

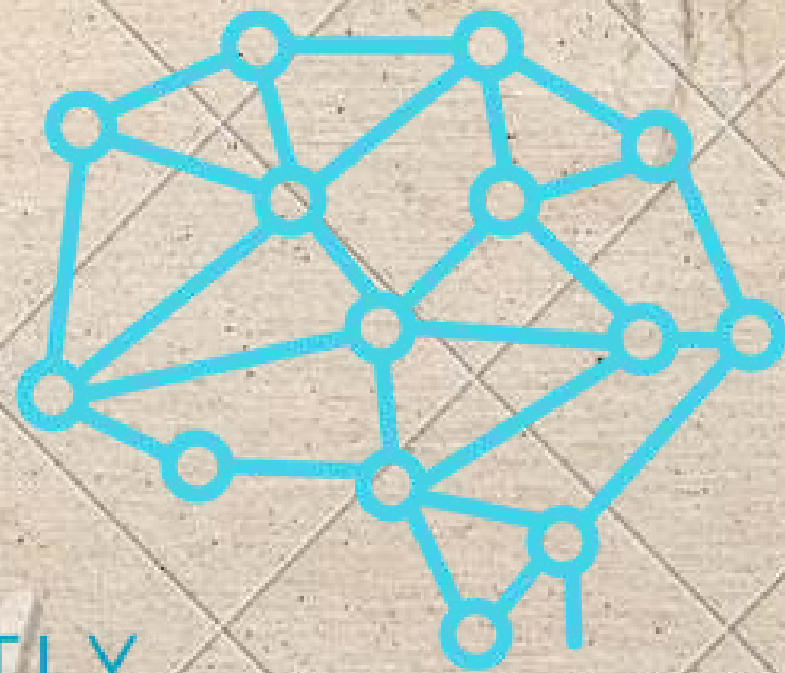
ment you
t your
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learn.

lage seemed compact and close together in the one small bay that faced the mainland and offered a safe haven for pragmatic people. In the years since the war, the island had been used in *naomhóga* to strip their skins of their beams and slates, and anything else that would give them new lives.

...way above, was the two-store
...lived. It had been modern at
...had punctured the slate roof at
...the seventies it was bought by a
...Alabama called Taylor Collings
...ket on holiday and fell in love with
...tion to rebuild the village as a home
...exiled islanders and bought the
...ll, who could expect big money
...inaccessible island? One man sold
...to the rumour went. Collings was
...ple west of Dingle loved a character
...en his plans came to nothing.

one thought about who owned the land. In the mid-eighties, when an advertisement offered the island for sale for a million pounds, the start of a long and complicated process. A company based in Dingle, which had acquired the title to the land, and the Irish government, by Charles Haughey, the owner of the island, wanted to establish a national park. The Supreme Court as I crossed on the island, and the future was unclear. There

LitGraph



UNDERSTAND INTELLIGENTLY

Visualizing Literature With NLP

Group 7

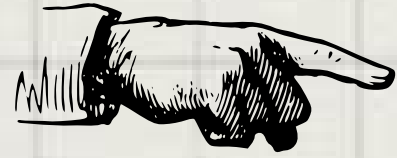
was still before the Supreme Court as I crossed on that first boat of the season, and the future was unclear. There were signs of the island being brought back to life anyway, I had

275

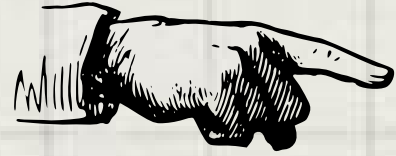
[illegible][illegible]

On 12 September, despite the fact that the Russian government has not yet agreed to the release of the 150 prisoners, the Russian government has agreed to the release of the 150 prisoners. The Russian government has agreed to the release of the 150 prisoners. The Russian government has agreed to the release of the 150 prisoners.

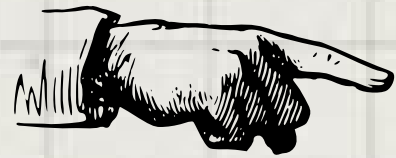
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Product proposal & Value proposition



Industry Insights & Competitive Landscape



Example of Use Cases



Deep Dive



Model Development



Trial and Error



Deployed Solution



MVP



Further Development and Conclusion



Product Proposal & Value Proposition

Product Proposal

Application providing deeper insight into **Old Norse** literature through the combination of **NLP** models and **Network Graph Analytics**.



Value Proposition

- **Multi-disciplinary Educational Tool:** Engage with literature, history, social science. App's graphic summaries enable a deep understanding of the subject matter and to actively engage in the learning process
- **Preservation and Cultural Understanding:** Contributes to cross-cultural understanding by preserving the Icelandic and Old Norse language, literary traditions, and religious aspects. The app helps bridge the gap between cultures and ensures the preservation of Icelandic culture for future generations.

Industry Insights & Competitive Landscape





Industry Insights

Global Edtech market size 2022 \longrightarrow **74 Bn \$**
by 2030 \longrightarrow **288 Bn \$**

Key factors

Education Technology in Language Learning

Personalized Learning and Customization

Cross-Cultural Understanding and Language Preservation

Data-Driven Insights and Research Opportunities



Competitive Landscape

EdTech Solutions



Potential Collaborations



Iceland Teachers
Association



Government of
Iceland



University of
Iceland

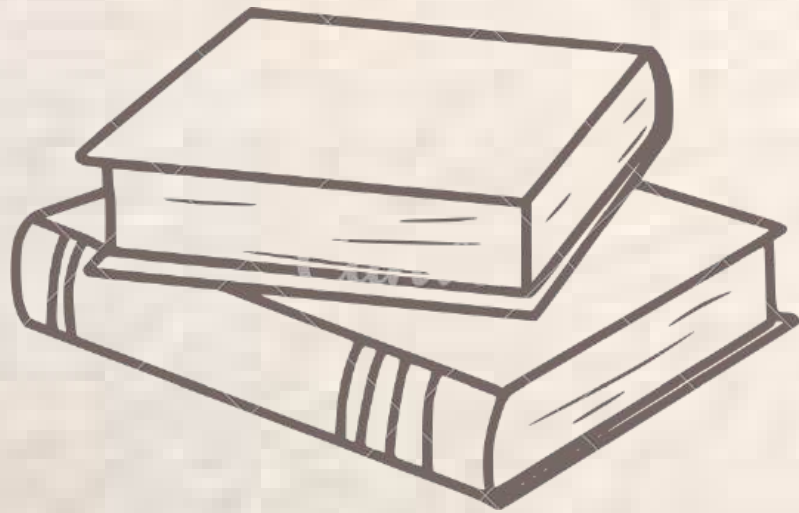
National Programs

Nordic eSchool

Smart Schools

Future Classroom Lab

Example of Use Cases



Conceptualised Use case:

