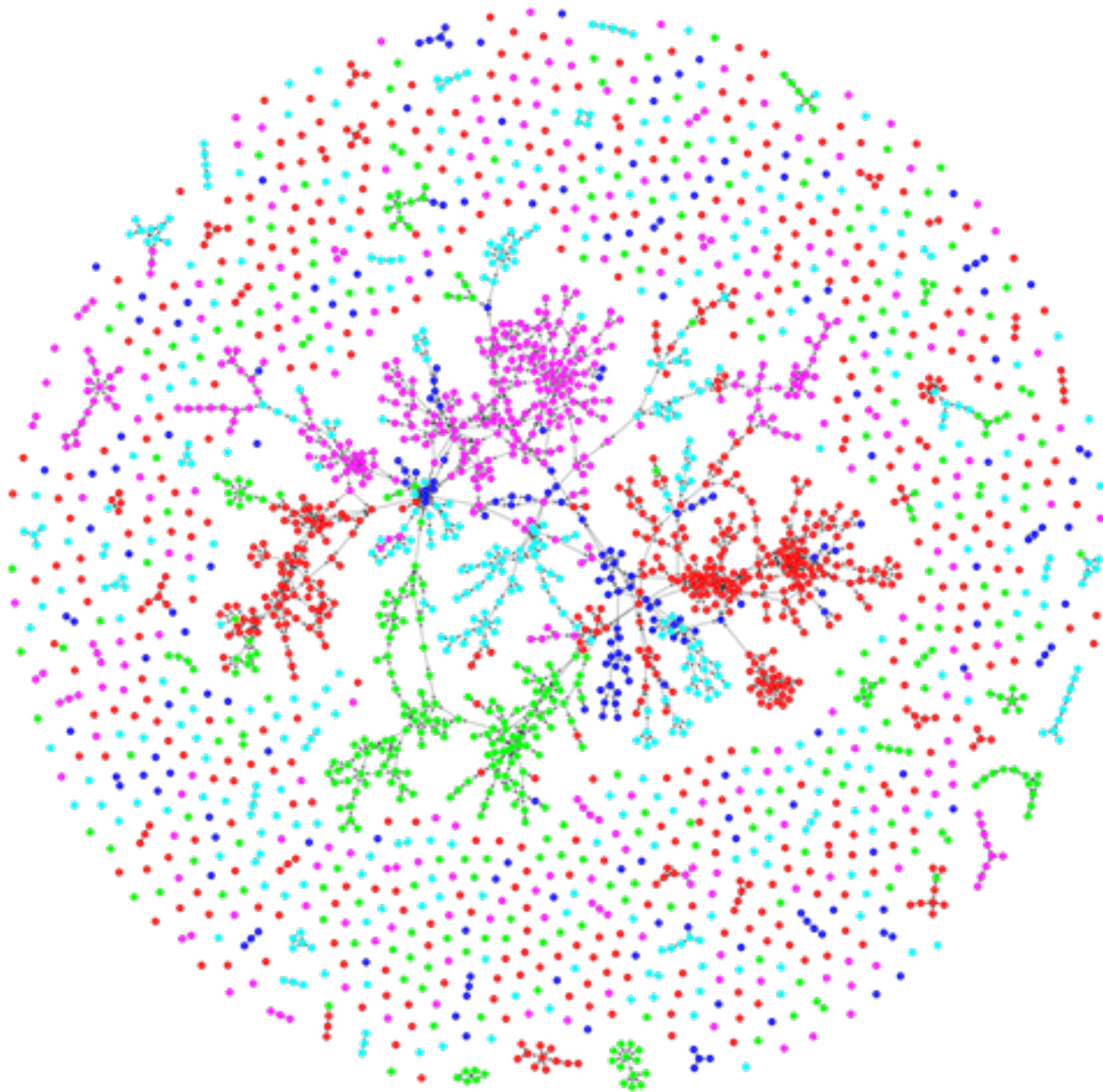


Networks, Relations, Communities and the question 'how do we want to continue?'

Relations in the Legal Domain
ICAIL 2021 Workshop





Similarity and connectivity in normative texts

- References and dependencies are intrinsic properties of legal texts
- **Explicit references**
 - §15 AktG → §§ 16ff und 291f
 - §18 AktG → § 291 und 319
- **Implicit references and dependencies**
 - “Bag-Of-Words” approach using the nouns of articles
 - Outlook: Combining the semantic patterns and network analysis
 - Detection of legal definitions and determining the usage of those terms

