

VIRAK

Konferansen for universitets- og
høgskolebibliotek

Stavanger 13.–14. juni 2019

1. Teknologi og visualisering

Effekter av å bruke kunstig intelligens
i et akademisk bibliotek

Store data – store muligheter:
datavisualisering av et semester

Visuell navigasjon gjennom
et nettverk av emneord



Konferansen for universitets-og høgskolebibliotek
Stavanger 13.-14. juni 2019

Trådløst nett: **uis-gjestenett**
Brukernavn: **ub-virak2019**
Passord: **9195**

Effekter av å bruke kunstig intelligens i et akademisk bibliotek



UiO : Universitetsbiblioteket

Virak – Stavanger Juni 2019

Effekter av å bruke kunstig intelligens i et akademisk bibliotek

Andrea Gasparini - Universitetsbiblioteket i Oslo og Institutt for Informatikk



Denne presentasjon omhandler effekter vi har av å bruke Kunstig Intelligens (KI) i biblioteket



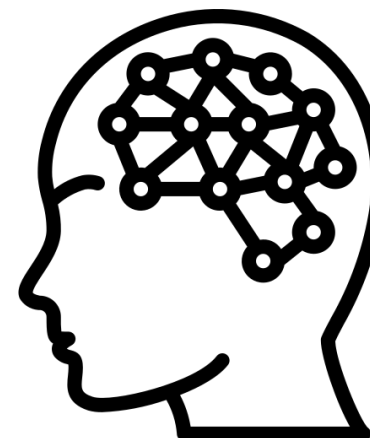
Problemstilling



Tilnærming og metode



Funn og analyse



Konklusjon og veien videre

Problemstilling: Motivasjon

10 Artificial intelligence and the Internet of Things are poised to amplify the utility and reach of library services. These emerging technologies can personalize the library experience for patrons, connecting them more efficiently to resources that best align with their goals.

NMC. (2017). NMC Horizon Report Library Edition. Retrieved from <https://www.nmc.org/publication/nmc-horizon-report-2017-library-edition/>

Problemstilling: Motivasjon

— Help Iris.AI learn

IRIS.AI

Explore

Scithons™

About ▾

Contact

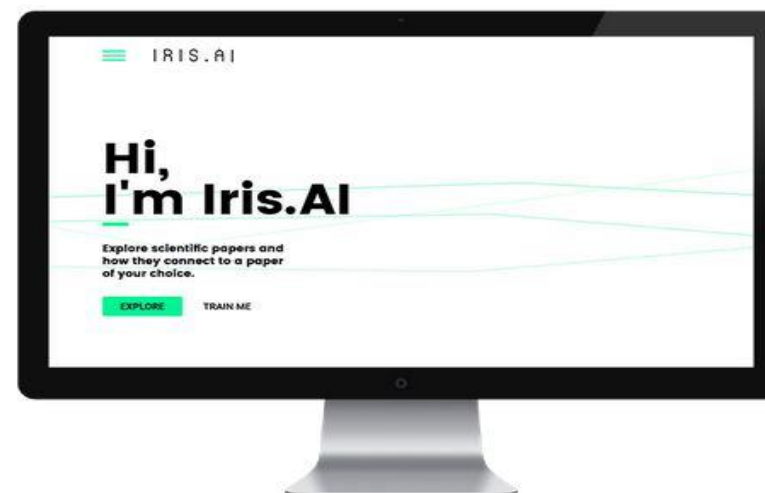
Blog

The Artificial Intelligence that reads science

For R&D departments, research institutes and academics.

> Use the free tool

> Host a Scithon™



Problemstilling: Motivasjon

Yewno

[About](#) [Finance](#) [Education](#) [Publishing](#) [Government](#) [Life-Sciences](#) [Products](#) [Media](#)

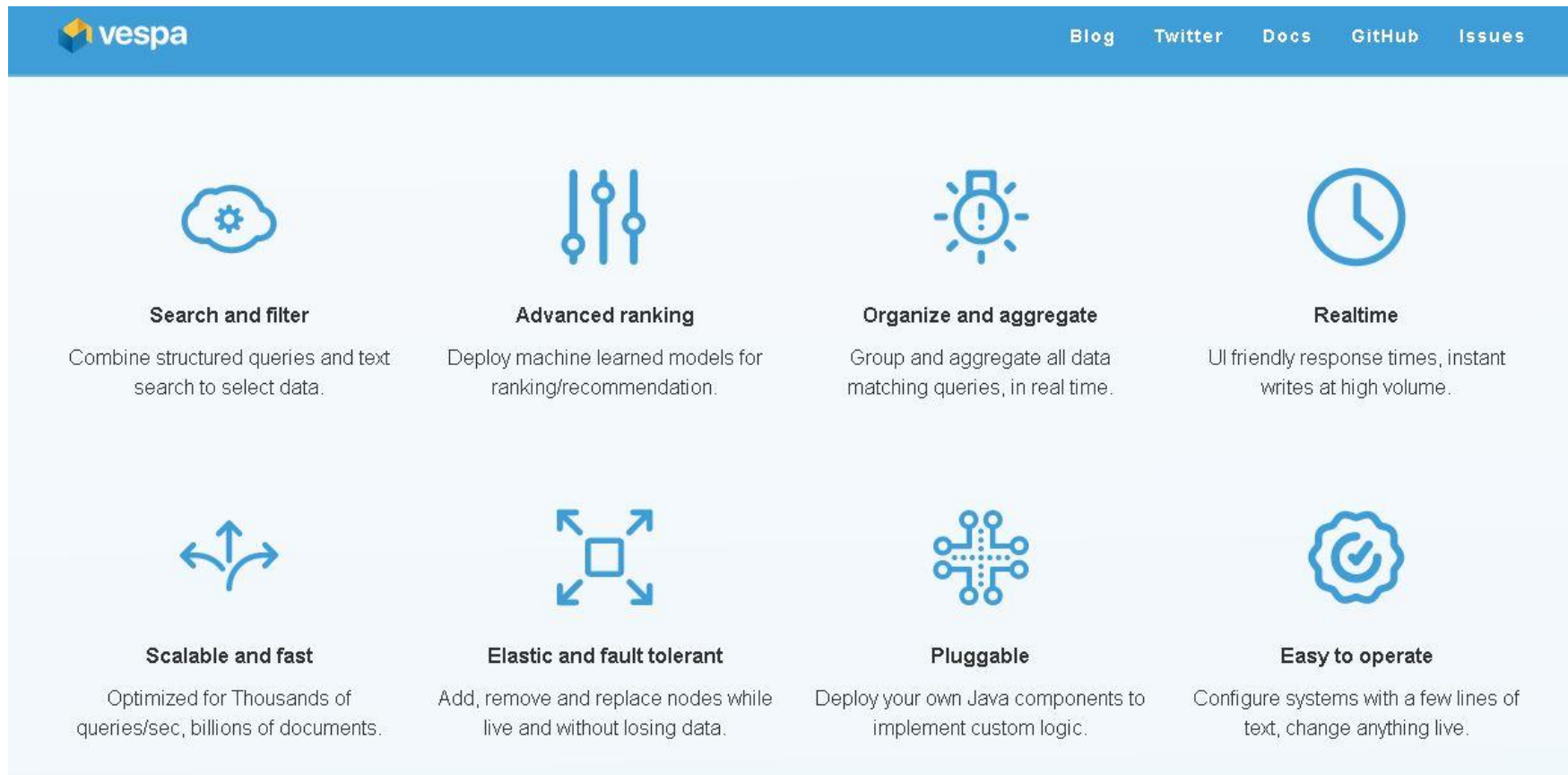
[Contact Us](#)



Transforming Information Into Knowledge

Leveraging a proprietary knowledge graph able to draw inferences from data points, Yewno has created a multi-disciplinary platform that extracts insights and delivers products and services tailored to a number of specific industries.

Problemstilling: Motivasjon

A screenshot of the Vespa website's home page. The page has a blue header with the Vespa logo on the left and navigation links for "Blog", "Twitter", "Docs", "GitHub", and "Issues" on the right. The main content area is light blue and features eight feature cards arranged in a 2x4 grid. Each card includes an icon, a bold title, and a short description of the feature.

Search and filter
Combine structured queries and text search to select data.

Advanced ranking
Deploy machine learned models for ranking/recommendation.

Organize and aggregate
Group and aggregate all data matching queries, in real time.

Realtime
UI friendly response times, instant writes at high volume.

Scalable and fast
Optimized for Thousands of queries/sec, billions of documents.

Elastic and fault tolerant
Add, remove and replace nodes while live and without losing data.

Pluggable
Deploy your own Java components to implement custom logic.

Easy to operate
Configure systems with a few lines of text, change anything live.

Problemstilling: Motivasjon



First machine-generated book published

8. April 2019



<https://aktuelles.uni-frankfurt.de/englisch/first-machine-generated-book-published/>

Problemstilling: KI til nå har vært fokusert på å kopiere intelligens. Hvilke rolle kan biblioteket ha?

Hvilke rolle kan biblioteket ha?

Hva kan biblioteket bidra med?



Problemstilling: Biblioteker har vært tidlig ute å bruke teknologi! Hva med KI?

IT -tilbud til publikum

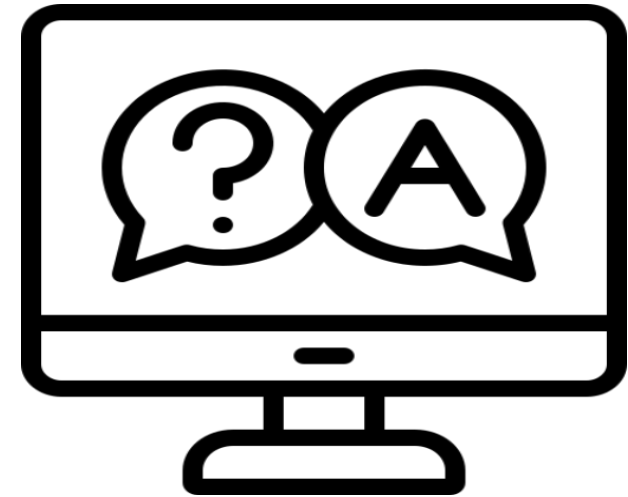
Planen for IT-tilbud til publikum er under iverksetting i det tempo som de samlede ressurser gjør mulig. Høsten 1997 har rullering av planen vært forberedt i interne arbeidsgrupper.