- **Graph Analytics for literary works**
 - Character interplay
 - Relationships
 - Actions
 - Degrees of separation



Alternative Use Cases:

- **Creative idea conceptions for media**
 - for authors, TV, Movies, Character development
- Cultural insight into Icelandic and old

*euismod lacinia at quis risus sed vulputate odio. Sed
euismod lacinia at quis. Ut tellus elementum
tricies lacus sed turpis tincidunt id aliquet
massa ultricies mi quis. Magna fermentum
aculus. Eget sit amet tellus cras
vitae et leo duis ut diam
aculis eu non diam phasel-
Cursus sit amet dictum*

*illamcorper sit amet
semper feugiat nibh
ing elit duis tris-
t mauris nunc
la fames ac
h mauris.
At*

Deep Dive

Old Norse & the Sagas

- Modern Icelandic \approx Old Norse
- **Insight** into the **culture, beliefs** and **history** of the Norse people.
 - Old Norse literature is divided into four categories
 - Mythology - stories, folklore, Norse mythology
 - Heroic Sagas - "Volsungar Saga" "the Sagas of the Icelanders"
 - Skaldic Poetry - Collection of court poetry and kennings.
 - Eddic Poetry - Anonymous, Hávamál and Völuspá



Manuscript Chosen for MVP development

Brennu-Njáls Saga

- One of the most renowned and celebrated sagas of Old Norse literature



Njáls Saga from 1300



Njáls Saga from 1400

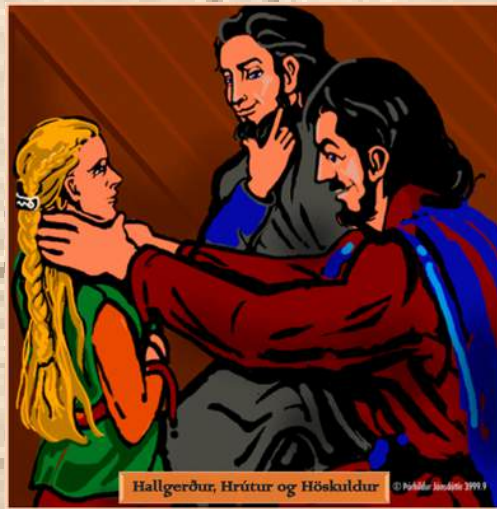


Njáls Saga from 1600

- The saga presents around **500** complex and memorable characters.
- It explores their personal conflicts, familial relationships, and the tragic fates.

Quick storyline - Brennu Njáls Saga

Main Characters



Hrútur Höskuldur



Gunnar Hallgerður



Njáll Bergþóra

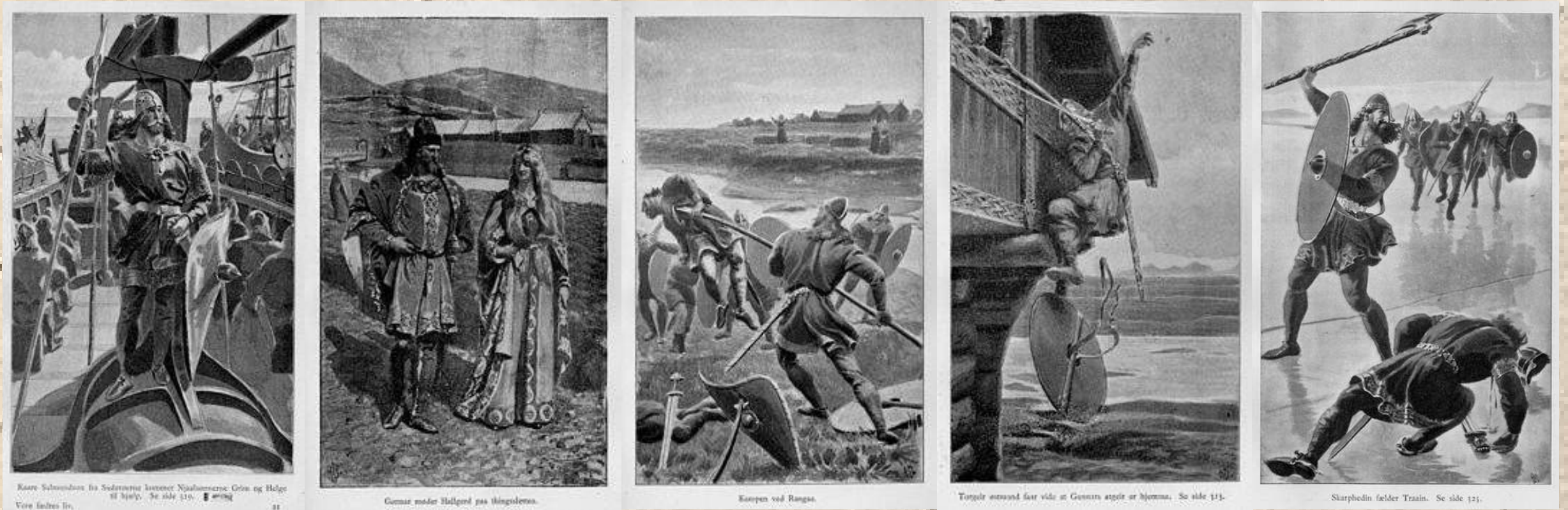


Skarphéðin Höskuldur



Kári

The Story of BURNT NJAL



Quick Storyline

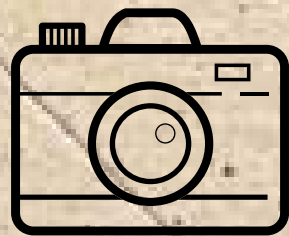
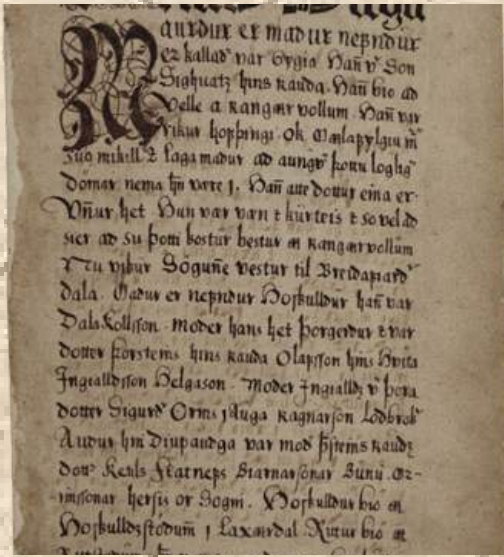
Model Development