Unveiling references in legal texts: implicit versus explicit network structures

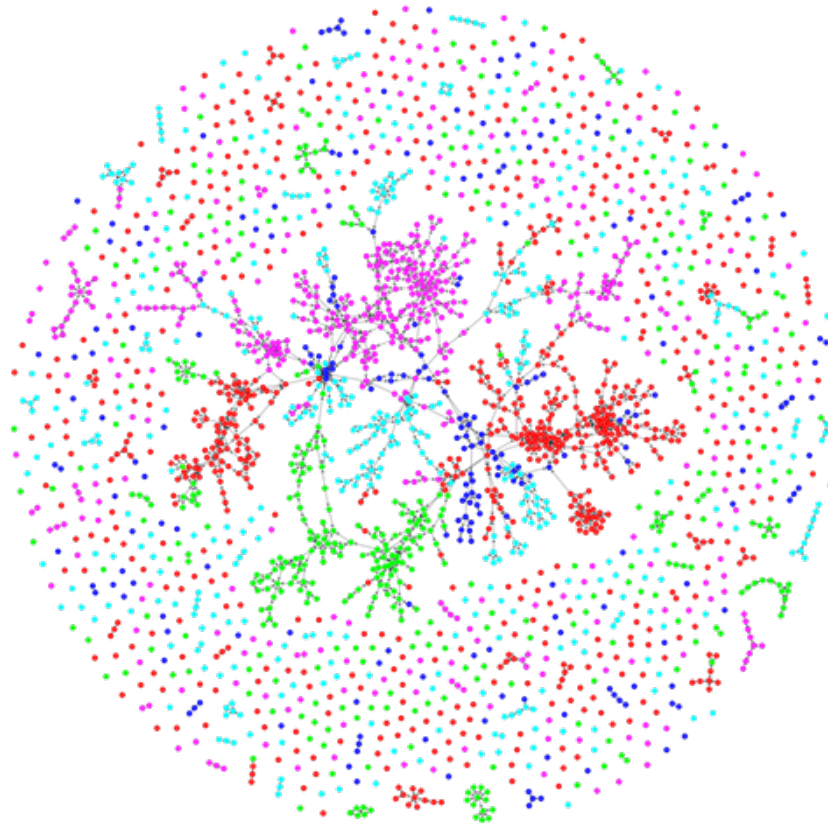
RESULTS:

Explicit references network of the German Civil Code displayed as a directed graph

1st Book: Blue
2nd Book: Red
3rd Book: Green
4th Book: Pink
5th Book: Cyan

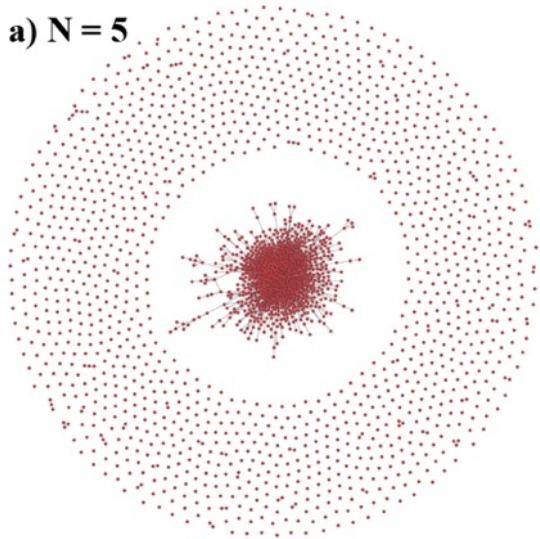
Total: 2991 explicit references

A nice part result: The Civil Code is based on the „Klammertechnik“ (clamp technique) and this can be seen in the graph!

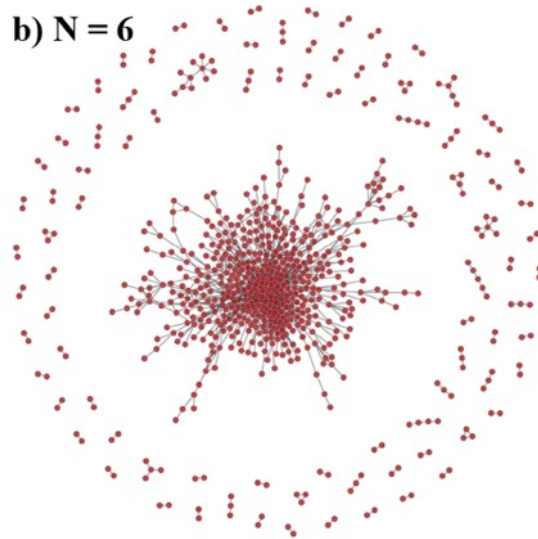


Unveiling references in legal texts: implicit versus explicit network structures

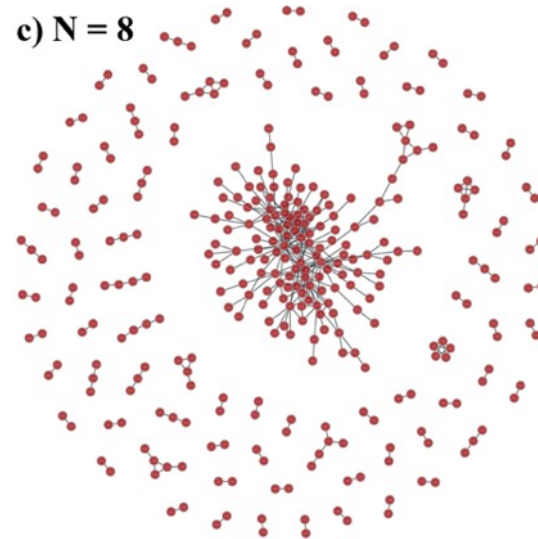
a) N = 5



b) N = 6



c) N = 8



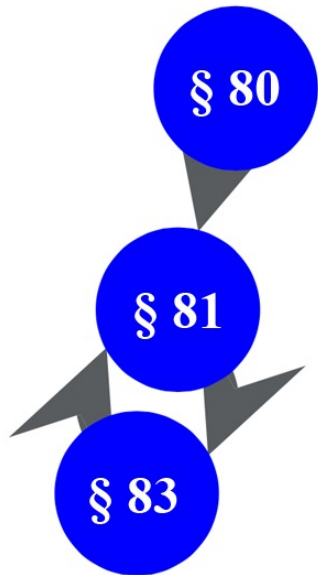
RESULTS:

Semantic relatedness networks of norms of the German Civil Code displayed as undirected graphs