Dette året har publikum fått 3 nye PCer, og det finnes nå ialt 19 ved avdelingene: til internett, til CD-rom og til skrivearbeid, alle utstyrt med skrivere. Internett-tilbudet er størst ved hovedbiblioteket og Musikkavdelingen, mens filialene bare har en PC for publikum i et begrenset antall timer pr. dag, på grunn av problemene med det kommunalt leide linjenettet. Det har vært arbeidet intenst med å få filialene tilfredsstillende koblet inn på bibliotekets internett-tilknytning, men det har hittil ikke lyktes. Dermed er det heller ikke kapasitet til å legge ut bibliotekets eget intranett til hjelp og støtte i publikumsveiledningen og for administrative gjøremål.

Det er lange ventelister for bruk av publikumsPCene, og jenter utgjør en stadig større del av brukerne.

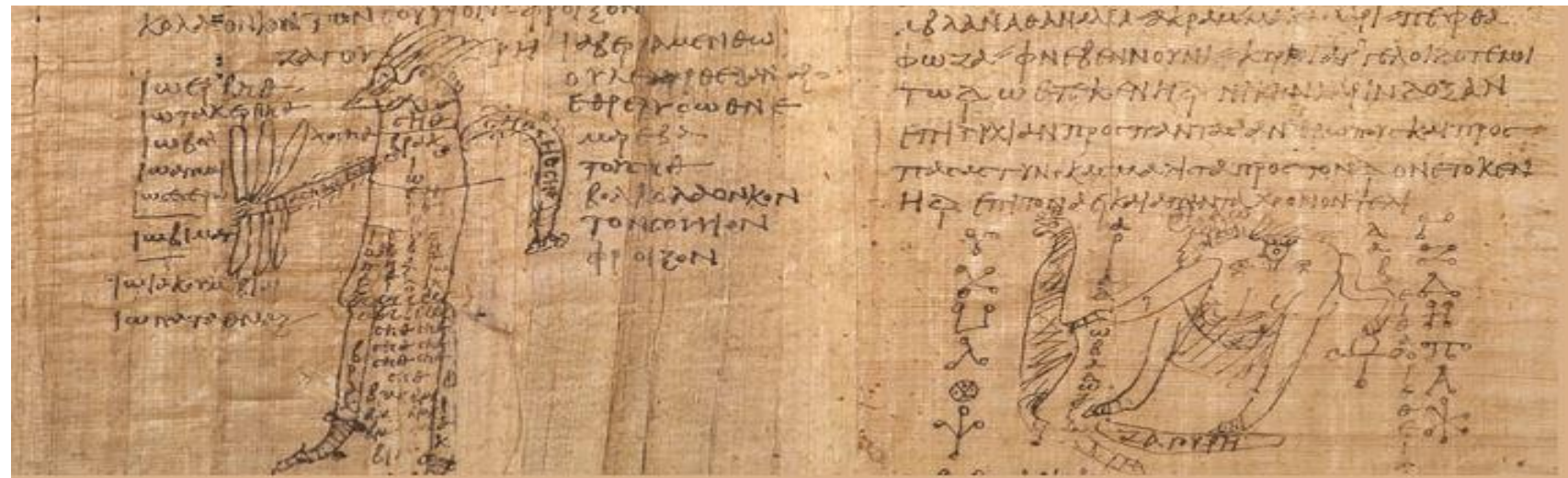
Tilnærming og metode: NB prosjektet

Ved Digitale Tjenester UBO:
André Walsøe
Ahmed Mohammed
Andrea Gasparini



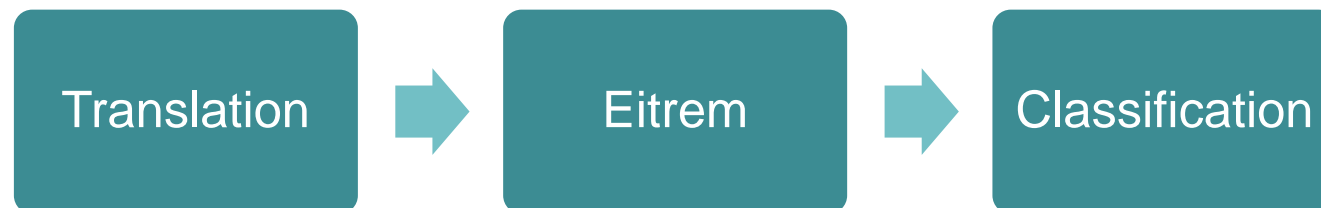
AI-baserte tjenester kan være en støtte for våre brukere. Vi har utviklet en konkret løsning

EITREM: Papyrus predictor



AI-baserte tjenester kan være en støtte for våre brukere. Vi har utviklet en konkret løsning

- Klassifiser provenance / sted til et papyrus basert på tekst.
- Et verktøy for å hjelpe forskere
- Veien videre: Forfatter og kategori.



AI-baserte tjenester kan være en støtte for våre brukere. Vi har utviklet en konkret løsning

Input_tekst:

Aurelius Marsoias (for Marsyas) son of Anoubas, his mother being Isaious, from the village of Dimior in the Memphite district, to Aurelius Cornelianus from the village of Philadelphia in the Arsinoite district, greetings. I acknowledge to have and to have received from you in the village of Philadelphia on loan for my use five artabae of wheat containing the additional one half, (in total) one four choinix measure, which I shall necessarily repay to you in the month of Pauni in the aforementioned village without delay. And the right of execution on demand shall rest with you against me and against the entire of my property as if in accordance with a legal decision. This contract, written in two copies, shall be valid as if deposited in the public archive and, having been asked, I have agreed. I, Aurelius Marsyas, got the artabae of wheat, five artabae containing the additional one half in one metron. I, Aurelius Alypios, wrote this for him, since he is illiterate. (2nd hand): In the 12th and 11th and 4th year of our Lords Diocletianus and Maximianus Augusti and Constantius and Maximianus, the most notable Caesars, Phaophi 20.

Klassifikasjon:

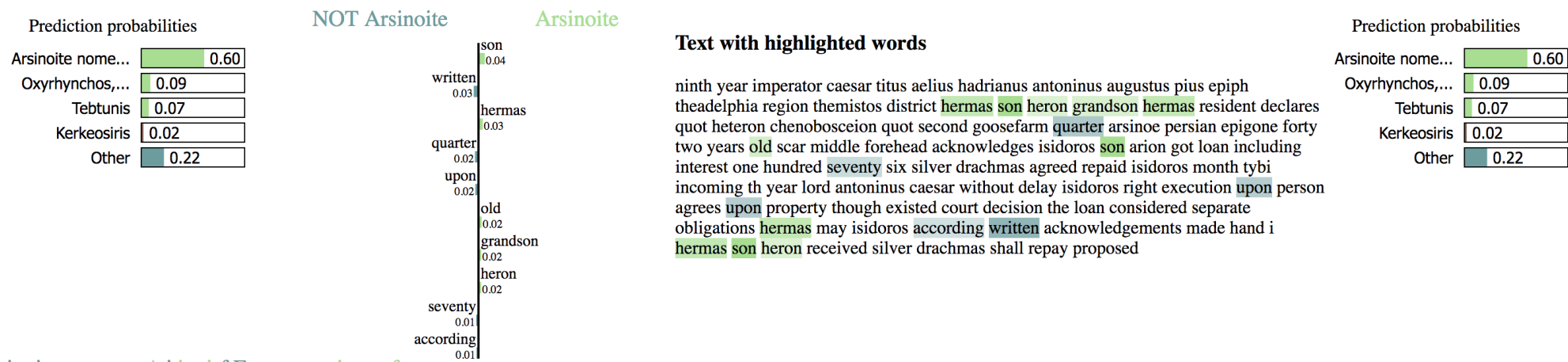
Forslag 1: Arsinoite nome, province of Egypt , sannsynlighet:0.788529971839

Forslag 2: Oxyrhynchos, Oxyrhynchite nome Middle Egypt province of Egypt , sannsynlighet:0.164875834831

Forslag 3: Memphis Memphite nome Egypt , sannsynlighet:0.00584158104946

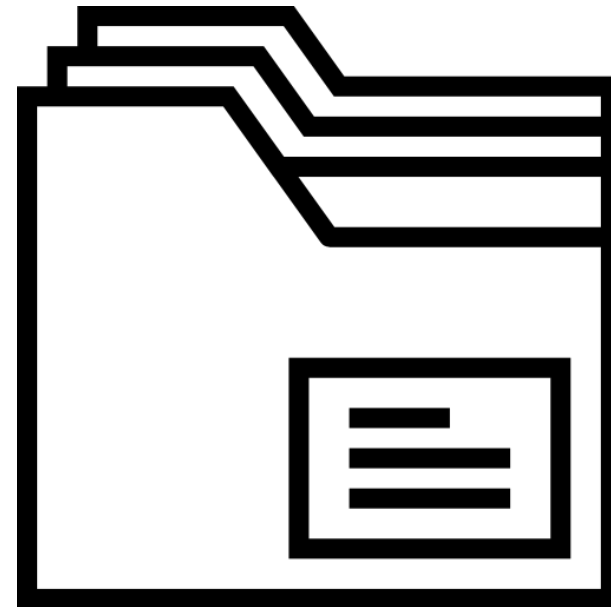
AI-baserte tjenester kan være en støtte for våre brukere. Vi har utviklet en konkret løsning

- Valgene til deep learning algoritmen er vanskelig å forklare.
- Shallow algorithms kan lettere forklares (se bilde)
- Avvening mellom ytelse og forklarbarhet.
- Hvordan påvirker forklaringen brukerens tillit til Als beslutninger?