euismod lacinia at quis risus sed vulputate odio. Sed
euismod lacinia at quis. Ut tellus elementum
ultrices lacus sed turpis tincidunt id aliquet
massa ultricies mi quis. Magna fermentum
aculus. Eget sit amet tellus cras
vitae et leo duis ut diam
aculis eu non diam phasel-
Cursus sit amet dictum

ullamcorper sit amet
semper feugiat nibh
ing elit duis tris-
mauris nunc
la fames ac
h mauris.
At

Trial and Error

Trial and Error



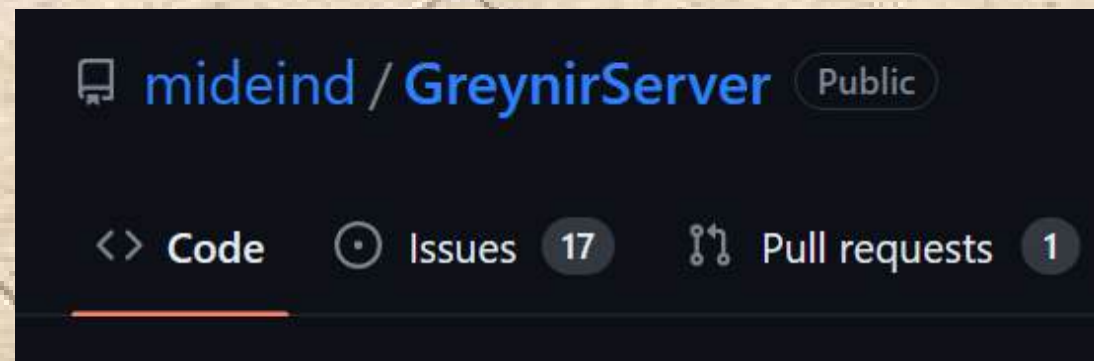
OCR



Illegible text and proper OCRs
not existing for Old Norse

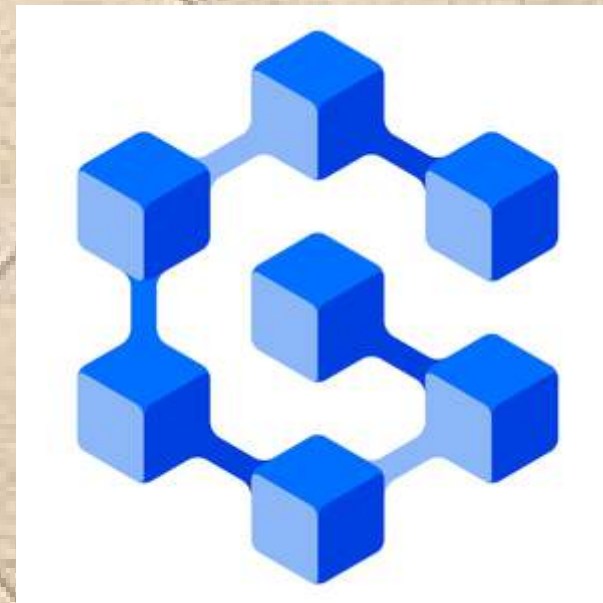
on holiday and fell in love with re-
ed islanders and bought their plots,
who could expect big money for a
accessible island? One man sold for a
e rumour went. Collings was larger
vest of Dingle loved a character, so
s plans came to nothing.
thought about who owned the Great
hties, when an advertisement in the
d the island for sale for a million
t of a long and complicated legal
based in Dingle, which had acquired
the land, and the Irish government
Charles Haughey, the owner of Inis
to establish a national park. The issue
preme Court as I crossed on that first
he future was unclear. There were
brought back to life anyway, I had

Trial and Error



Trained on

Dataset
Icelandic Gigaword Corpus v20.05 (IGC)
Icelandic Common Crawl Corpus (IC3)
Greynir News articles
Icelandic Sagas
Open Icelandic e-books (Rafbókavefurinn)
Data from the medical library of Landspítali
Student theses from Icelandic universities (Skemman)



['GMÃ¶rur', 'GgÃN', 'gja',
'GSighv', 'ats', 'GrauÃa']

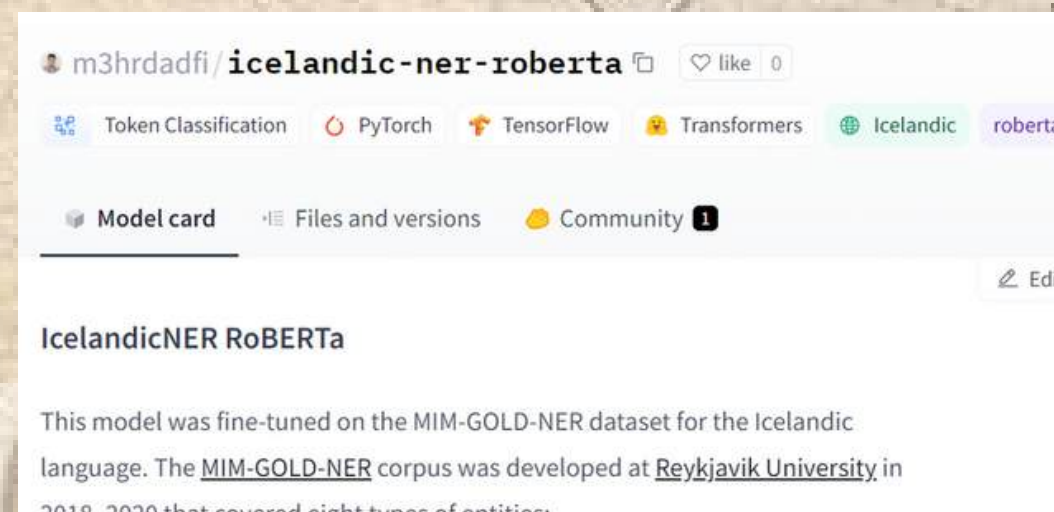
utf-8 not displaying
icelandic characters in the
correct format