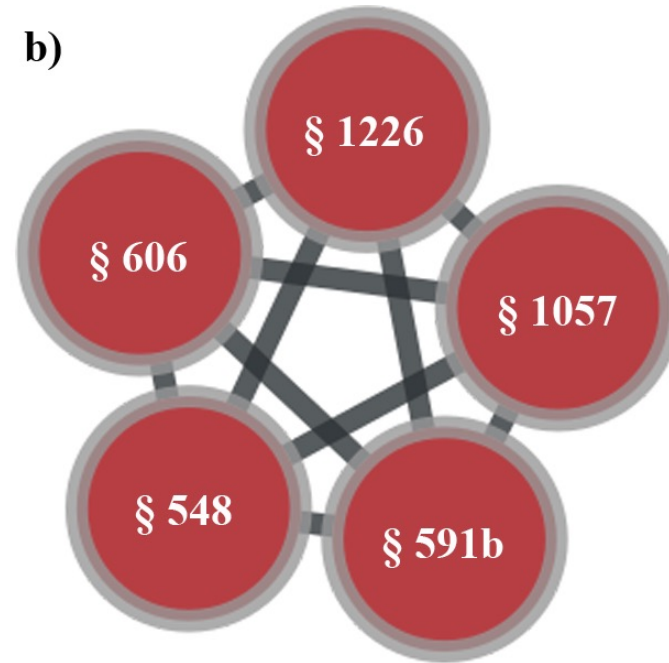
N = Number of equal nouns,
i.e. and edge incidences that **at least** N nouns are present in both norms
(maximum: 22 nouns in common, b) and c) without isolated norms)

Interesting patterns can be found automatically

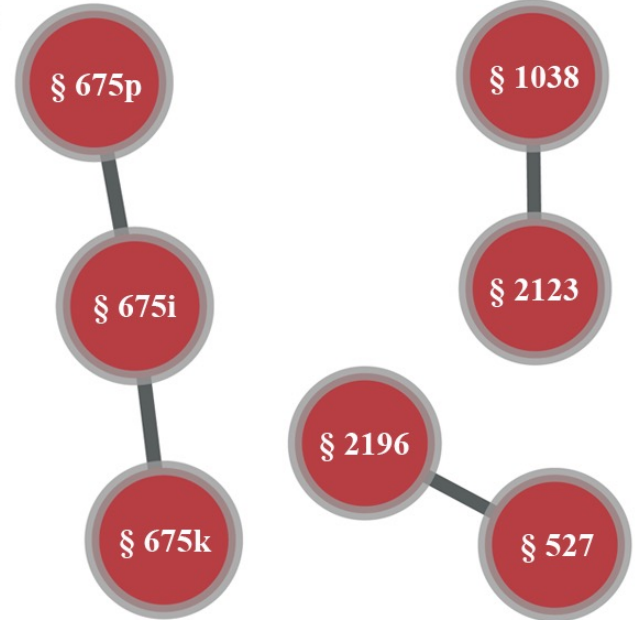
a)



b)



c)



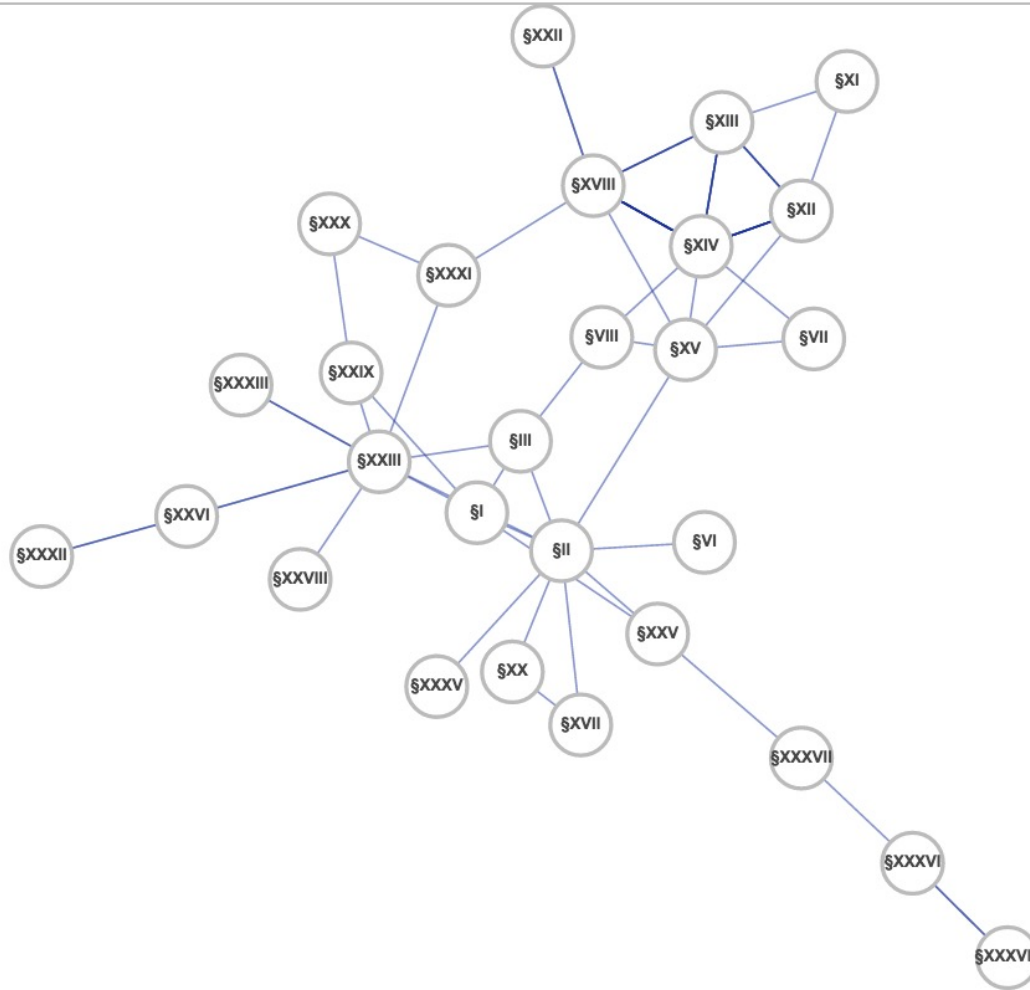
→ We find interesting patterns that could be interpreted by experts