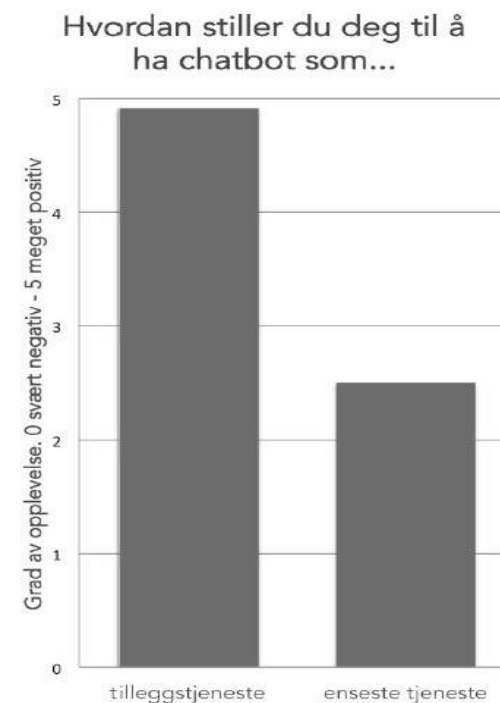
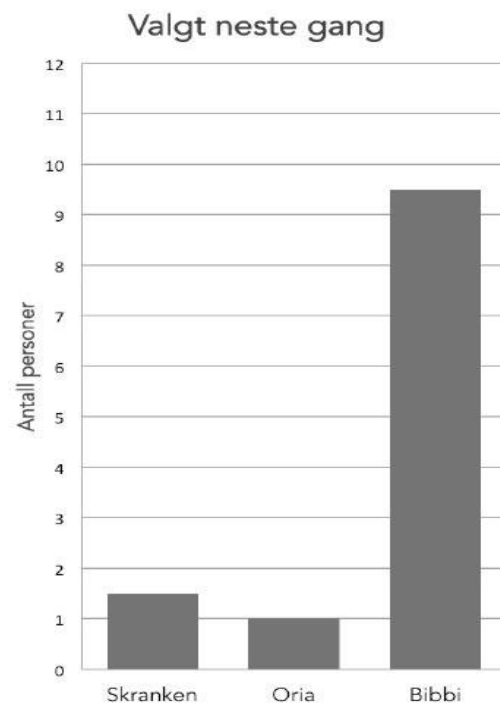
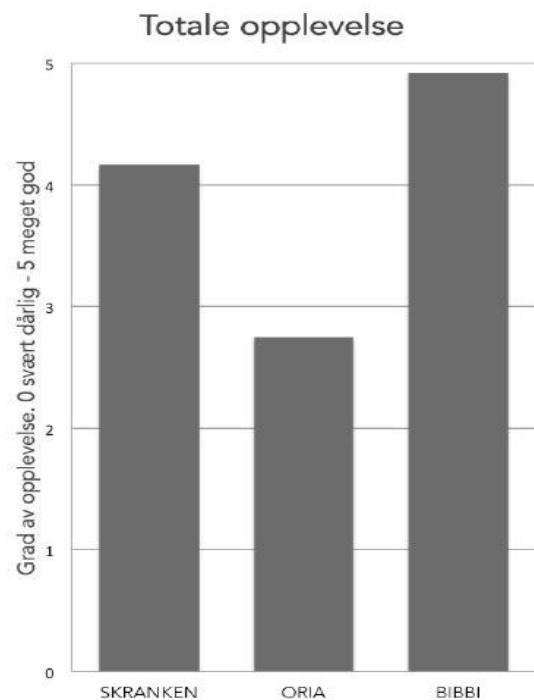
Største utfordringen har vært data: 80% av tiden har vi bruk for å vaske data!

- Data knapphet (scarcity)
- Data kvalitet
- Data dimensjonalitet



Tilnærming og metode: INF2260 ved Institutt for Informatikk (UiO)

Resultater



Tilnærming og metode: Research bazar

Carpentry@UiO



Carpentry@UiO

Research bazaar 2019: Get smart with research data

9.-11. januar arrangeres forskerhappeningen Research Bazaar på UiO. Delta på workshops og lær å bruke digitale verktøy og metoder som er nyttige for forskere.



Tilnærming og metode: Research bazar

Hands-on Workshop: Exploring Research Data with Artificial Intelligence and Design Thinking

Reportedly, when applying artificial intelligence in various domains, the organization of data requires up to 80 % of the time. This full day workshop aims at introducing participants to the diverse tasks in data organization by employing [Design Thinking](#).

Time and place

January 11th 2019, 09:00-16:00, Georg Sverdrups hus, room Linken

This [workshop](#) is fully booked.

Tilnærming og metode: boot camp for Jurister

The screenshot shows the University of Oslo website. At the top left is the red circular logo of the University of Oslo with the text 'UNIVERSITAS OSLOENSIS' and 'MDCCCXLI'. To its right is the text 'UiO : University of Oslo'. In the top right corner, there are links for 'For employees' and 'Norw'. Below the header is a dark navigation bar with the following menu items: 'Home', 'Research', 'Studies' (which is highlighted), 'Student Life', 'Services and tools', 'About UiO', and 'People'. The main content area has a white background. On the left side, there are two light gray boxes with the text 'Studies' and 'Courses'. Below these is a dark gray box containing a list item: '▪ JUS5671 - Legal Technology: Artificial Intelligence and Law'. To the right of this box, the course title 'JUS5671 – Legal Technology: Artificial Intelligence and Law' is displayed in a large, bold font. Below the title is the section 'Course description' followed by a two-column list of links: '▪ Course content', '▪ Learning outcome', '▪ Admission', '▪ Prerequisites', '▪ Overlapping courses', '▪ Teaching', '▪ Examination', and '▪ Evaluation'.

For employees Norw

UNIVERSITAS OSLOENSIS

UiO : University of Oslo

Home Research Studies Student Life Services and tools About UiO People

Studies

Courses

- JUS5671 - Legal Technology: Artificial Intelligence and Law

JUS5671 – Legal Technology: Artificial Intelligence and Law

Course description

- Course content
- Learning outcome
- Admission
- Prerequisites
- Overlapping courses
- Teaching
- Examination
- Evaluation

Tilnærming og metode: boot camp for Jurister

Azure (Microsoft), Python (Dan Michael Heggø), Design Thinking (Andrea).



DESIGN THINKING A FRAMEWORK FOR INNOVATION

EMPATHIZE
Innovation should be human-centered.

IDEATE
Innovation is born from a clash of ideas.

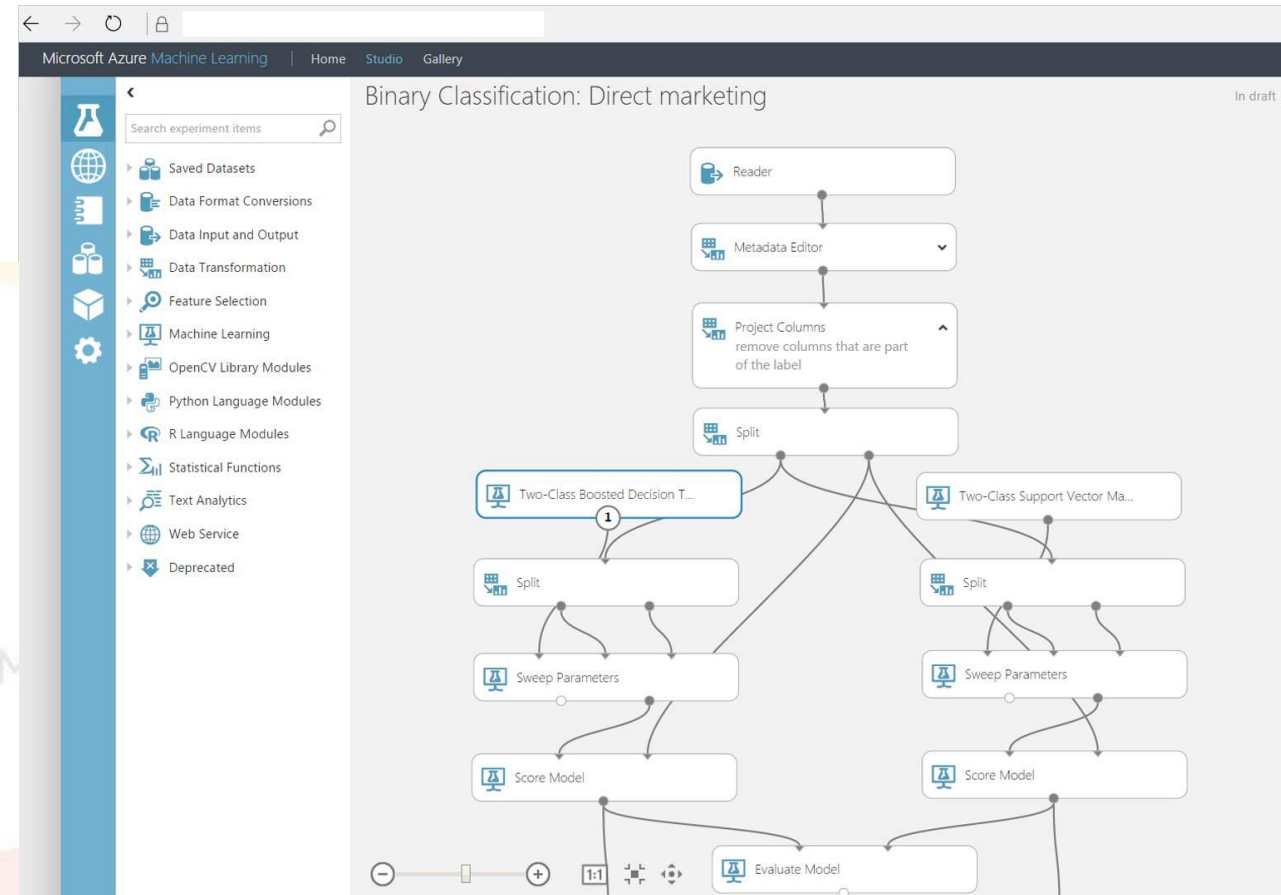
CONTEXT

FORM

DEFINE
Innovation should solve a problem.

