens

Budget Management

Justify patent budgets to CFOs and others to communicate the impact of an investment

Portfolio Optimisation

Ensure the right portfolio to meet strategic patenting objectives

Competitive Intelligence

Understand who's doing what by automating patent to technology mapping

Technology Trends

Understand, monitor and react to the latest technology trends

Due Diligence

Automate manual reviews for efficient execution of M&A and licensing transactions

Inbound Assertion

Be prepared with evidence to create a fast and effective threat assessment

Monetisation

Identify opportunities to create value through licensing or sale of patent assets

Cross-licensing

Combine patent and revenue data to determine rational licensing outcomes

Risk Mitigation

Understand, quantify and communicate patent portfolio risk

Loyal customers in both Europe and US

How do Cipher Classifiers work?

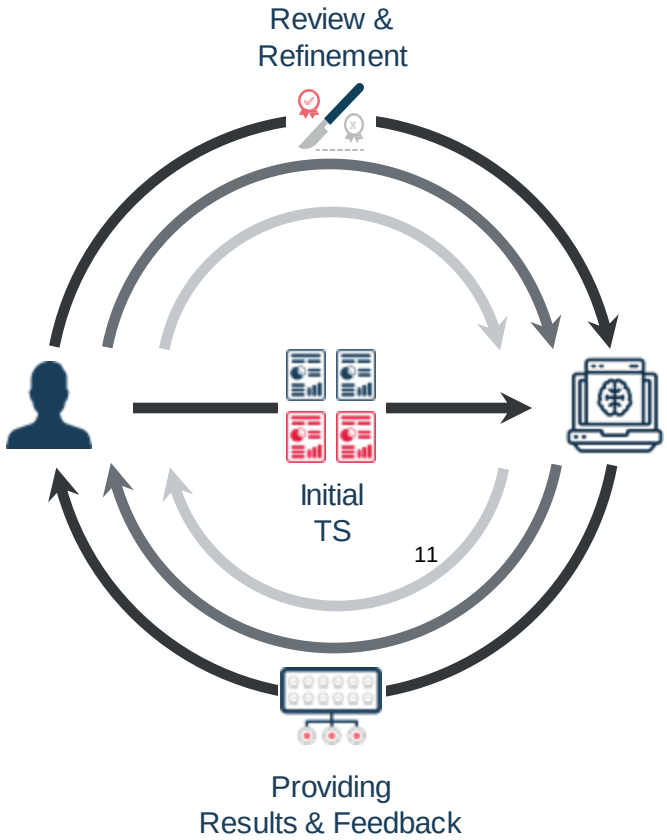
Building a Classifier

1 **Training the Classifier with examples**
User provides positive and negative families to start training the classifier

2 **Classifier provides feedback**
Each family receives a relevance score. Engine provides results and suggestions

3 **Refining results**
User reviews and refines results and feeds those into the classifier training set

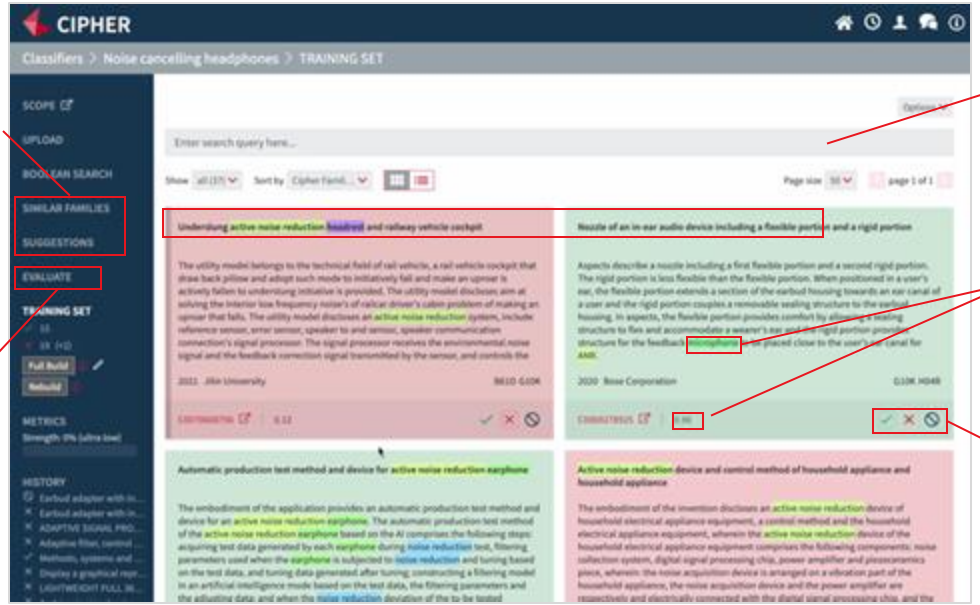
4 **Iterations until good performance**
User reviews and refines results and feeds those into the classifier training set