It is more complex than you think

Reference Type	Description	Example(s)	Literature
Full-explicit reference (FR)	The referenced norm, respectively document, is explicitly stated and provides the full information about paragraph and document.	§81 Abs. 1 Satz 3; §§32 und 34; §126 Abs. 1 Satz 2 Nr. 3 der Grundbuchordnung;	[9,2,10,5,6]
Semi-explicit reference (SR)	The reference norm, respectively document, is named but provides no explicit information about the referenced article or document.	“[...] finden die Vorschriften über die Hypothek entsprechende Anwendung [...]” (see §1192 BGB)	[7,8,9]
Implicit reference (IR)	The referencing norm uses a term, that is legally defined in another – not explicitly mentioned – norm.	“Wer eine fremde Sache beschädigt oder zerstört [...]” (see §228 BGB); The term “Sache” is defined in §90 BGB.	[8,11,1,7]
Tacit reference (TR)	The connection between the norms emerges due to systemic interpretation and cannot not be determined by exclusively analyzing the norm text.	“lex posterior derogat lex inferior”; Connections between general part (book 1) and specific part (book 2) of the BGB.	[11,7,9]

Table 1. Structured consolidation of different reference types present in legal documents.

Applications



Section

§11

 Explicit

☐ Similarity

0.2

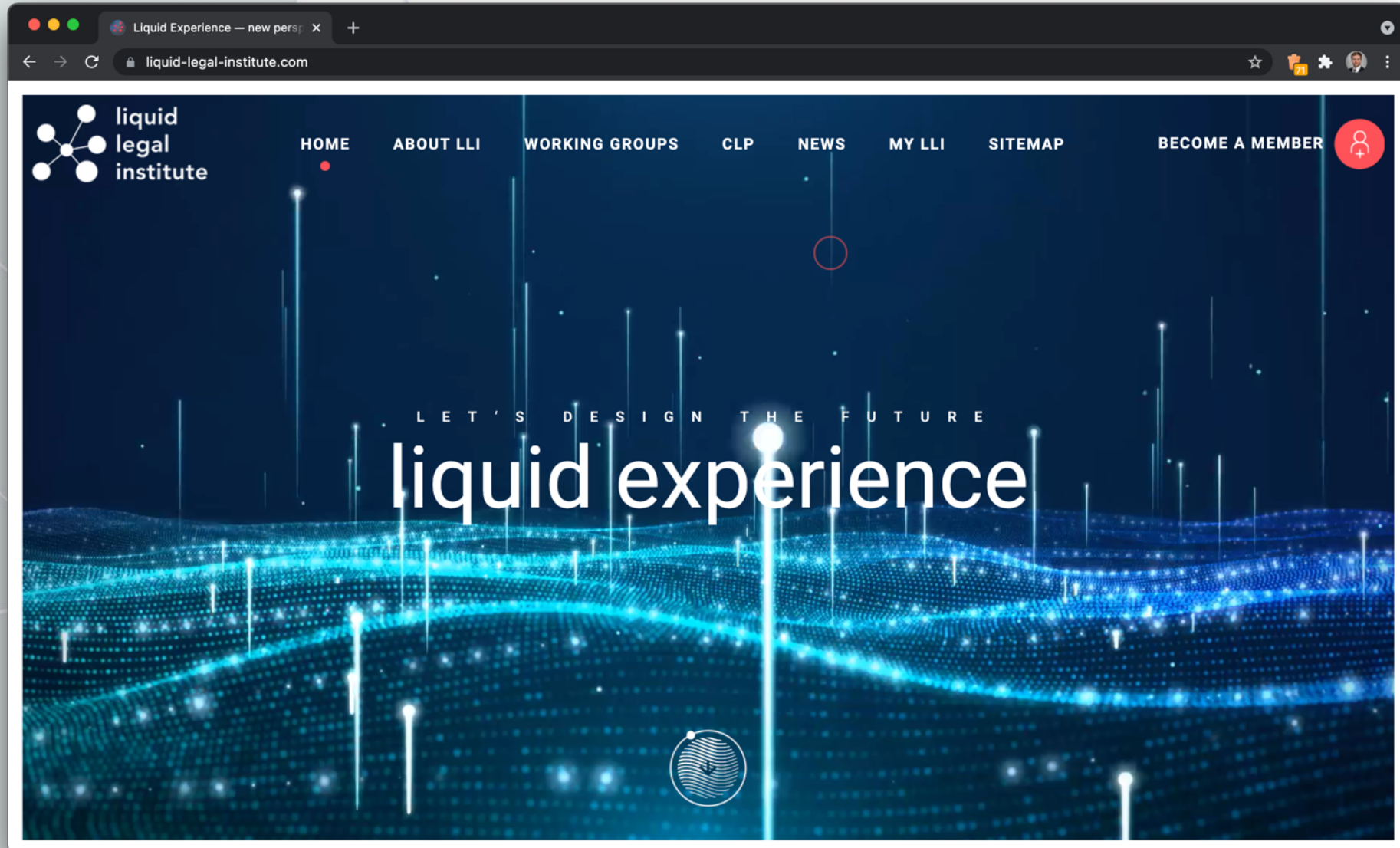
[Show Full Graph](#)