TEST
Innovation should be refined.

PROTOTYPE
Innovation should be brought to life.



Tilnærming og metode: boot camp for Jurister

For studenter

[< Konferanser](#)

Lovkonferansen 2019: Om lovgivning, lovspråk og lovforvaltning

Temaet for konferansen er utfordringer ved lovgivning i det 21. århundre. Blant spørsmålene som tas opp er hva som er bra og hva som kan forbedres ved den norske lovgivningsmodellen, hvordan vi kan nå målsettingen om et bedre lovspråk og hvordan vi på en god måte kan digitalisere lovgivning og forvaltning.

Konferansen er særlig aktuell for jurister, samfunnsvitere, språkvitere, teknologer, informatikere og andre som arbeider med utvikling og forvaltning av regelverk i forvaltningen eller i akademia.

Tid og sted: 4. juni 2019 09:00 - 5. juni 2019 17:00, [Universitetets aula og Gamle festsal i Domus Academica, Karl Johans gate 47](#)



Tilnærming og metode: boot camp for Jurister

§21-5):
Her arveløsten ikke
livsarvinger går arven til
foreldre hans

Foreldre arver likt. Er far
eller mor død, går
arveløsten til hans eller
hennes livsarvinger, med lik
part på hver gren.

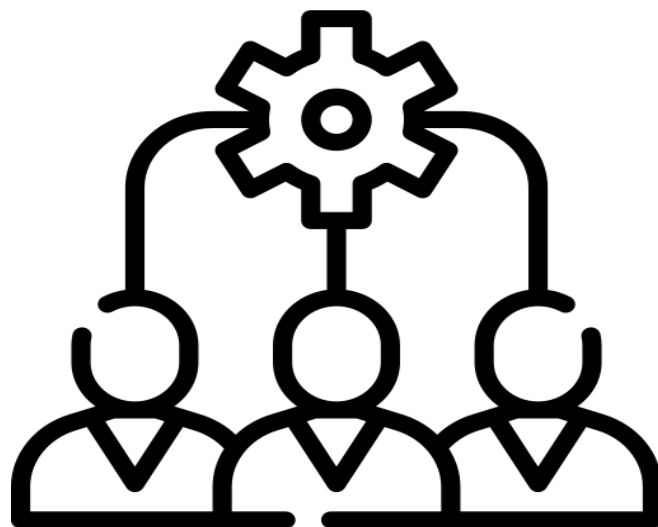
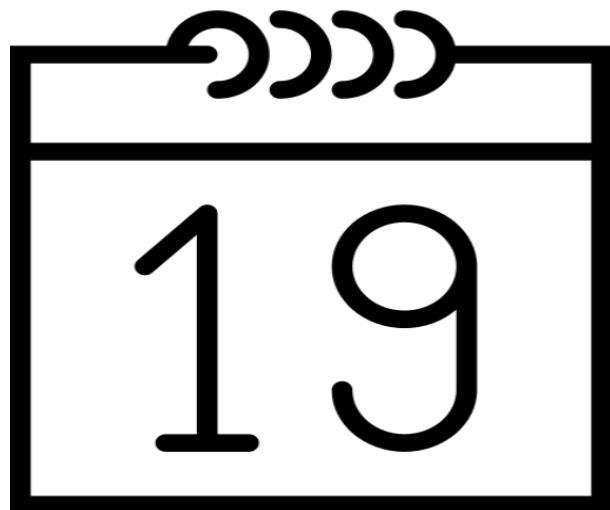
Er en av foreldre død, og et
det andre livsarvinger etter
en.

§2:
IF avdøde har ingen levende livsarvinger:
IF begge foreldrene er i live:
foreldrene arver likt
ELSE IF en av foreldrene er død:
IF den avdøde forelderens har levende livsarvinger
arven fordeles likt på hver gren
ELSE (forelderens har ingen livsarvinger):
IF avdøde var enger IF
AND NOT foreldre gift og barnløse, for den tredje forelderens død
IF avdøde forelderens foreldre har levende livsarvinger i live
den avdøde forelderens foreldre arver deres livsarvinger arve
ELSE (forelderens har ingen livsarvinger):
ELSE (begge foreldre er døde) ...se §3...

Lovens oppbygning

if, and, else, if

Tilnærming og metode: AI-HUB-NODE



AI lounge

Room 2531 - Klubben
Georg Sverdrups hus
University Library

May 28, 2019, 15:15 - 16:15

Automated Acoustic Data Processing with Deep Learning
by Olav Brautaset - Norsk Regnesentral (NR)
NR is currently developing a deep learning model to estimate the amount of different fish species in acoustic echo sounder images. The model is based on UNet – a convolutional neural network architecture.

NR Norsk Regnesentral

UiO : University of Oslo Library

UiO : USIT

The poster features a yellow header with a brain icon on the left and a circuit board icon on the right. The main text is centered. Below the text is a photograph of a lounge area with a wooden wall, a floor lamp, and a sofa. The footer contains the logos for the University of Oslo Library and USIT.

Tilnærming og metode: AI-HUB-NODE

2018

**Machine learning for predicting
antibody recognition in silico -
Biomedical Informatics (IFI)**


2019

Tech & GPUs

Speech to text - NRK & IFI

**Deep learning - Microsoft + Vortex
(USIT)**

**Deep learning og fiskindustri - Norsk
Regnesentral**



The poster features a yellow header with a brain icon on the left and a circuit icon on the right. The text 'AI lounge' is centered in the header, with 'Room 2531 - Klubben', 'Georg Sverdrups hus', and 'University Library' below it. The date and time 'May 28. 2019, 15:15 - 16:15' are listed. The main title 'Automated Acoustic Data Processing with Deep Learning' is followed by 'by Olav Brautaset - Norsk Regnesentral (NR)'. The NR logo is on the right. The description states: 'NR is currently developing a deep learning model to estimate the amount of different fish species in acoustic echo sounder images. The model is based on UNet - a convolutional neural network architecture.' The bottom section shows a 3D rendering of a lounge with a yellow sofa, a floor lamp, and a wood-paneled wall. Logos for 'UiO : University of Oslo Library' and 'UiO : USIT' are at the bottom.

Room 2531 - Klubben
Georg Sverdrups hus
University Library

May 28. 2019, 15:15 - 16:15

Automated Acoustic Data Processing with Deep Learning
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NR Norsk Regnesentral

UiO : University of Oslo Library

UiO : USIT

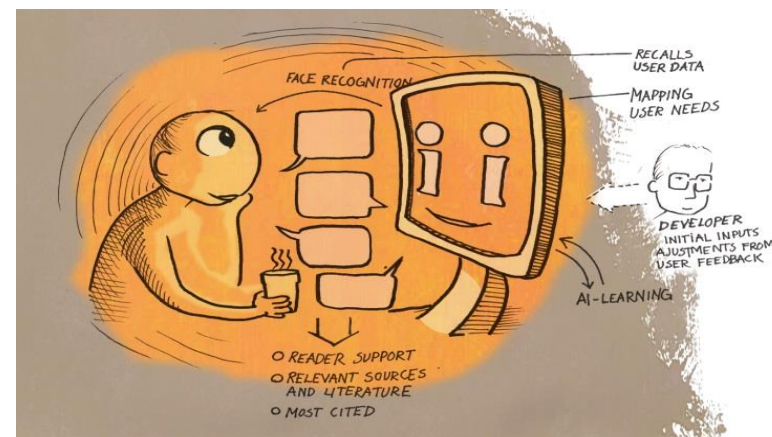
Funn og analyse:

UiO har noen forskningsgrupper som er selvgående, men...

Det er mangel på «nødvendig» KI kompetanse i enkelte forskningsmiljøer (Jus, Digital Humaniora, og så videre)

Biblioteket har kompetanse for å hjelpe, direkte eller indirekte (DSC er et eksempel)

Det finnes ikke andre alternativer....



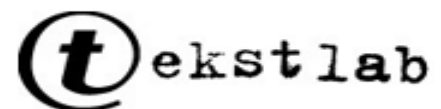
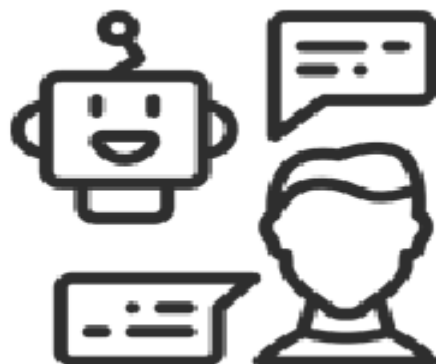
Funn og analyse: Det er flere perspektiver biblioteket kan bidra i KI diskursen

“Ethical debates are well underway about what’s “right” and “wrong” when it comes to high-stakes AI applications..”

McKinsey
Analytics



Funn og analyse: samarbeid krever kompetanse



Funn og analyse: vi har vært proaktive



NAIS SYMPOSIUM 2019
NTNU Trondheim May 27-28



GRAPHCORE

NORA

IRIS.AI

Funn og analyse: Vi har skrevet artikler om vårt KI aktivitet

This is not you! Identity crisis in the 21st century

Andrea Alessandro Gasparini
Department of Informatics and
University of Oslo Library
University of Oslo
Oslo, Norway
andreg@ifi.uio.no

Identity today has become a complex issue. An
number of the internet has accounts on several services,
digital traces of use are gathered by large companies. The
companies are using Artificial Intelligence in their

affirming, modifying, and sometimes destroying situated
identities.” [5] One such example is the indigenous cultures
where, in many countries, their context is under constant
redefinition and their identity under pressure.