Our Classifier Builder enables Cipher Certified

Smart Features: Suggestions & Similar Families analyse meta data to suggest additional patents that improve and diversify the training set

Tools to test performance and coverage before it is added to client's taxonomy



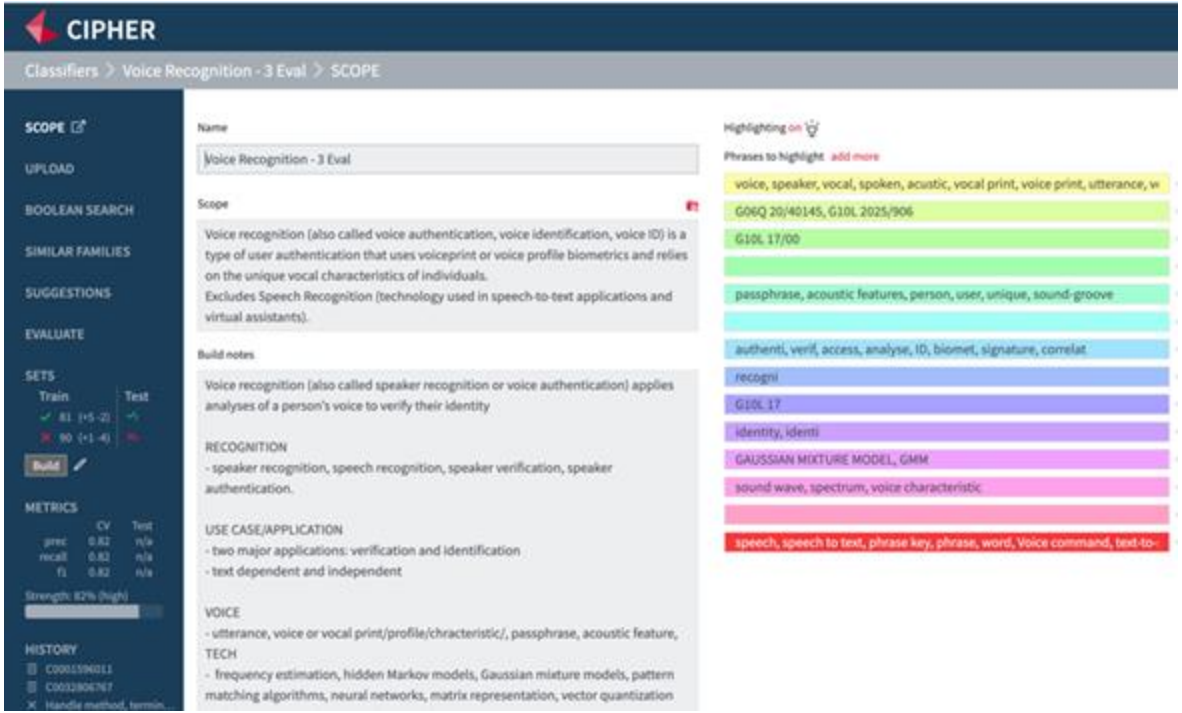
Text searching enables user to find other examples of patents to add to the training set

Phrase highlighting and classifier confidence scores assist user understanding of the ML algorithm