Goto Document

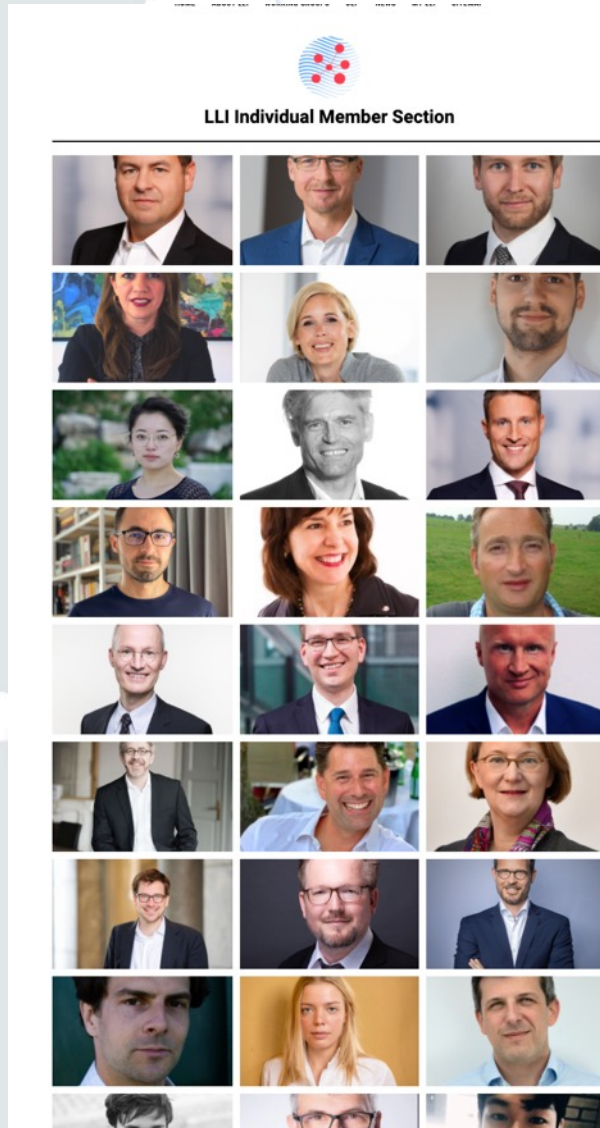


How do we want to continue?

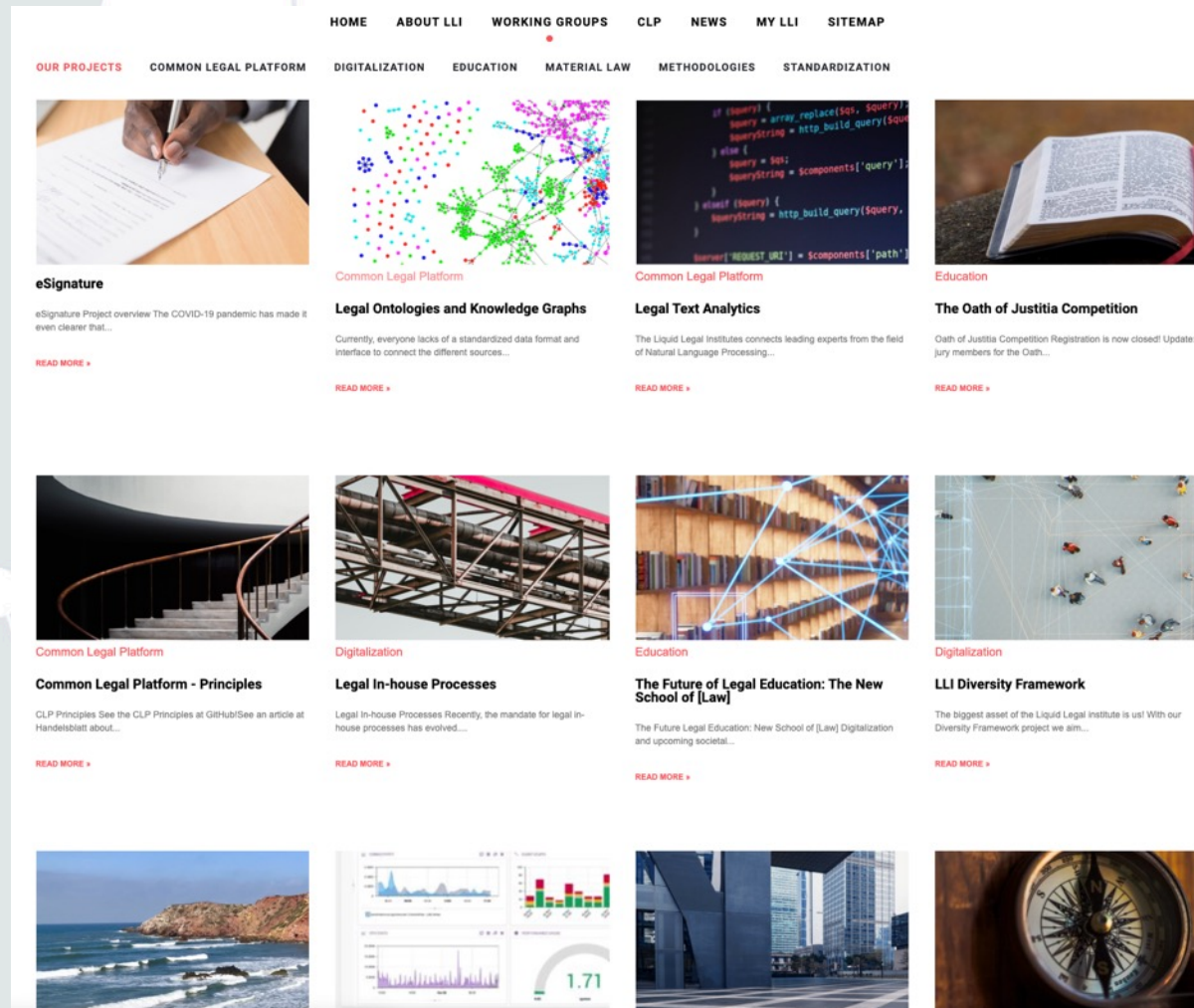
We need a community...