Most models being
incomplete for the
requirements of the project

Trial and Error



Ice-Bert

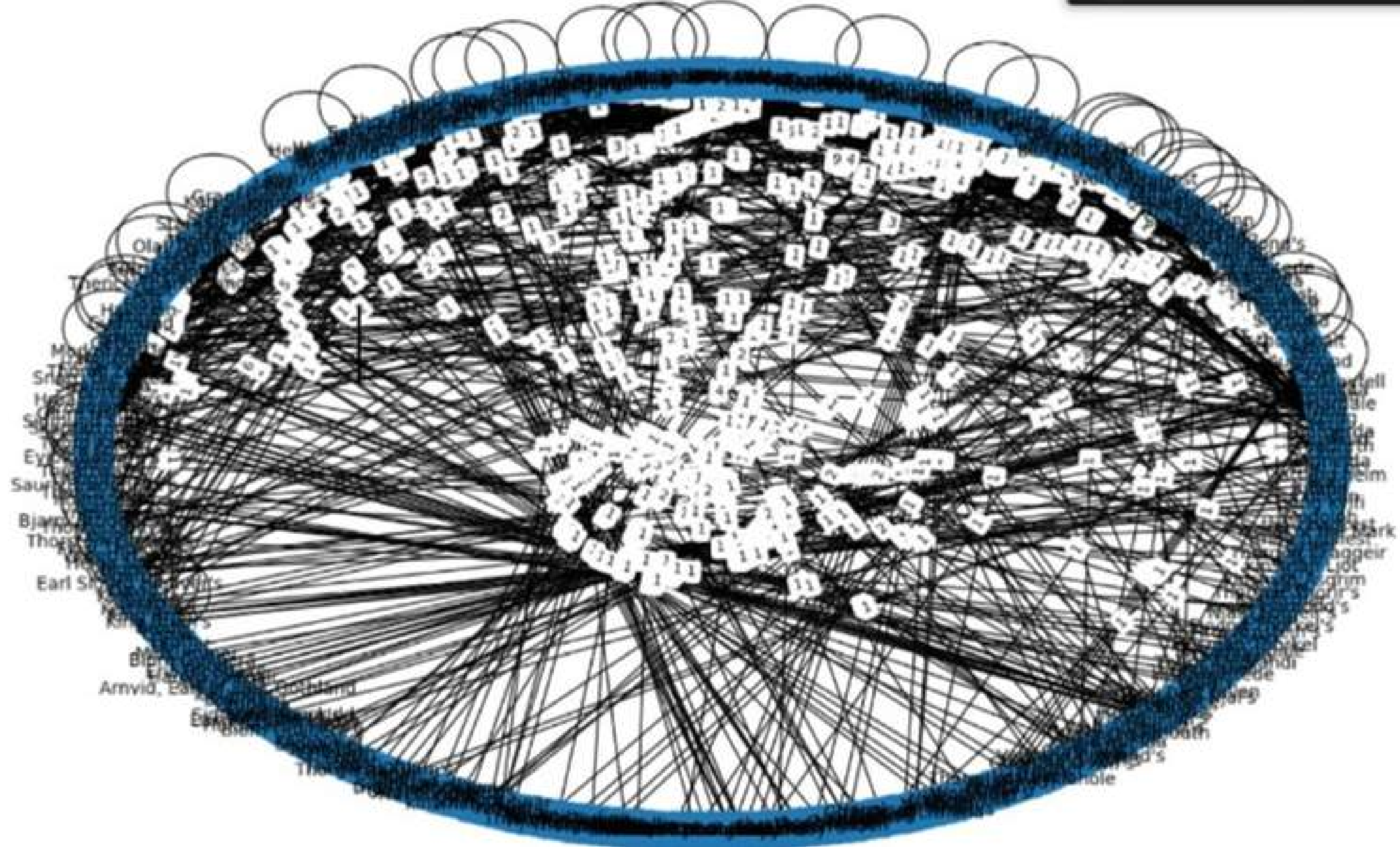


Ice-RoBerta



Icelandic language models
are not developed enough
to tokenize relations

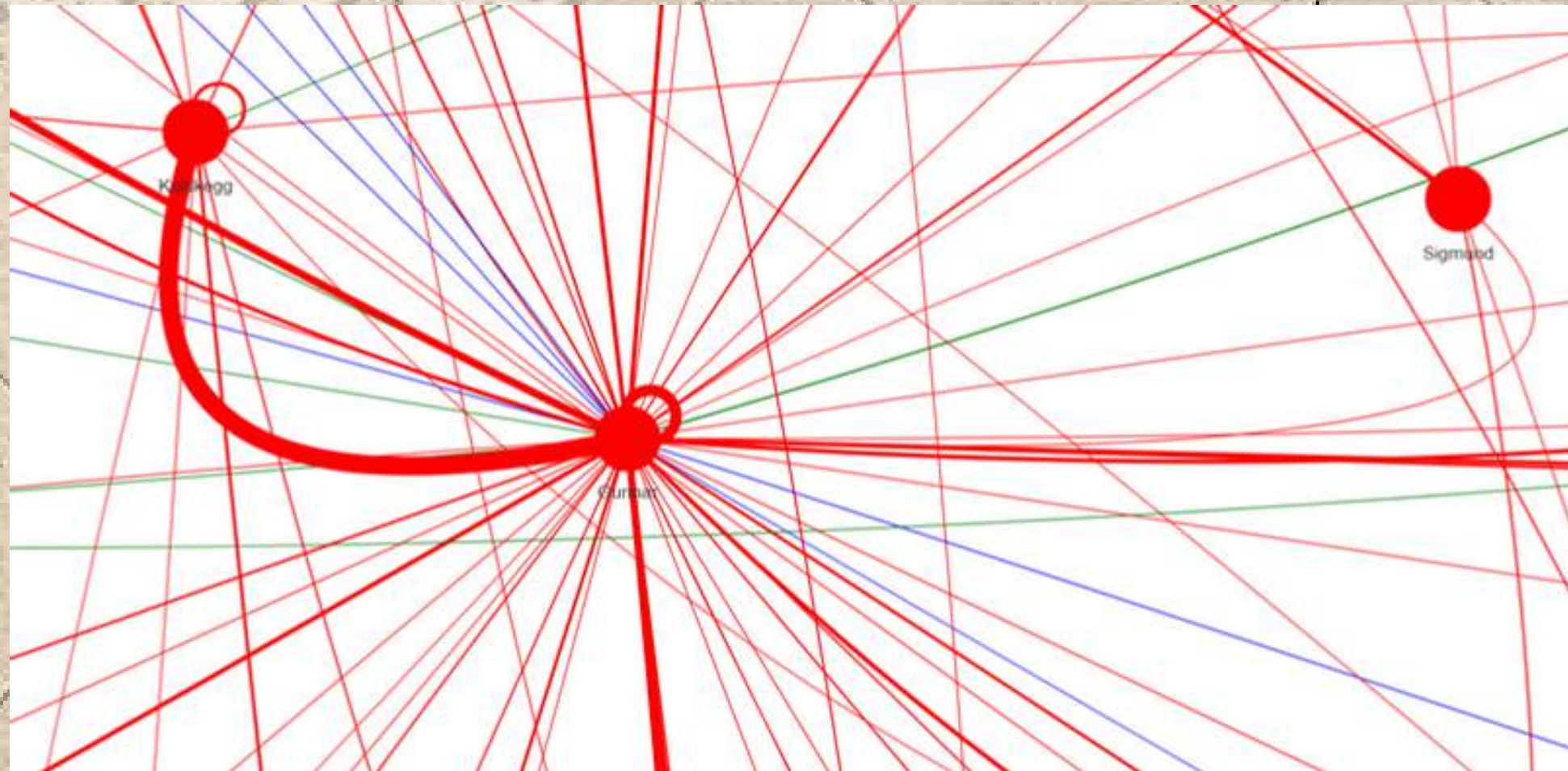
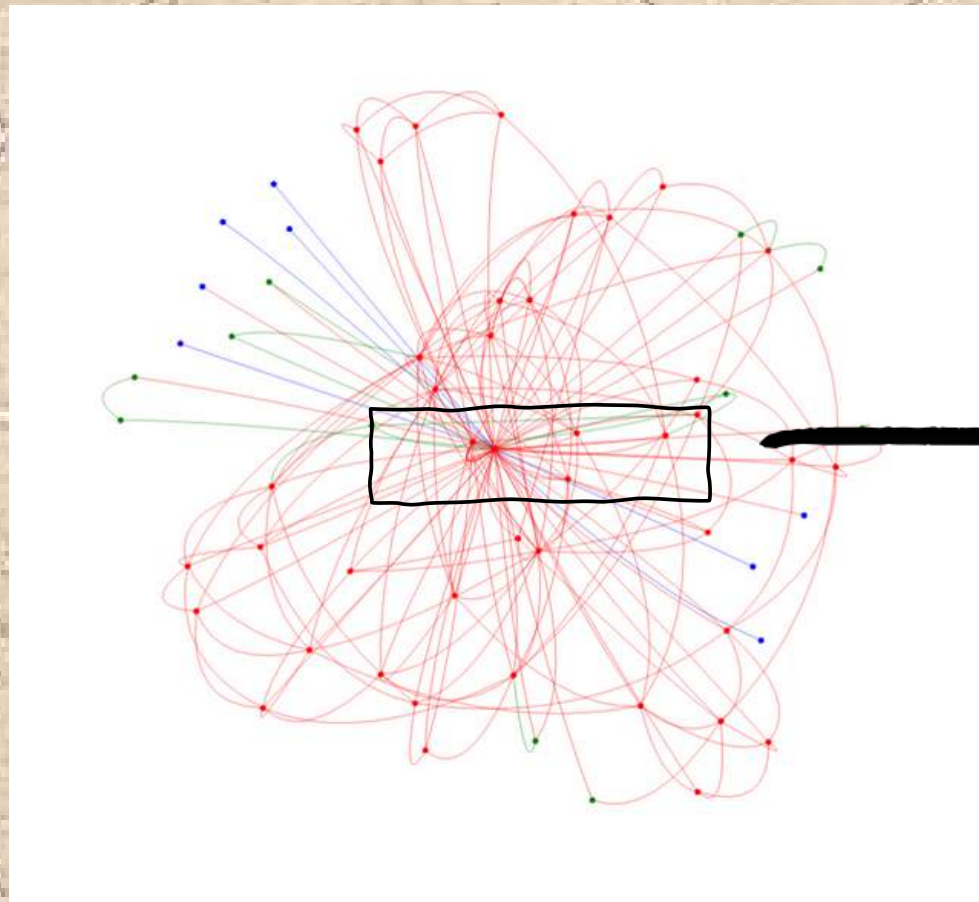
et on holiday and fell in love with her. He then decided to rebuild the village as a holiday resort for the islanders and bought their plots, who could expect big money for a small, accessible island? One man sold for a large sum. The rumour went. Collings was larger than life. The west of Dingle loved a character, so his plans came to nothing. He then thought about who owned the Great Island in the thirties, when an advertisement in the paper said the island for sale for a million pounds. It was the start of a long and complicated legal battle based in Dingle, which had acquired the land, and the Irish government had bought it. Charles Haughey, the owner of Inis Rubha, had to establish a national park. The issue was taken to the Supreme Court as I crossed on that first trip. The future was unclear. There were many who were brought back to life anyway, I had



Trial and Error

**Pyvis Library using
spaCy**

**Unable to display
text on the edges**



**Colors and thickness
representing the weight of the
relation**

euismod lacinia at quis risus sed vulputate odio. Sed
euismod lacinia at quis. Ut tellus elementum
ultrices lacus sed turpis tincidunt id aliquet
massa ultricies mi quis. Magna fermentum
aculus. Eget sit amet tellus cras
vitae et leo duis at diam
aculis eu non diam phasel-
Cursus sit amet dictum

ullamcorper sit amet
semper feugiat nibh
ing elit duis tris-
mauris nunc
la fames ac
h mauris.
At