This paper presents
Artificial Intelligence will have
identity when they ma
is active. A prag
importance of th
will be used to u
identity. In additio
Artificial Intelligence service
necessary trust the use
as a case study the
workshop where the



ServDes2018 - Service Design Proof of Concept
Politecnico di Milano
18th-19th-20th, June 2018

Service Design for Artificial Intelligence

Andrea Alessandro Gasparini, Ahmed Abdi Mohammed, Gabriele Oropallo

Towards AI services à la carte: Status and Future Work at University of Oslo

Anne Schad Bergsaker ⁽¹⁾, Andrea Gasparini ⁽¹⁾⁽²⁾ and Thomas Röblitz ⁽¹⁾

¹ University Center for Information Technology, University of Oslo, Oslo, Norway

² University of Oslo

³ Department of Informatics, U

a.s.bergsake

andreg@i

thomas.roblit

Abstract. The accelerating digitalization to
unprecedented amounts of data pro
great opportunity to analyze for the be
lenges among others (A) legal, (B) ethic
age of processing power, (E) shortage
Employing artificial intelligence (AI) m
tackle challenge (C). The advent of ca
easy-to-use programming frameworks
help addressing challenges (D) and (F).
ters at the University of Oslo have par
develop a portfolio of services dubbed
folio shall enable our users to make goo
and unbiased way leading to excellent
status and future of our work towards s

Keywords: Artificial Intelligence, Rese

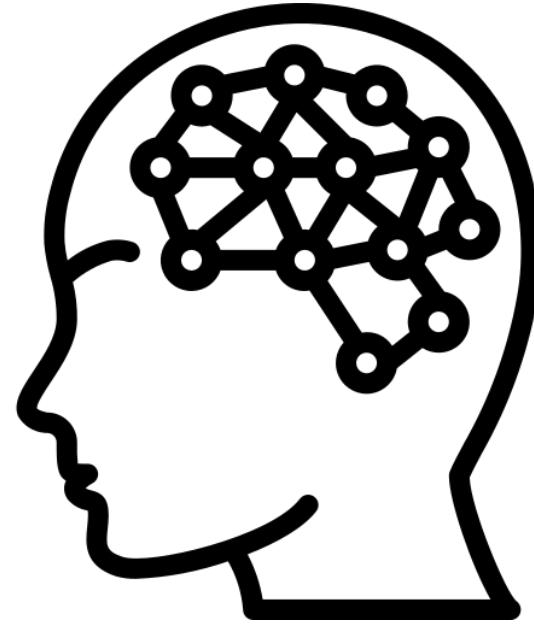
1 Introduction

The poster features a central graphic of a brain with circuit-like patterns, symbolizing AI and cognitive processes. It is divided into several sections:

- Infrastructure:**
 - Provide modern resources in a flexible way: on physical servers or virtual machines, to satisfy diverse needs of researchers and students.
 - Three major building blocks are CPU, large main memory and fast storage.
 - Provide high-level frameworks such as TensorFlow, Keras, PyTorch, etc.
 - Explore emerging hardware and cloud services to cater for future needs.
- Courses:**
 - Help build a portfolio of teaching material within machine learning, deep learning and data science, in collaboration with e.g. Carpenters.
 - Full-day workshops at Research Hubz: using natural language processing and machine learning on papers data.
 - Hosting workshops from external cloud service providers, e.g. Microsoft Azure.
 - A series of workshops on using machine learning in public and international law studies.
- Service staff competence:**
 - We have started small-scale projects to use AI for in-house services, and will continue to do so more and more.
 - A collaboration between UiO, the best lab at UiO, and the Norwegian national broadcasting corporation (NRK), aims to train a model that can recognize Norwegian speech and transcribe it automatically.
 - The AI Hub is supporting research by developing a service that can recognize digitized photos in photographs from the image collections of the natural history and cultural history museums in Oslo.
- Community building:**
 - Networking is of paramount importance to support the use of AI across and in different research areas.
 - Our AI lounge: The place to be for people interested in Artificial Intelligence at UiO.
 - The AI Hub supports cooperation and sharing across the University of Oslo.
 - AI lounge once a month provides a predictable schedule of activities for the participants, and gives us time to discuss and brainstorm ideas and solutions.

At the bottom, it includes the University of Oslo logo, a QR code, and the text "Read more about the project" and "Source: <https://www.fakultet.uio.no/infobrosjyren>".

Konklusjon

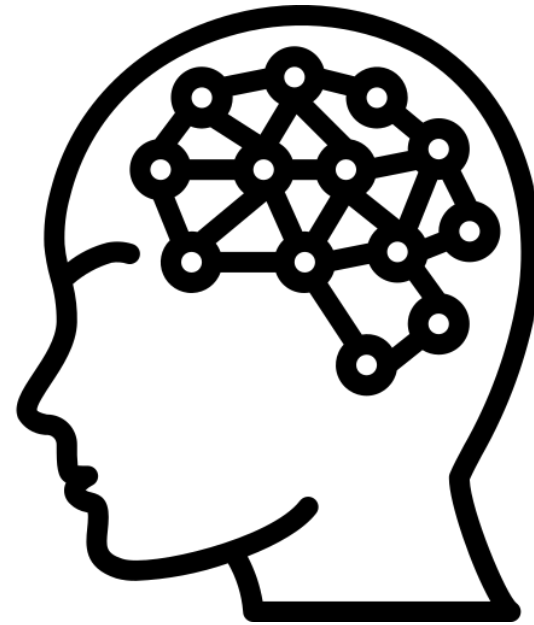


KI kan gjøre det lettere for våre brukere å benytte seg av biblioteket

Konklusjon

**Biblioteker er eksperter i
data og metadata håndtering!**

Dette kan vi hjelpe andre med!

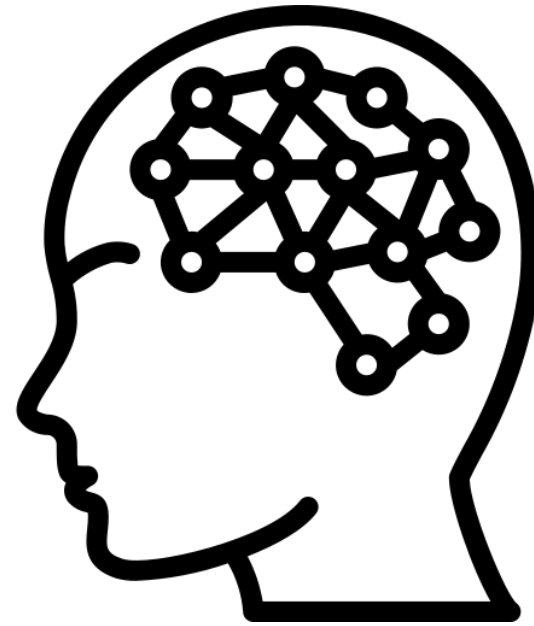


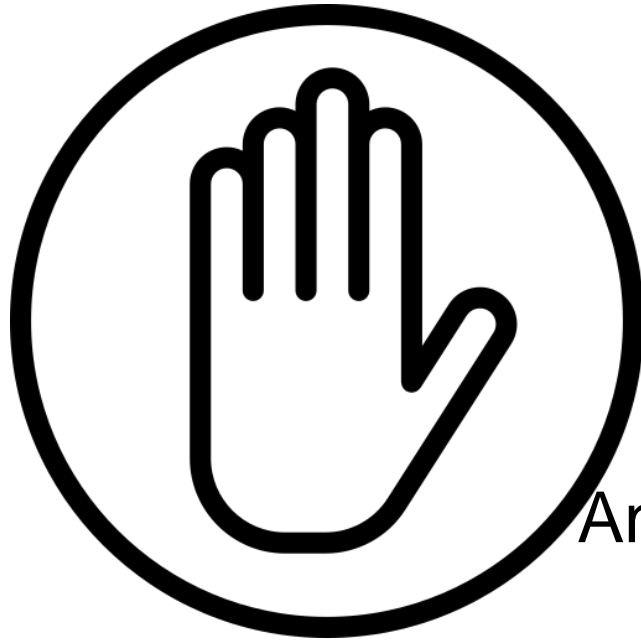
Konklusjon

Vi er blitt en kompetanse senter innen KI

Men vi kan ikke gjøre dette alene!

Vi må lage arenaer hvor vi kan dele erfaringene!





Takk!

Andrea Gasparini

Store data – store muligheter: datavisualisering av et semester



Store data – store muligheter: datavisualisering av et semester

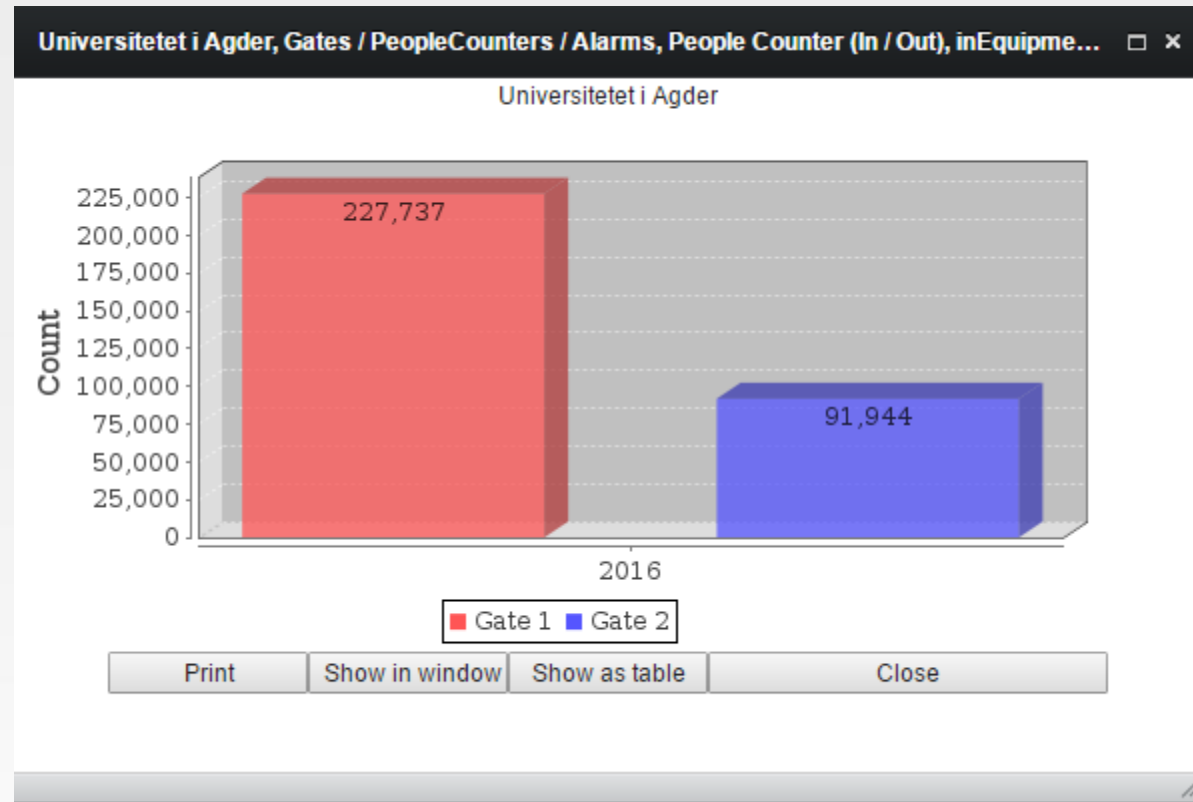
Henry Langseth Universitetsbiblioteket i Bergen
Glenn Tormod Byremo Universitetsbiblioteket i Agder