Example patents can be marked **positive or negative to train the ML classifier**

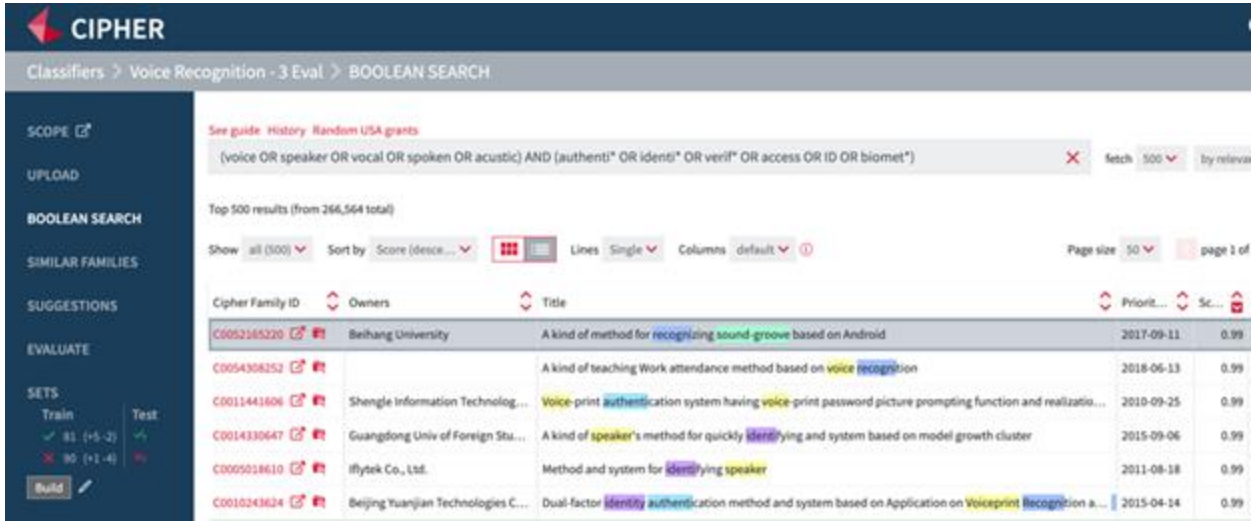
Classifier scope notes

Human curated scope notes support transparency and control - guiding the human **not** the machine



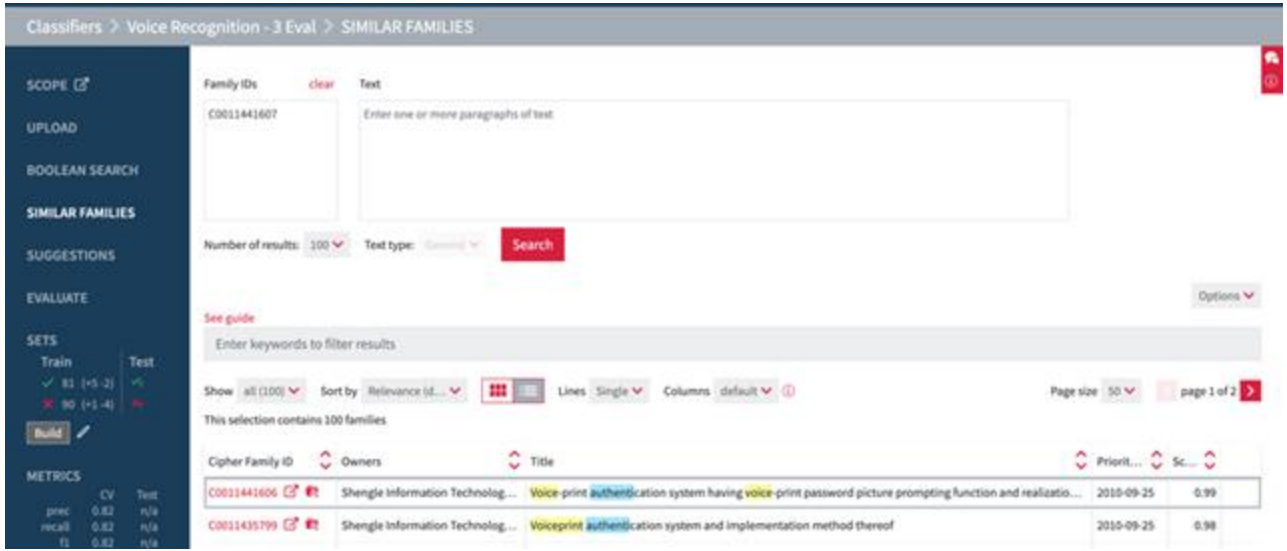
Classifier training data - getting started