Deployed Solution

Deployed solution

spaCy



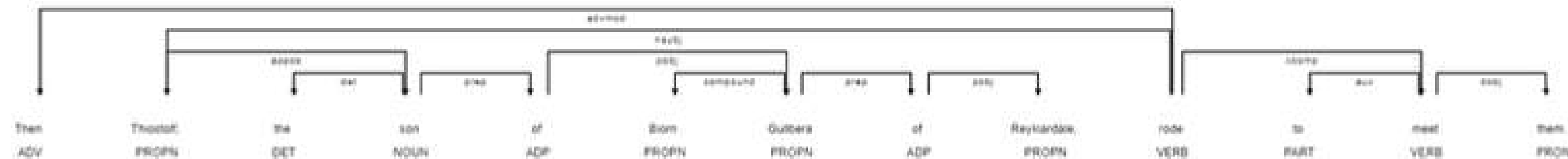
NetworkX
Network Analysis in Python



Streamlit

Deployed solution

spaCy



MVP

euismod lacinia at quis risus sed vulputate odio. Sed
euismod lacinia at quis. Ut tellus elementum
ultrices lacus sed turpis tincidunt id aliquet
massa ultricies mi quis. Magna fermentum
ac. Eget sit amet tellus cras
vitae et leo duis ut diam
aculis eu non diam phasel-
Cursus sit amet dictum

ullamcorper sit amet
semper feugiat nibh
ing elit duis tris-
mauris nunc
la fames ac
h mauris.
At

MVP

Can Val

275

to promote
World's Office

...and was
...November, saying he still is
...longer work because of the wrap
...ing these papers follows
...Euler and has protected
...most generations.

~~...and ...
...to ...~~

...the ...
...the ...
...the ...

...of the ...
...of the ...
...of the ...

Threat: we are fixating and fixating upon a role to protect
by his reputation

...with which, in my first
... "Discourse," he said, "I con-
...tend that they desired to be ruled by
...the people." The language,
...indeed, was, "to be
...by the people, and it was

... I have had a lot of ...

He added that the Yarnabekovs were "the owners of" *our country* — a

...the current situation...

being asked to
Zachary C. ...
... the power ...

...the security services, and in managing it instead of the forces of law, a government of all 'our' people

...the
... ..
... ..

THE

...the Revolution of 1911, the Revolution of 1917, and the Revolution of 1929. The Revolution of 1911 was a revolution of the bourgeoisie against the monarchy. The Revolution of 1917 was a revolution of the proletariat against the bourgeoisie. The Revolution of 1929 was a revolution of the peasantry against the bourgeoisie.

General's Office

~~continued on p.
B6, column 1
Continuing on p.~~

...of Kader to ...
...in April and ...

Grey cardinals

~~On August 19, 1991, the defendant was arrested in his home by his father, Joseph Paolo DiStefano, a city of Kansas City law enforcement officer.~~

of path-
ways of
their

...and ...
...and ...
...and ...

...the ... of ...

...the fact that I had been told that I was not to be seen in the company of any of the other members of the group. I had been told that I was not to be seen in the company of any of the other members of the group. I had been told that I was not to be seen in the company of any of the other members of the group.

Aug. 1990 Russian firm KY purchased 100% interest of S. V. and S. V. and sold complaints were made against use and stored before the use a

...and by 1990, the United States had become the world's largest producer of drugs.

MVP Mock up

- Landing Page
- Search
- Output

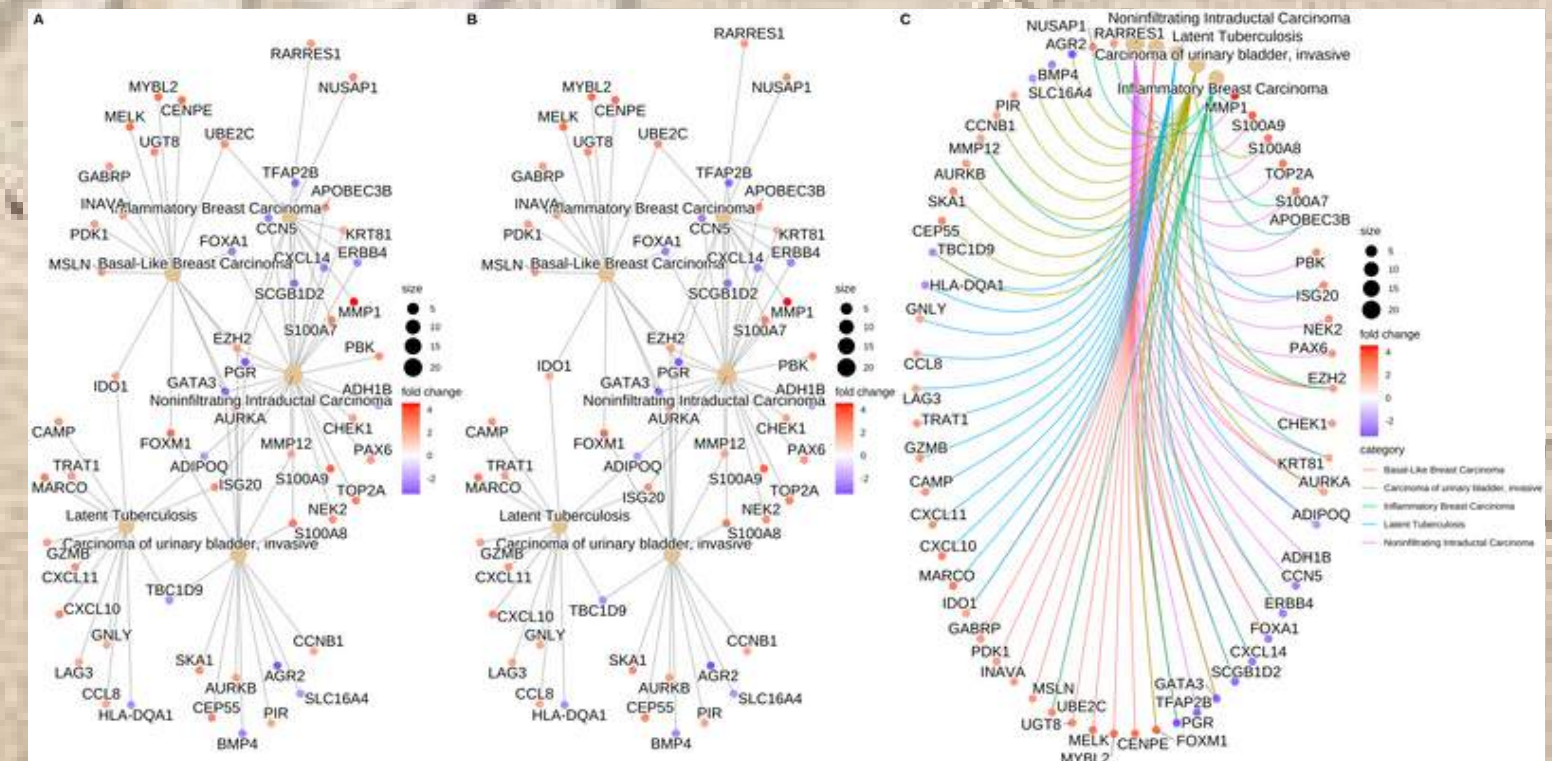
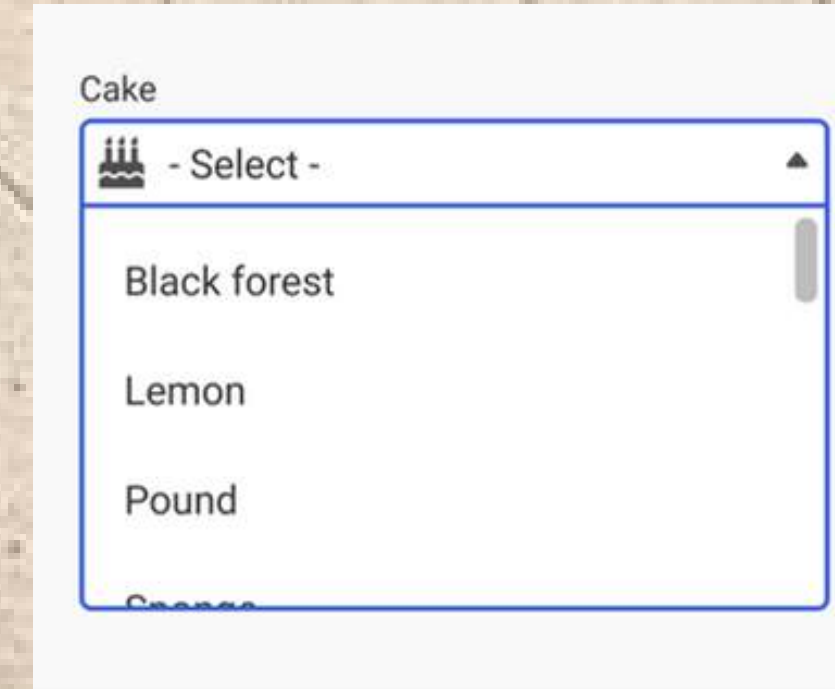