Virak-konferansen 2019, sesjon Teknologi og automatisering





Augland, T. (ukjent år)





Utgangspunkt

POPULÆRE TIDSPUNKTER lørdager ▾ ?



PLANLEGG BESØKET DITT

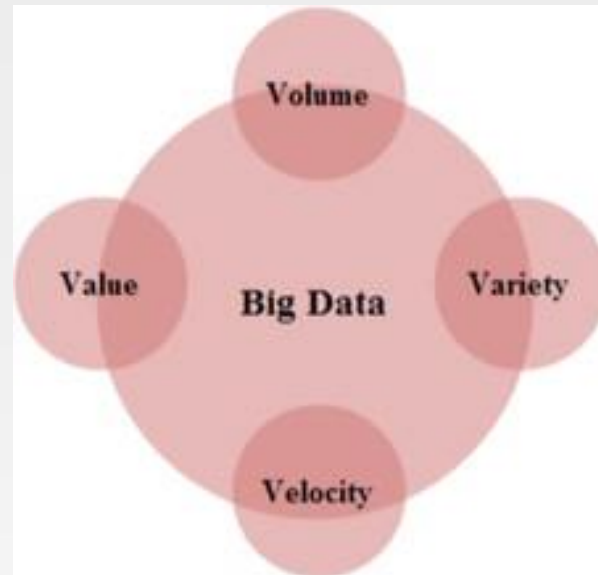


Folk tilbringer vanligvis **15 min.** her



Mer om Vinmonopolet





Hashem, I. A. T., Yaqoob, I., Anuar, N. B., Mokhtar, S., Gani, A. & Ullah Khan, S. (2015). The rise of “big data” on cloud computing: Review and open research issues. *Information Systems*, 47, 98-115. <https://doi.org/https://doi.org/10.1016/j.is.2014.07.006>





Datakilder





Datakilder

- ✓ **Primo back office (Ex Libris)**
- ✓ **Bibliotheka Smartadmin**
- ✓ **Google Analytics**

- × **Fronter**
- × **Tidsskriftdatabaser**
- × **Kildekompasset**
- × **Alma Analytics (Ex Libris)**





Deviation	Correlation	Use and position	Distribution	Change over Time	Magnitude	Part-to-whole	Spatial	Flow
<p>Emphasize variance (+/-) from a fixed reference point: Typically the reference point is zero but it can also be a target or a long-term average. Can also be used to show settlement (profit/loss/expense).</p> <p>Example FT use: Trade expectations, share change</p>	<p>Show the relationship between two or more variables. Be explicit that, unless you tell them otherwise, they must all assume the relationship you show them to be causal (i.e. one causes the other).</p> <p>Example FT use: Inflation and unemployment, income and life expectancy</p>	<p>Use when an item's position is an outlier. Use to show important items, outliers or outliers value. Don't be afraid to highlight the source of interest.</p> <p>Example FT use: Wealth, deprivation, league tables, constituency election results</p>	<p>Show values in a cluster and how often they occur. The cluster or 'bins' of a distribution can be a more subtle way of highlighting the centrality or equality in the data.</p> <p>Example FT use: Income distribution, population (age/sex) distribution, revealing inequality</p>	<p>Use whenever there is a change over time. These can be used for 'before' measurements or extended series (monthly, quarterly or annual). Choosing the correct time period is important to provide suitable context for the reader.</p> <p>Example FT use: Share price movements, economic time series, sectoral changes in a market</p>	<p>Show size comparisons. These can be subtle (just being able to use logarithmic) or obvious (used to use size differences). Use these when a 'rounded number' (for example, hundreds, millions or billions) rather than calculated rates or per cent.</p> <p>Example FT use: Connectivity projection, market capitalisation, volume in general</p>	<p>Show how a single entity can be broken down into its component elements. If the reader is interested in only in the size of the components, consider a magnitude-type chart instead.</p> <p>Example FT use: Fiscal budgets, company structures, national accounts results</p>	<p>Add in location maps only when relevant. Location is only in the reader's mind when it is relevant to their reading of the data.</p> <p>Example FT use: Population density, natural resource locations, natural disaster risk/impact, courtship areas, voter's election results</p>	<p>Show the reader volume or intensity of movement between two or more states or conditions. These might be logical sequences or geographical locations.</p> <p>Example FT use: Movement of funds, trade, migrants, loans to, information, relationship graphs</p>
<p>Diverging bar: A simple standard bar chart that can handle both negative and positive magnitude values.</p>	<p>Scatterplot: The standard way to show the relationship between two continuous variables, each of which has its own scale.</p>	<p>Ordered bar: Standard bar charts showing the rate of values measured, usually when sorted in order.</p>	<p>Histogram: The standard way to show a statistical distribution - have the gap between columns used to highlight the shape of the data.</p>	<p>Line: The standard way to show a changing time series. Most charts start at 0 on the axis.</p>	<p>Column: The standard way to compare the size of things. Start shape at 0 on the axis.</p>	<p>Stacked column/bar: A simple way of showing part-to-whole relationships but can be difficult to read with more than two components.</p>	<p>Basic choropleth (dot/matrix): The standard approach for plotting data on a map - should always be used rather than a dot or matrix because of its flexibility.</p>	<p>Sunburst: Shows changes in flows from one condition to at least one other, good for tracking the essential outcome of a complex process.</p>
<p>Diverging stacked bar: Perfect for presenting survey results with a neutral reference point (e.g. disagree/neutral/ agree).</p>	<p>Column + line headline: A good way of showing the relationship between a measure (column) and a rate (line).</p>	<p>Ordered column: See above.</p>	<p>Dot plot: A simple way of showing the change over time, but usually best with only one series of data at a time.</p>	<p>Column: Columns work well for showing change over time, but usually best with only one series of data at a time.</p>	<p>Bar: See above. Good when the data are not time series and labels have long category names.</p>	<p>Horizontal: A good way of showing the size and proportion of data at the same time - as long as the data are not too complicated.</p>	<p>Proportional symbol (circle/dot/matrix): Use for totals rather than rates - be wary that small differences in data will be hard to see.</p>	<p>Waterfall: Designed to show the sequencing of data through flow process, typically budgets. Can include +/- components.</p>
<p>Spine: Split a single value into two contrasting components (e.g. male/female).</p>	<p>Connected scatterplot: Usually used to show how the relationship between variables has changed over time.</p>	<p>Ordered proportional symbol: Use when there are big variations between values and/or highlighting the difference between data is not as important.</p>	<p>Dot strip plot: Good for showing individual values in a distribution, can be a space-efficient method of displaying data across multiple categories.</p>	<p>Column + line headline: Use when showing the relationship over time between two time series (line) and a rate (line).</p>	<p>Printed column: As per standard column but allows for multiple series. Can be used to compare data with more than 2 series.</p>	<p>Pie: A common way of showing part-to-whole data, but be aware that it's difficult to compare the size of the segments.</p>	<p>Flow map: A common way of showing movement across a map.</p>	<p>Chart: A complex but powerful diagram which can illustrate a key flow (and not where) in a matrix.</p>
<p>Bar chart of filled line: The most common way of showing the relationship between two series - be aware that it's difficult to compare the size of the segments.</p>	<p>Bubble: Like a scatterplot but adds additional detail by adding the sizes according to a third variable.</p>	<p>Dot strip plot: Distributed in order on a strip as a space-efficient method of displaying data across multiple categories.</p>	<p>Barcode plot: Like dot strip plots, but the bars are within highlighting individual values.</p>	<p>Shape: Good for showing changing data as long as the data are not too complex (more than 3 points without missing a key part of story).</p>	<p>Printed bar: See above.</p>	<p>Donut: Similar to a pie chart - but the centre can be a good way of highlighting space to include more information about the data (e.g. tag).</p>	<p>Colour map: For showing areas of equal values on a map. Can use sequential colour schemes for showing +/- values.</p>	<p>Network: Used for showing the strength and flow connections between relationships of varying types.</p>
<p>Area chart: Use with care - these are good at showing changes in trends but meaning change can be very difficult.</p>	<p>3D heatmap: A good way of showing the patterns between 2 dimensions of data, less effective at showing the difference in amounts.</p>	<p>Shape: Perfect for showing how trends have changed over time or very between categories.</p>	<p>Maplet: Summarise multiple distributions by showing the range of the data.</p>	<p>Area chart: Use with care - these are good at showing changes in trends but meaning change can be very difficult.</p>	<p>Horizontal: A good way of showing the size and proportion of data at the same time - as long as the data are not too complicated.</p>	<p>Tree map: Use for hierarchical part-to-whole relationships but are difficult to read when there are many small segments.</p>	<p>Equalised cartogram: Correcting each unit on a map to a regular and equal-sized shape - good for representing varying regions with equal values.</p>	
<p>Line chart: Usually used to show how the relationship between variables has changed over time.</p>	<p>Line chart: Usually used to show how the relationship between variables has changed over time.</p>	<p>Line chart: Usually used to show how the relationship between variables has changed over time.</p>	<p>Line chart: Usually used to show how the relationship between variables has changed over time.</p>	<p>Line chart: Usually used to show how the relationship between variables has changed over time.</p>	<p>Line chart: Usually used to show how the relationship between variables has changed over time.</p>	<p>Line chart: Usually used to show how the relationship between variables has changed over time.</p>	<p>Line chart: Usually used to show how the relationship between variables has changed over time.</p>	
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Visual vocabulary

Designing with data

There are so many ways to visualise data - how do we know which one to pick? Use the categories across the top to decide which data relationship is most important in your story, then look at the different types of chart within the category to form some initial ideas about what might work best. This list is not meant to be exhaustive, nor a wizard, but is a useful starting point for making informative and meaningful data visualisations.