Building classifiers requires high quality training data - Boolean search can deliver an effective starting point



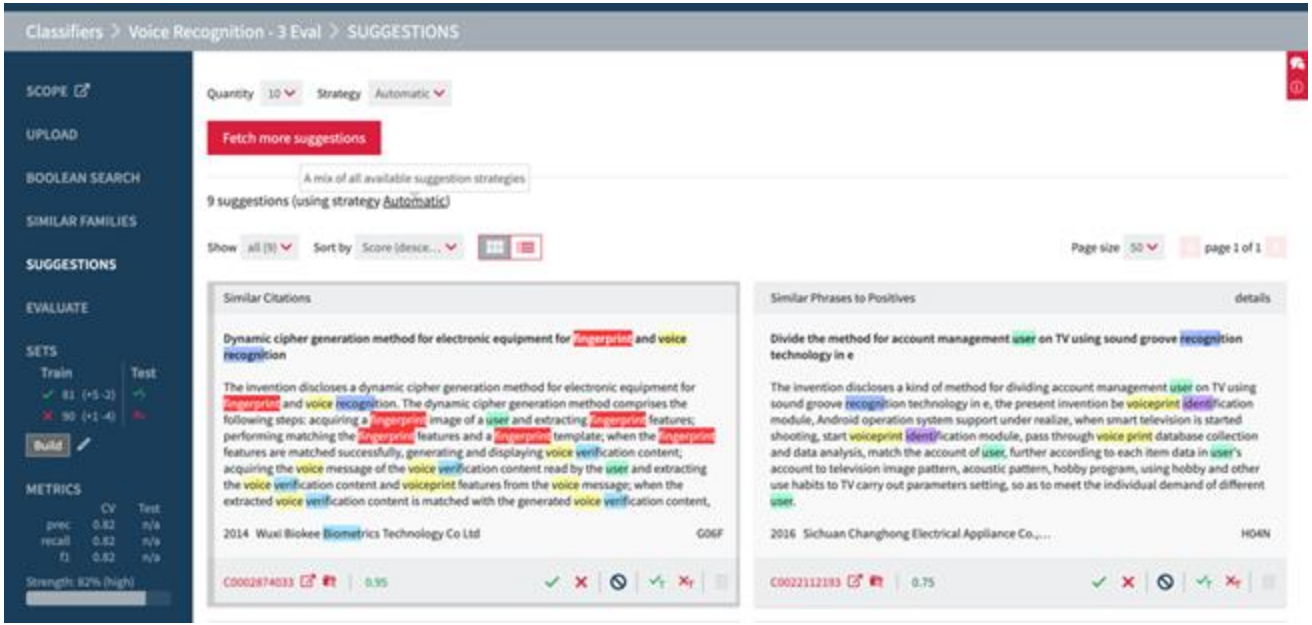
Developing the training data - Similar Families

Our advanced **Similar Families** algorithm supports exploration of both general and specific areas