Further Development and Conclusion

Further Development - Improvements

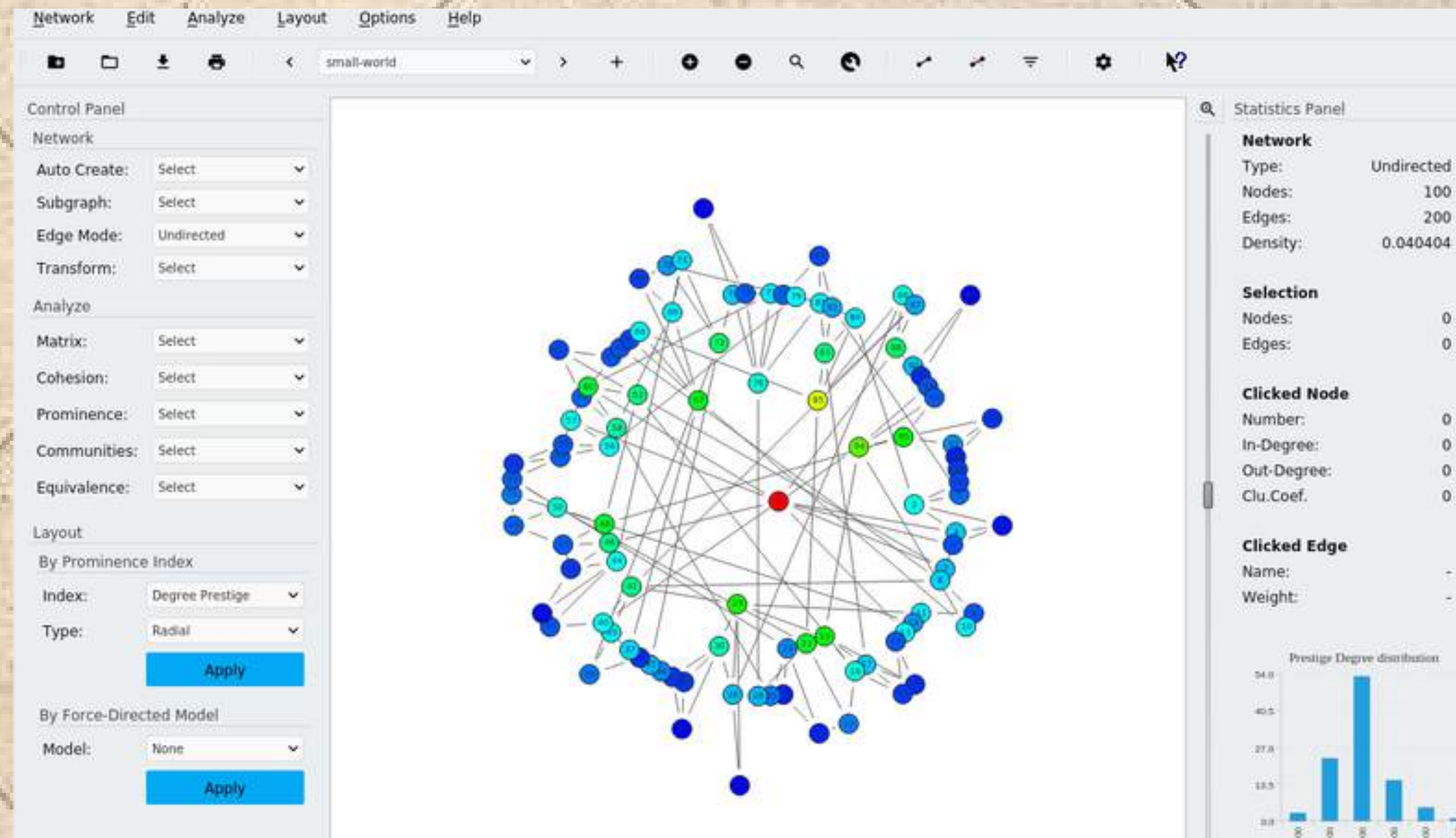
Product Features

- Book Selector: Expanding our database
- Enriching our graph by adding more complex / accurate interactions between characters. Relations between different books, chart customization