We are many...

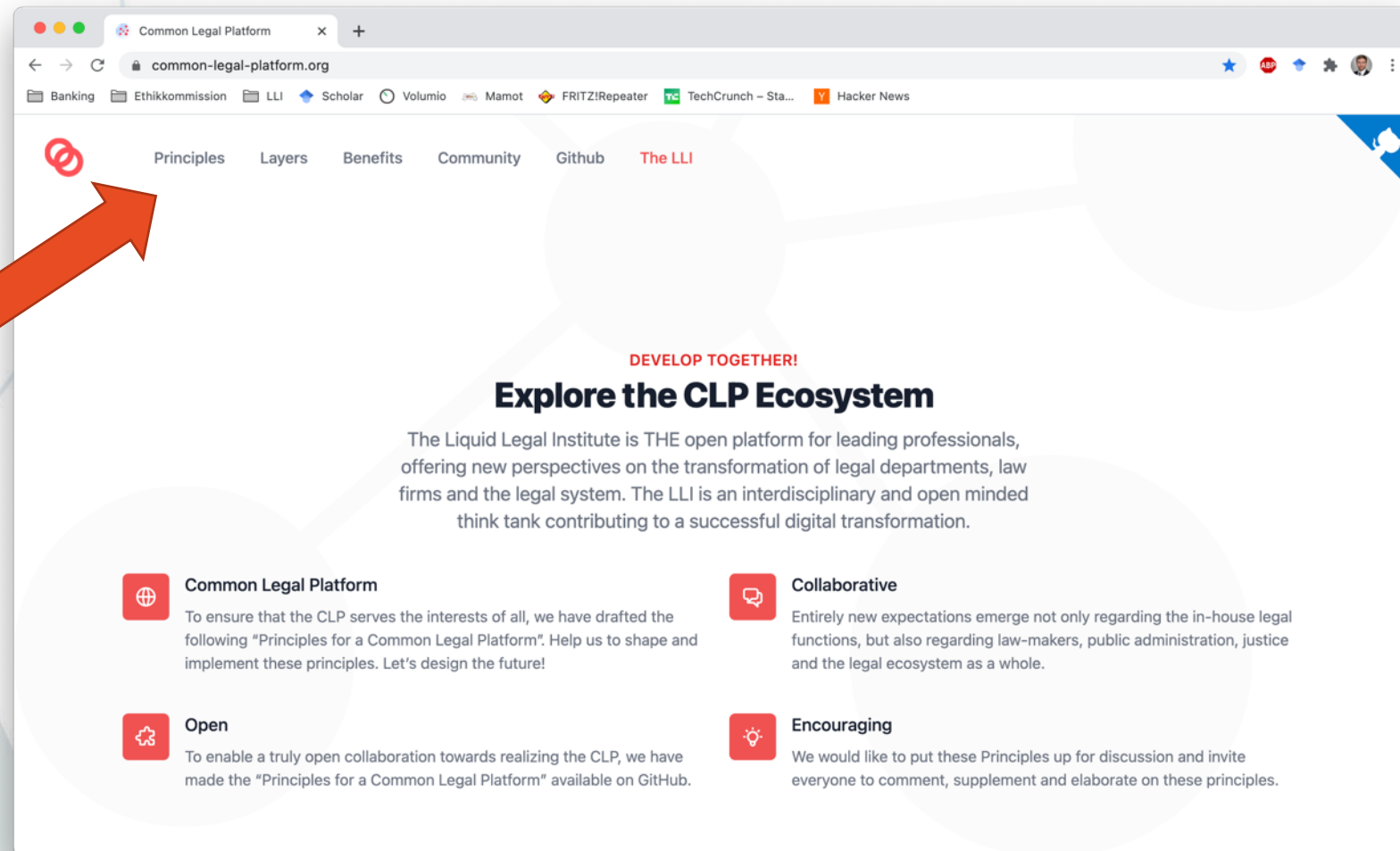


We are working on many projects...