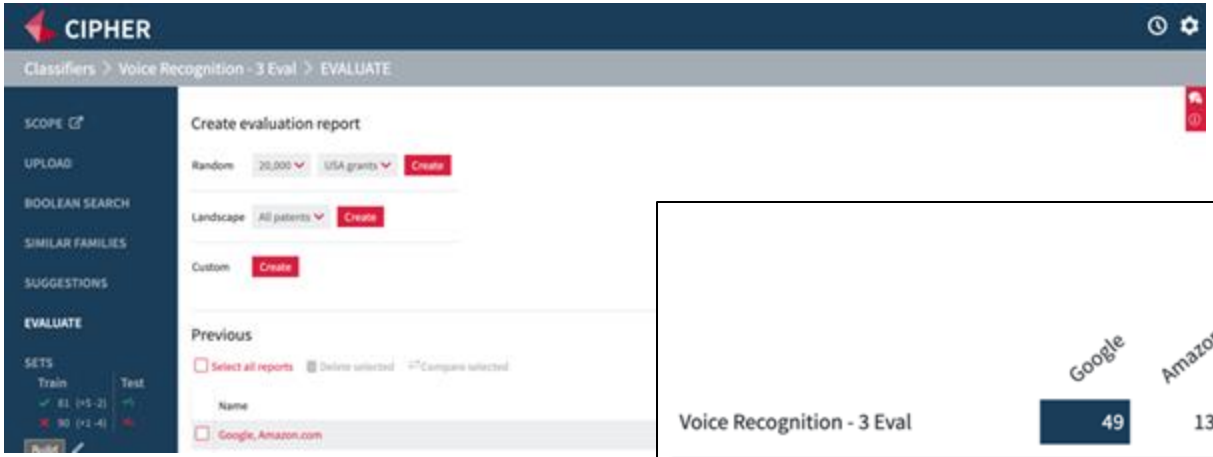
Developing the training data - Suggestions

The **Suggestions** functionality is Cipher prompting the classifier builder to provide the most useful information to the system



Evaluation - testing and refining the Classifier

Cipher has many tools to assist with the **Evaluation** of a Classifier

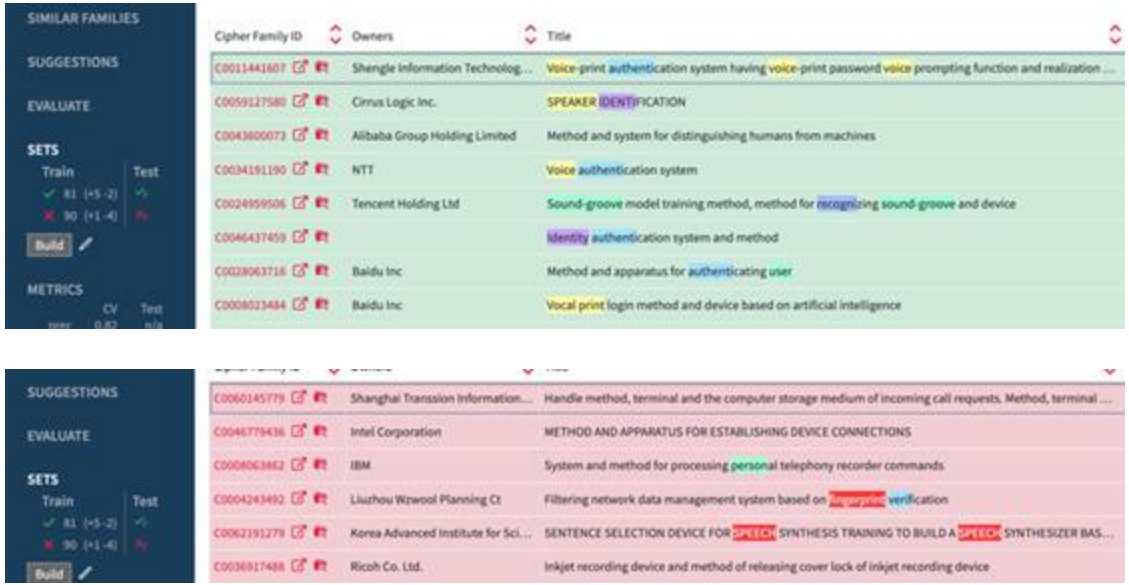


	Google	Amazon.com	TOTAL
Voice Recognition - 3 Eval	49	13	62
TOTAL	49	13	62

This identifies Google and Amazon patents responding to the draft classifier for evaluation