Further Development - Improvements Product Features

- Move from streamlit to our own hosted web

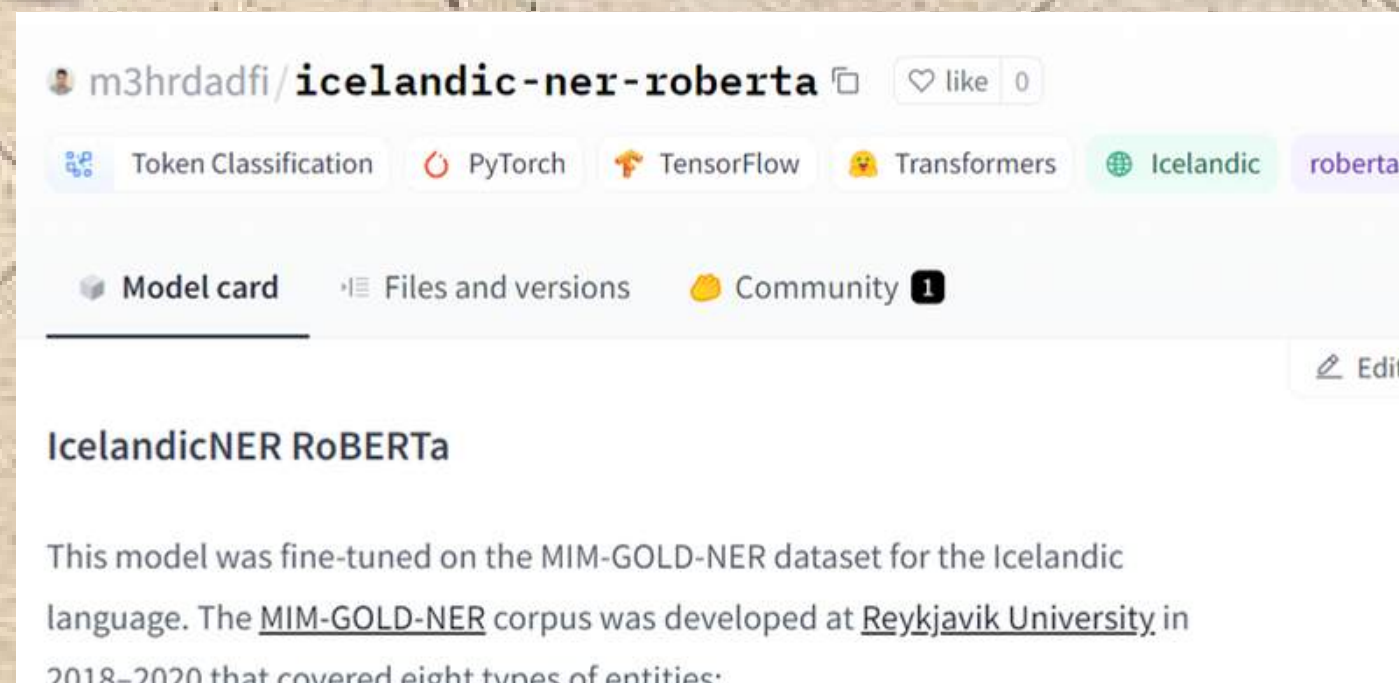


Further Development - Improvements

Model Improvement

Make our platform work using an Icelandic NER model:

- Option 1: Making our app work with icelandic-ner-roberta.
- Option 2: Wait until Spacy release their Icelandic language pack (On their roadmap).
- Option 3: Train our own Icelandic / Old Norse NER Model, with tokenizer for actions and relationships.



Further Development - Improvements Beyond the model

- Development of an OCR model
- Availability of applying our model to old texts that have not been digitalized before / better digitalization
- Access to physical book copies thanks to our collaboration agreement with Government and Universities

Further Development - MLOps



ML model - NLP



Get the API



Amazon Lightsail

App Environment

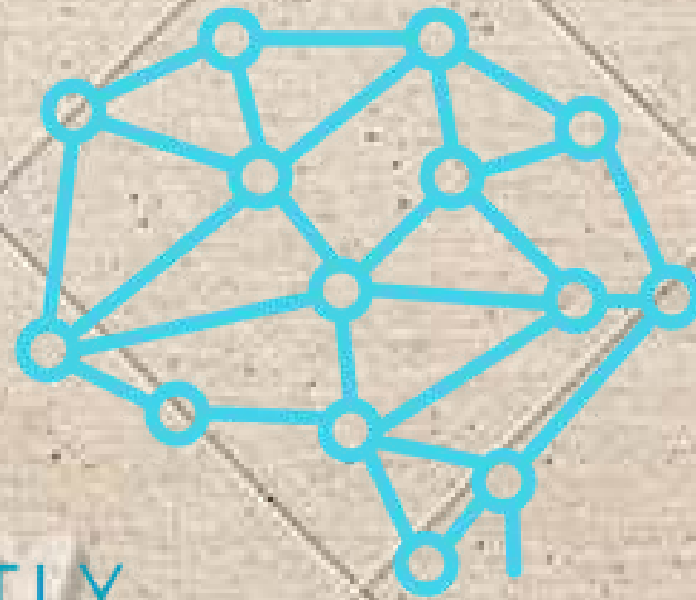


Amazon
EC2

Conclusions

LitGraph

UNDERSTAND INTELLIGENTLY



some were sorry when his plans came to nothing.
The next time anyone thought about who owned Blasket was in the mid-eighties, when an advertisement in the *Wall Street Journal* offered the island for sale for £10 million. That was the start of a long and complex battle between a company based in Dingle, which was owned by Taylor Collings's share of the land, and the Irish Government, led at that time by Charles Haughey, the Taoiseach – which wanted to establish a national park. The case was still before the Supreme Court as I crossed the island in the boat of the season, and the future was unclear. The signs of the island being brought back to life