FT graphic: Alex Smith, Chris Campbell, Alex Smith, Lisa Murray, Graham Smith, Alex Smith, Lisa Murray, Graham Smith, Alex Smith, Lisa Murray, Graham Smith



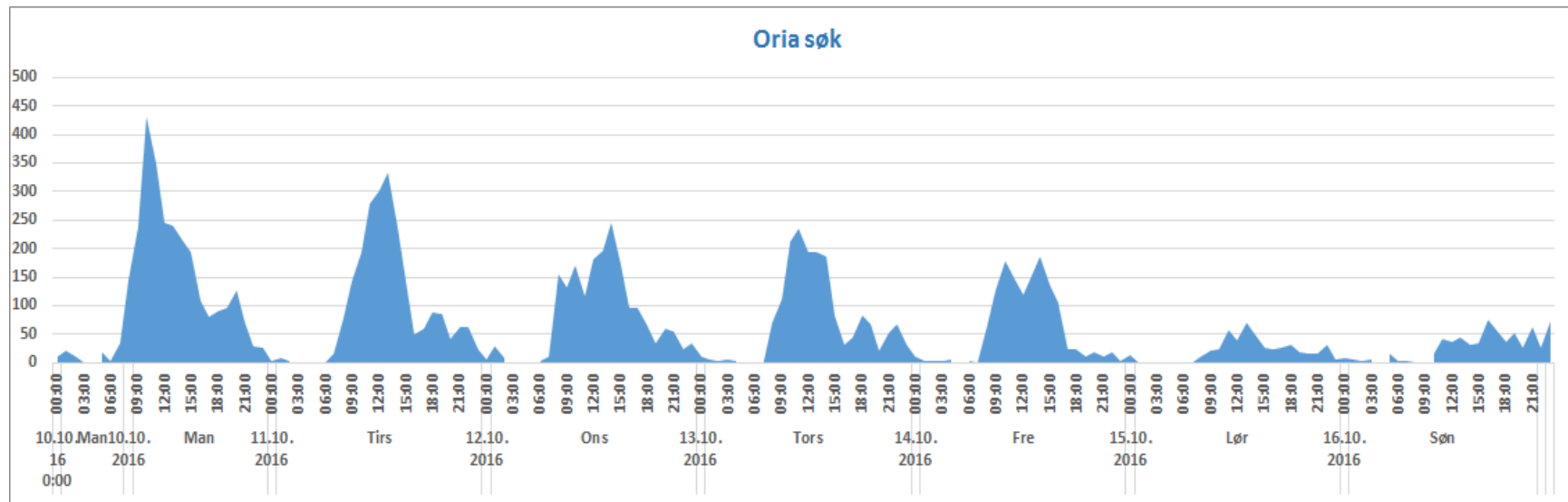


Augland, T. (ukjent år)



Resultat







Oria-søk	Man	Tir	Ons	Tor	Fre	Lør	Søn
00:00	11	4	6	11	11	13	7
01:00	20	8	28	5	3	1	5
02:00	11	3	9	3	3	0	3
03:00	1	0	0	5	2	1	5
04:00	0	0	3	2	5	0	0
05:00	18	1	0	0	0	5	15
06:00	2	1	2	0	2	0	2
07:00	33	15	11	2	1	1	2
08:00	144	78	155	70	66	11	1
09:00	239	142	131	112	127	22	0
10:00	432	195	170	213	178	25	17
11:00	349	279	116	235	150	58	41
12:00	245	303	182	194	120	40	37
13:00	241	333	197	193	152	70	44
14:00	214	238	246	185	186	49	31
15:00	195	143	170	84	138	26	34
16:00	110	49	96	31	106	23	75
17:00	81	61	95	45	24	26	58
18:00	90	87	65	83	23	32	36
19:00	95	86	35	67	10	19	53
20:00	128	43	59	22	18	16	26
21:00	71	63	54	53	10	15	63
22:00	29	63	25	67	18	32	27
23:00	26	25	34	32	2	5	74
Total	2742	2205	1843	1688	1331	470	616





**Besøk
UiA
nettsider**

	Man	Tirs	Ons	Tors	Fre	Lør	Sønd
00:00	692	557	697	606	668	413	495
01:00	352	296	384	280	296	353	268
02:00	196	150	221	98	141	136	273
03:00	93	96	91	84	96	121	59
04:00	71	62	94	100	126	80	123
05:00	168	87	106	131	152	54	54
06:00	310	251	203	231	180	72	96
07:00	807	918	699	681	722	292	190
08:00	2948	2830	2766	2368	2232	399	188
09:00	4687	3911	3309	3596	2562	447	528
10:00	4528	4390	3630	3693	3015	755	703
11:00	3973	3707	3326	3451	2660	833	1120
12:00	4428	4040	3748	3391	2926	753	1255
13:00	3673	3930	3453	3451	2853	859	1507
14:00	3445	3424	3184	2999	2223	714	1573
15:00	2996	2771	2505	2364	1640	774	1180
16:00	2229	1960	2068	1502	1059	751	1381
17:00	2276	2008	1595	1339	1109	655	1399
18:00	1430	1750	1477	1405	892	604	1520
19:00	1943	1765	1710	1648	754	754	1499
20:00	1780	1737	1644	1394	965	832	1823
21:00	2027	1848	1658	1563	995	708	1838
22:00	1816	1750	1520	1283	775	689	1472
23:00	1354	1019	1185	1179	618	599	1261
Total	47530	45257	41273	38837	29659	12647	21805





Registrerte **besøk** registrert medio august – medio desember (gjennomsnitt timenivå)

Klokkeslett	Man	Tirs	Ons	Tors	Fre	Lør
8-	143	125	145	148	122	
9-	140	173	143	131	120	28
10-	184	228	200	200	122	20
11-	220	277	267	207	147	15
12-	221	260	229	223	132	19
13-	180	200	197	160	137	26
14-	177	196	177	174	176	21
15-	120	146	128	111	87	3
16-	90	86	62	84	32	
17-	55	55	28	40	33	
18-	33	30	36	18		
19-	15	19	74	21		
Sum	1579	1797	1687	1517	1108	132





Utlån på automat medio august – medio desember (gjennomsnitt timenivå)

Klokkeslett	Man	Tirs	Ons	Tors	Fre	Lør	Søn
8-	7	7	4	5	6		
9-	8	6	10	8	9	1	
10-	12	11	10	14	11	4	1
11-	13	15	13	15	16	3	1
12-	17	21	17	13	12	4	4
13-	15	16	17	12	18	4	1
14-	18	19	15	12	16	8	2
15-	16	14	16	16	12	6	1
16-	10	9	8	10	9	4	2
17-	7	6	6	9	5	7	5
18-	3	2	2	4	1	2	
19-	5	6	5	5	6		
Sum	132	131	123	123	120	44	17





Metodiske begrensinger



Created by misirlou
from Noun Project



Praktisk anvendelse



Created by Tawny Whatmore
from Noun Project

- ? Når bør vi øke bemanningen i skrankene
- ? Hva er konsekvensen av at utlånsautomaten er i ustand akkurat denne uken
- ? Kan vi ha ubemannet skranke før kl 11
- ? Er det behov for døgnåpent bibliotek
- ? Hva er konsekvensen av at Oria er ustabil
- ? Hvilket trykk kan vi forvente neste uke
- ? Når bør kurs i litteratursøking være avviklet

Obsvarelse 10.-15.mars [eksempel]

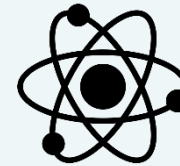


7400 besøk (+20%)
Tirsdag form. blir mest travel



Created by AllTypes from Noun Project

2300 utlån (+15%)
Mandag mest travel



13000 søk i Oria(+10%)
Mandag søkes det mest



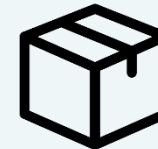
Created by A.M.A.N. from Noun Project

16 000 nedlastinger
(+25%)