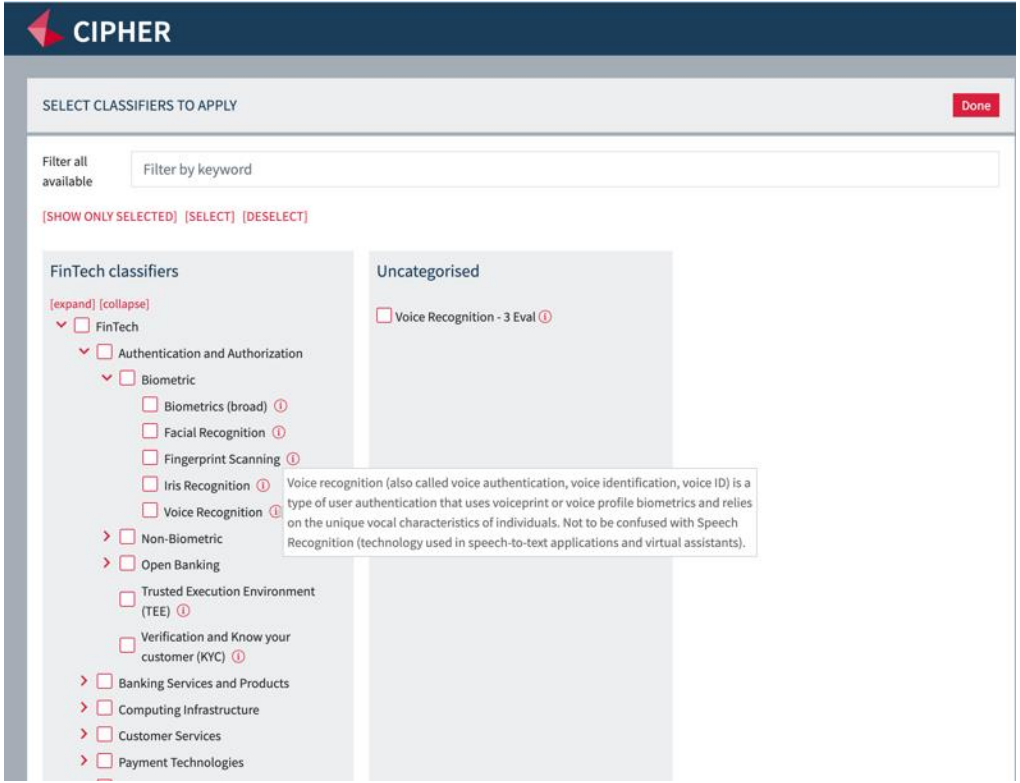
Training data - a more transparent approach

+ive and –ive **training sets** can be reviewed (and corrected) at any time



Taxonomies and classifiers

Cipher enables set of **classifiers** to be delivered in structured **taxonomies**



Benefits of Classification

Classifiers are **supervised machine learning algorithms** trained with positive and negative patent examples that allow you to find all patents relating to specific technologies.

Trained by Human Powered by ML

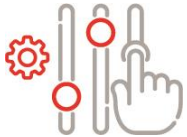
Humans provide context and direction & ML connects data points.

Smart Features

Smart features help build better training sets and therefore create better results

Transparency

Full transparency in results allows the review of all patents by relevance.



Full Control

The Classifier Builder gives full control over what is in- and excluded.

Testing the accuracy of machine learning (ML) algorithms

Cipher has tested its ML algorithms using test data generated independently by a third party, achieving 96% accuracy

Test methodology

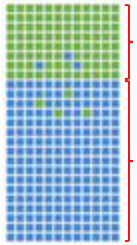
Cipher has tested its ML algorithm by:

- Taking a test data set generated independently by a third party (Patinformatics)
- Cipher's classifiers were trained on a portion of the data
- The accuracy was tested against the manually curated test set

Note: The test process is described in detail in Cipher's paper "Construction and evaluation of gold standards for patent classification", published in World Patent Information.