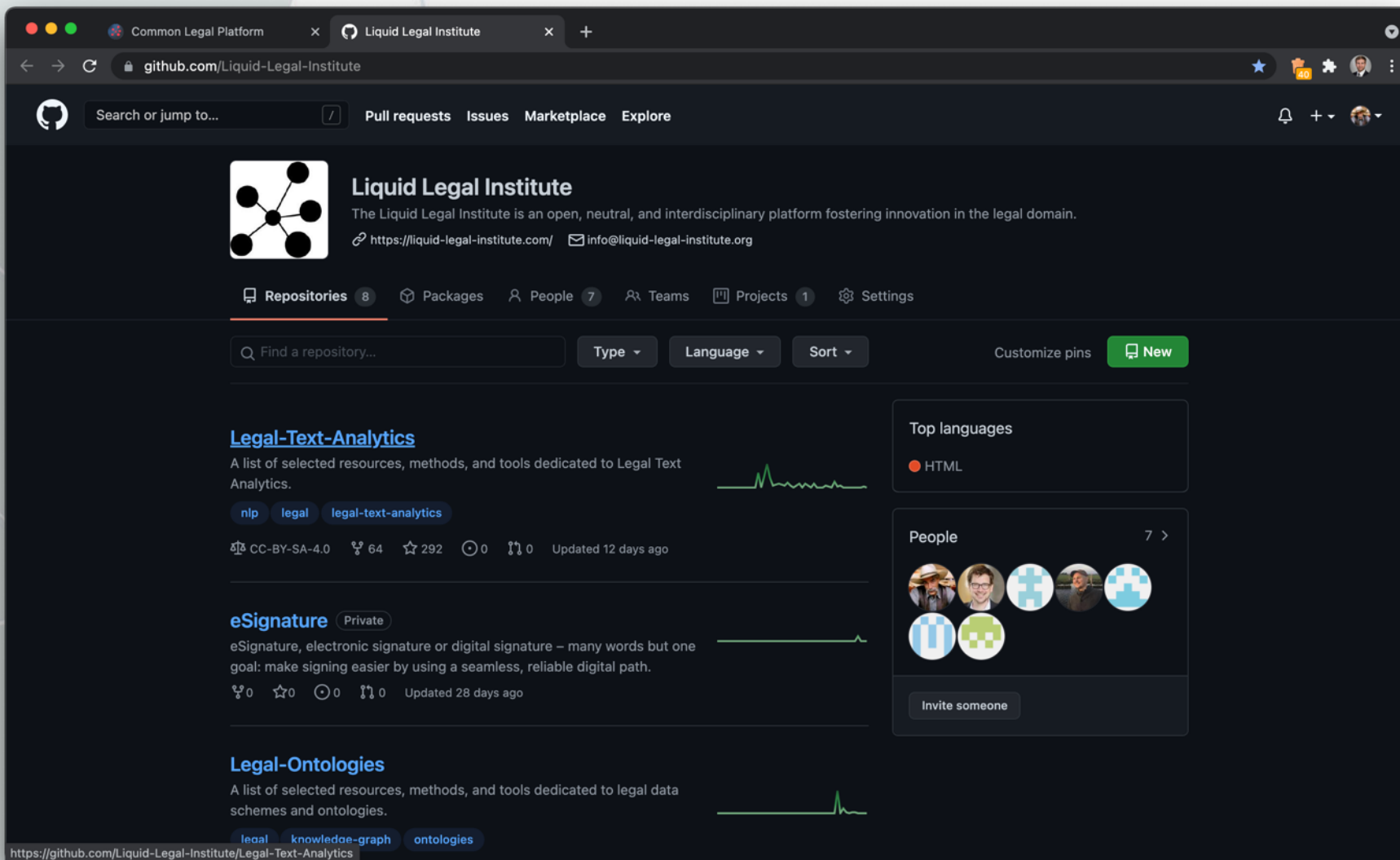


... towards a common legal platform!

<https://www.common-legal-platform.org/>



Especially open-source...



The screenshot shows the GitHub profile of the Liquid Legal Institute. The page is dark-themed and displays the organization's name, logo, and a brief description: "The Liquid Legal Institute is an open, neutral, and interdisciplinary platform fostering innovation in the legal domain." Below this, there are links to the website and email. The main section lists repositories, with "Legal-Text-Analytics" and "Legal-Ontologies" highlighted. The "Legal-Text-Analytics" repository is described as "A list of selected resources, methods, and tools dedicated to Legal Text Analytics" and includes tags for "nlp", "legal", and "legal-text-analytics". It also shows a license of "CC-BY-SA-4.0", 64 forks, 292 stars, and was updated 12 days ago. The "Legal-Ontologies" repository is described as "A list of selected resources, methods, and tools dedicated to legal data schemes and ontologies" and includes tags for "legal", "knowledge-graph", and "ontologies". On the right side, there are sections for "Top languages" (HTML) and "People" (7 members). The URL in the address bar is "https://github.com/Liquid-Legal-Institute".

Common Legal Platform x Liquid Legal Institute x +

github.com/Liquid-Legal-Institute

Search or jump to... Pull requests Issues Marketplace Explore

Liquid Legal Institute

The Liquid Legal Institute is an open, neutral, and interdisciplinary platform fostering innovation in the legal domain.

<https://liquid-legal-institute.com/> info@liquid-legal-institute.org

Repositories 8 Packages People 7 Teams Projects 1 Settings

Find a repository... Type Language Sort Customize pins New

Legal-Text-Analytics

A list of selected resources, methods, and tools dedicated to Legal Text Analytics.

nlp legal legal-text-analytics

CC-BY-SA-4.0 64 292 0 0 Updated 12 days ago

eSignature Private

eSignature, electronic signature or digital signature – many words but one goal: make signing easier by using a seamless, reliable digital path.

0 0 0 0 Updated 28 days ago

Legal-Ontologies

A list of selected resources, methods, and tools dedicated to legal data schemes and ontologies.