Test results

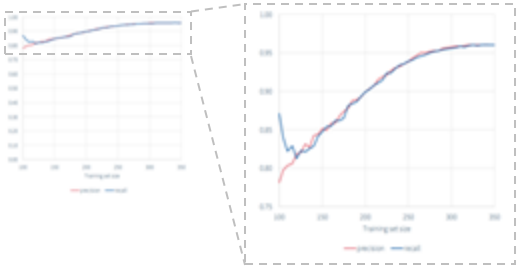
From 300 patents, Cipher's algorithm achieved 96% accuracy



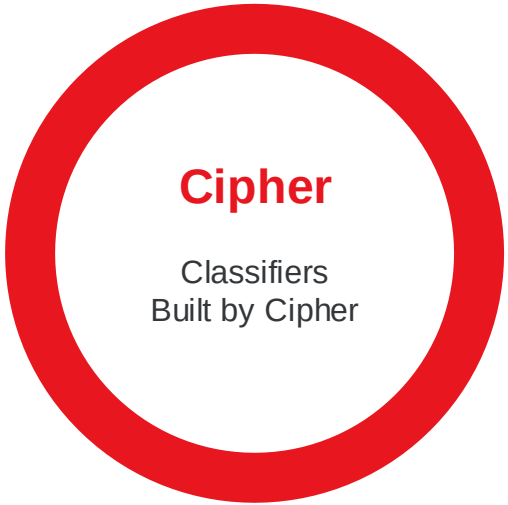
Predicted Positives
93 true positives
3 false positives

Predicted Negatives
200 true negatives
4 false negatives

Test data shows that Cipher's ML reaches a stabilised level of accuracy from a relatively small amount of data



Cipher Classifiers - two options



Client-defined Classifiers built by the Cipher Team

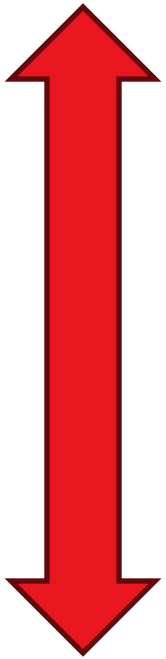
Training program and support to create inhouse Capabilities for Classifier building

How are Cipher Customers using Cipher Classifiers?

The impact on our clients:
Top down success as a leader and bottom up success as a team

IP at the heart of the business

Top Down:
Cipher enables our clients to enhance the productivity and efficiency of their teams. Classification automates recurring tasks such as competitor monitoring, so their time can be used on high value tasks



Bottom Up:
Portfolio analytics and robust data give our clients a seat at the table and an ability to justify their decisions, budget requests and a means to change the narrative around the portfolio being a cost centre

Automation of processes

“From cost cutting request to budget increase”

Challenge:

Our client was asked to cut a portfolio by 10% to save on costs. There was little understanding as to the business value the portfolio provided.

Insight:

Competitor benchmarking and risk models in Cipher showed that making these cuts would leave the business open to mulit-million dollar assertion risks.

Results:

The GC changed tac and budgets were in fact increased as the process had identified pre-existing gaps in the portfolio.

“Four days per month saved by automation”

Challenge:

Our Client had a team member who cumulatively spent at least one day week running competitor searches, reading through new publications and sorting them.

Solution:

Cipher’s classifiers were implemented and the team member instead received an instant, automated, weekly digest of all new publications within their own business area.

The team were able to review, tag and comment on the patents within Cipher before then sharing notable patents to R&D colleagues, all seamlessly within Cipher.

Results:

That team member was then able to use their time to deliver more analytics to their business, including competitor filing strategy analytics and M&A scouting.

What is the Journey?

Cipher + PatentSight integration plan

Now

Leverage PatentSight's powerful analytics using Cipher ML classifiers

Cipher Certified available using Cipher's Classifier Builder

Mid-term

Additional features and integration – based on customer feedback

Long-term: Full integration

Your own custom technology using Cipher industry leading classification engine directly into PatentSight

LexisNexis

Questions?

Thank You

Will Mansfield

Head of Consulting and Customer Success
william.mansfield@lexisnexis.com

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