legal knowledge-graph ontologies

Top languages

HTML

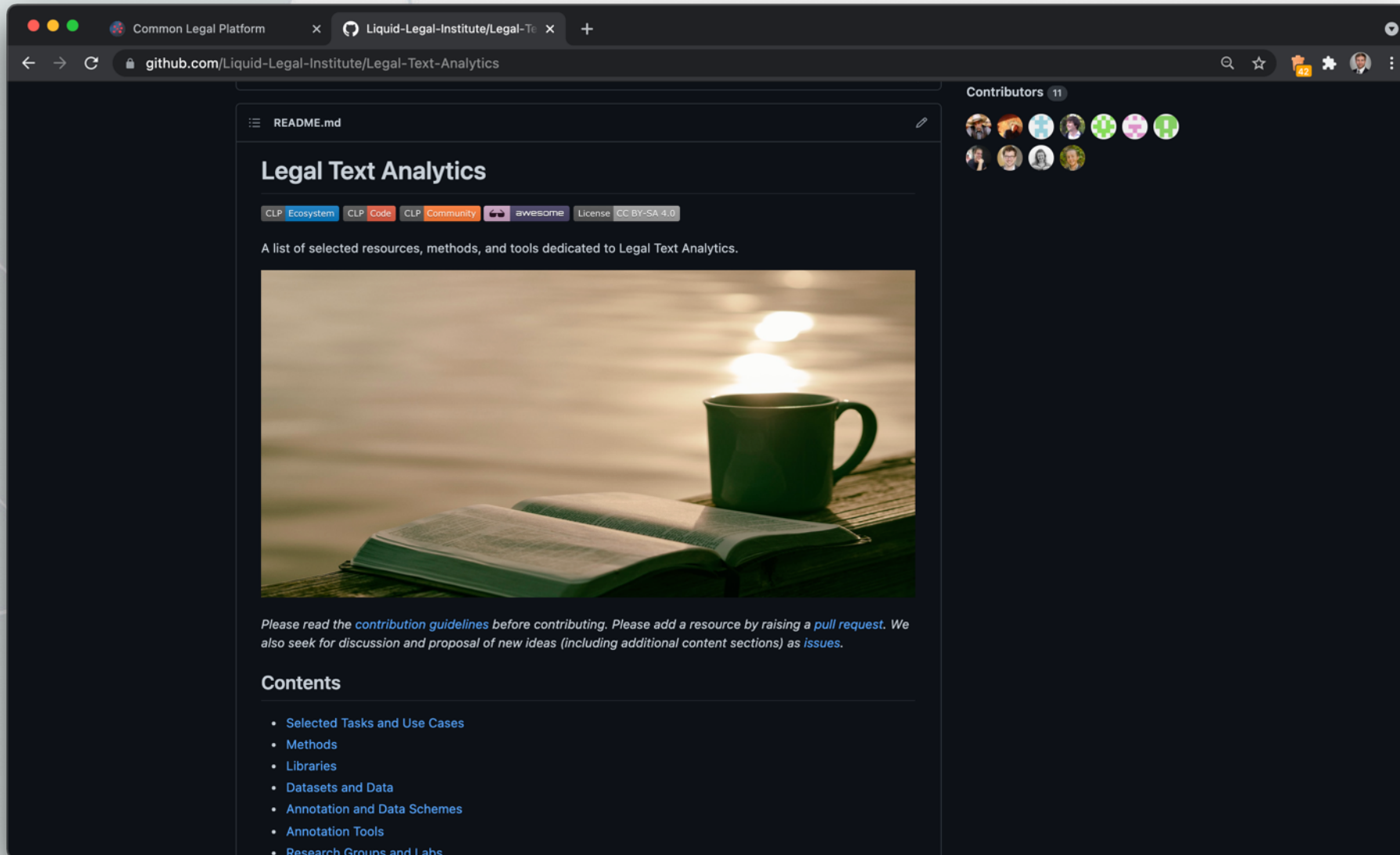
People 7 >

Invite someone

<https://github.com/Liquid-Legal-Institute/Legal-Text-Analytics>



... we should all make progress!



The screenshot shows a web browser window displaying the GitHub repository page for `Liquid-Legal-Institute/Legal-Text-Analytics`. The browser's address bar shows the URL `github.com/Liquid-Legal-Institute/Legal-Text-Analytics`. The repository page has a dark theme. At the top, there are tabs for `README.md` and `CONTRIBUTING.md`. The main content area is titled **Legal Text Analytics** and includes a list of tags: `CLP`, `Ecosystem`, `CLP`, `Code`, `CLP`, `Community`, `awesome`, and `License`. Below the tags, there is a paragraph stating: "A list of selected resources, methods, and tools dedicated to Legal Text Analytics." This is followed by a large image of a green mug of coffee on a wooden surface next to an open book, with a warm, glowing light source in the background. Below the image, there is a paragraph of text: "Please read the [contribution guidelines](#) before contributing. Please add a resource by raising a [pull request](#). We also seek for discussion and proposal of new ideas (including additional content sections) as [issues](#)." Below this text is a section titled **Contents** with a list of links: [Selected Tasks and Use Cases](#), [Methods](#), [Libraries](#), [Datasets and Data](#), [Annotation and Data Schemes](#), [Annotation Tools](#), and [Research Groups and Labs](#). On the right side of the repository page, there is a section titled **Contributors** with 11 contributors listed, each with a small profile picture.

Common Legal Platform x Liquid-Legal-Institute/Legal-Te x +


github.com/Liquid-Legal-Institute/Legal-Text-Analytics

README.md

Legal Text Analytics

CLP Ecosystem CLP Code CLP Community awesome License CC BY-SA 4.0

A list of selected resources, methods, and tools dedicated to Legal Text Analytics.



Please read the [contribution guidelines](#) before contributing. Please add a resource by raising a [pull request](#). We also seek for discussion and proposal of new ideas (including additional content sections) as [issues](#).

Contents

- [Selected Tasks and Use Cases](#)
- [Methods](#)
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- [Annotation Tools](#)
- [Research Groups and Labs](#)

Contributors 11

What's next?

- We seek for open discussions and implementations
- Decreasing Barrier for Legal Research / Network Analysis
 - Reuse existing resources
 - Contribute your achievements to make it available to others
 - Data
 - Algorithms
 - Theory
 - Tools
 - etc.
- Get your reward (and become famous) by being a co-contributor

➔ What do we need for real collaboration on all levels?