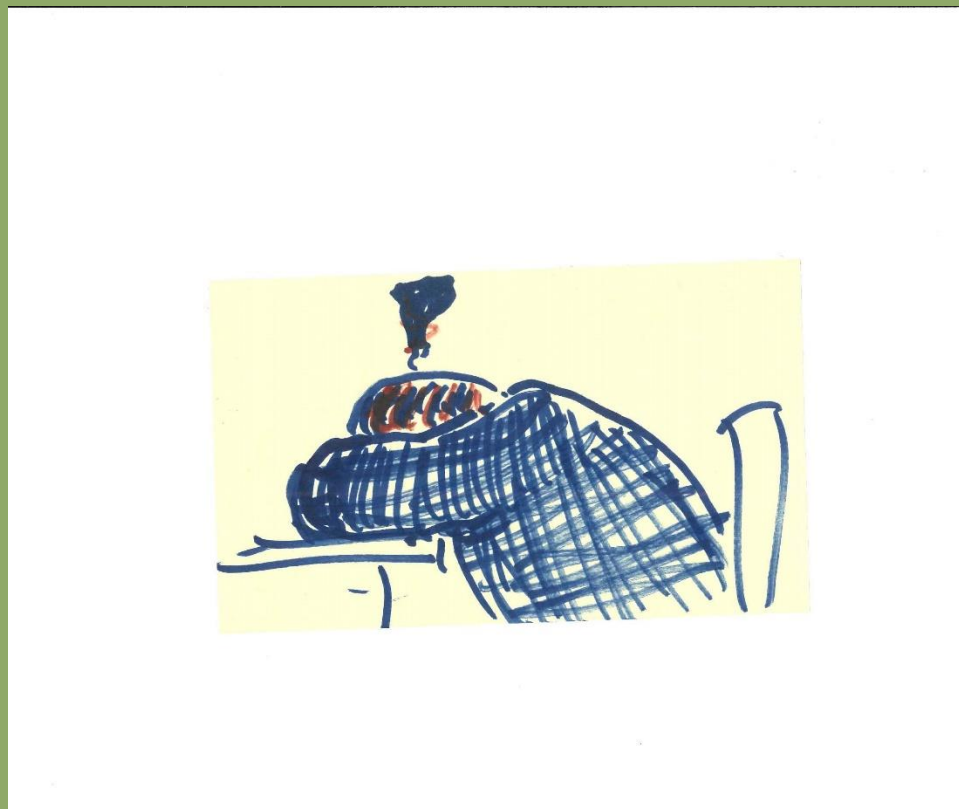
Created by Daniel Falk from Noun Project

750 retur (-10%)
Torsdag mest travel



Created by shashank singh from Noun Project

230 (+13%)
Fjernlånsbestillinger
Tirsdag mest travel



Fortsatt Augland, T. (ukjent år)



Alle ikon hentet fra the Noun Project

 henry.langseth@uib.no





UNIVERSITETET I BERGEN

Visuell navigasjon gjennom et nettverk av emneord

VIRAK, Stavanger 2019



VISUELL NAVIGASJON GJENNOM ET NETTVERK AV EMNEORD

Kyrre Traavik Låberg
Tone Gadmar
Line Nybakk Akerholt



UiO : Universitetsbiblioteket i Oslo
Realfagsbiblioteket

OVERSIKT

Innledning

Bakgrunn

Konsept og prototype

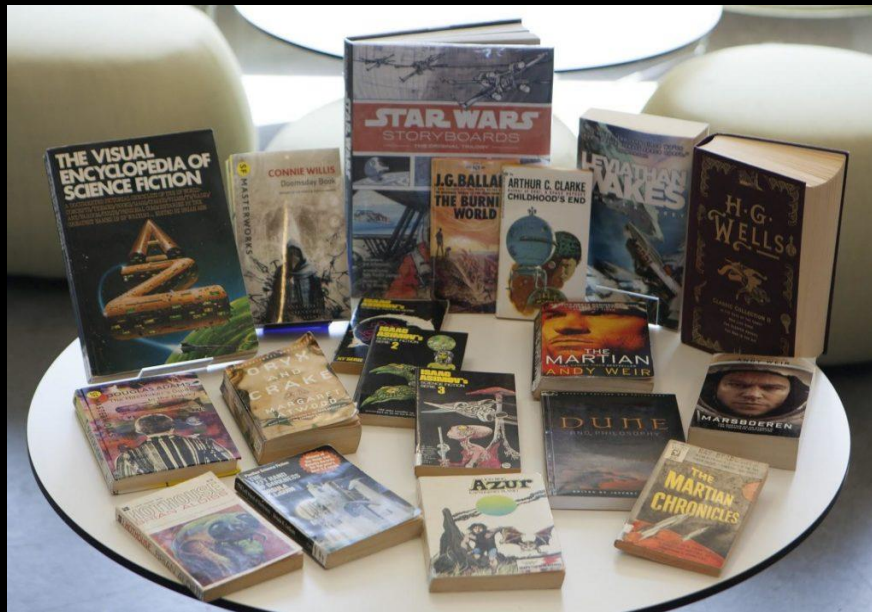
Veien videre

Spørsmål?

INNLEDNING

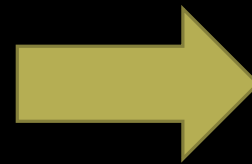
Fra samling til berørings skjerm

Materiale



Metadata

Emneord
Katalog
Eksterne kilder



Visualisering og navigering

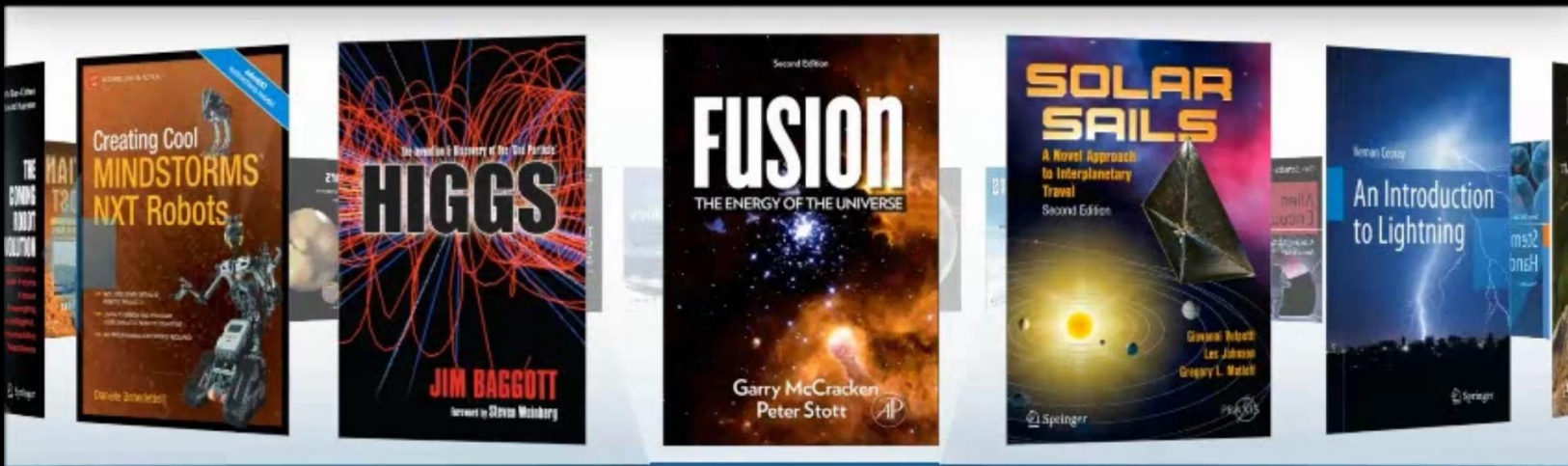


BAKGRUNN



En stor science
fiction-samling på
10 000 bøker

BAKGRUNN



Fusion : The Energy of the Universe

Garry McCracken and Peter Stott

Fusion: The Energy of the Universe, is an essential reference providing basic principles of fusion energy from its history to the issues and realities progressing from the present day energy crisis. The book provides detailed developments and applications for researchers entering the field of fusion energy research. This second edition includes the latest results from the National Ignition Facility at the Lawrence Radiation Laboratory at Livermore, CA, and the progress on the International Thermonuclear Experimental Reactor (ITER) tokamak programme at Cadarache, France. Comprehensive coverage- basic principles, detailed developments and practical applications. Wide accessibility, but with sufficient detail to keep the technical reader engaged.

Erfaring med å utvikle ulike app'er for å interagere med samlingene våre

BAKGRUNN

Et berøringsbord og en berørings skjerm



BAKGRUNN

Emnesøk : Realfagstermer

Begynner med **Termodynamikk**

Vil du ha flere tr

Termodynamikk

Termodynamikk : Ikke-likevekt

Anxiety and the equation : understanding Boltzmann's Entropy (The MIT Press 2018)
Johnson, Eric
Trykt utgave ved UiO.
Entropi Termodynamikk Biografier
530.092

Modern thermodynamics for chemists and biochemists (Oxford University Press, Second edition. 2018)
Sherwood, Dennis
Trykt utgave ved UiB.
Termodynamikk
541.369024572

The origin of natural order : an axiomatic theory of biology (World Scientific 2018)
Zhao, Qinyi
Trykt utgave ved UiO.
Termodynamikk Biofysikk Proteinstrukturer Proteinfolding
571.4

Thermodynamics : fundamentals and engineering applications (Cambridge University Press 2018)
Reynolds, William C.
Trykt utgave ved UiB.
Ingeniørmatematikk Termodynamikk Lærebøker
536.7

The physics of energy (Cambridge University Press 2018)
Jaffe, Robert L.
Trykt kopi ved UiO og 2 andre bibliotek.
Fysikk Energi Energioverføring Termodynamikk Lærebøker
531.6 530

Hydration thermodynamics of oxides : effects of defect associations (University of Oslo, Faculty of Mathematics and Natural Sciences, Department of Chemistry 2017)

Termodynamikk

Brukt for: Klassisk termodynamikk • Termodynamiske data • Varmelære

English: Thermodynamics • Classical thermodynamics
Nynorsk: Termodynamikk • Klassisk termodynamikk • Termodynamiske data • Varmelære

Underordnet:

- Termodynamikk : Historie
- Termodynamikk : Læreplaner
- Termodynamikk : Håndbøker
- Termodynamikk : Oppslagsverk
- Termodynamikk : Ikke-likevekt
- Termodynamikk : Tabeller
- Termodynamikk : Oppgavesamlinger
- Termodynamikk : Ordbøker
- Termodynamikk : Lærebøker

Meld fra om problem

Termodynamikk er en gren av fysikken som ble utviklet på 1800-tallet i forbindelse med at varmekraftmaskinen gjorde det mulig å omdanne høy temperatur til mekanisk arbeid. Det ble utført eksperimenter og utviklet teoretiske begreper for å beskrive disse prosessene kvantitativt. Blant de mest kjente fysikerne som bidro til termodynamikken finner vi Carnot, Boltzmann og Joule.

Artikkelforslag » Les mer på Wikipedia (nb) » Wikidata

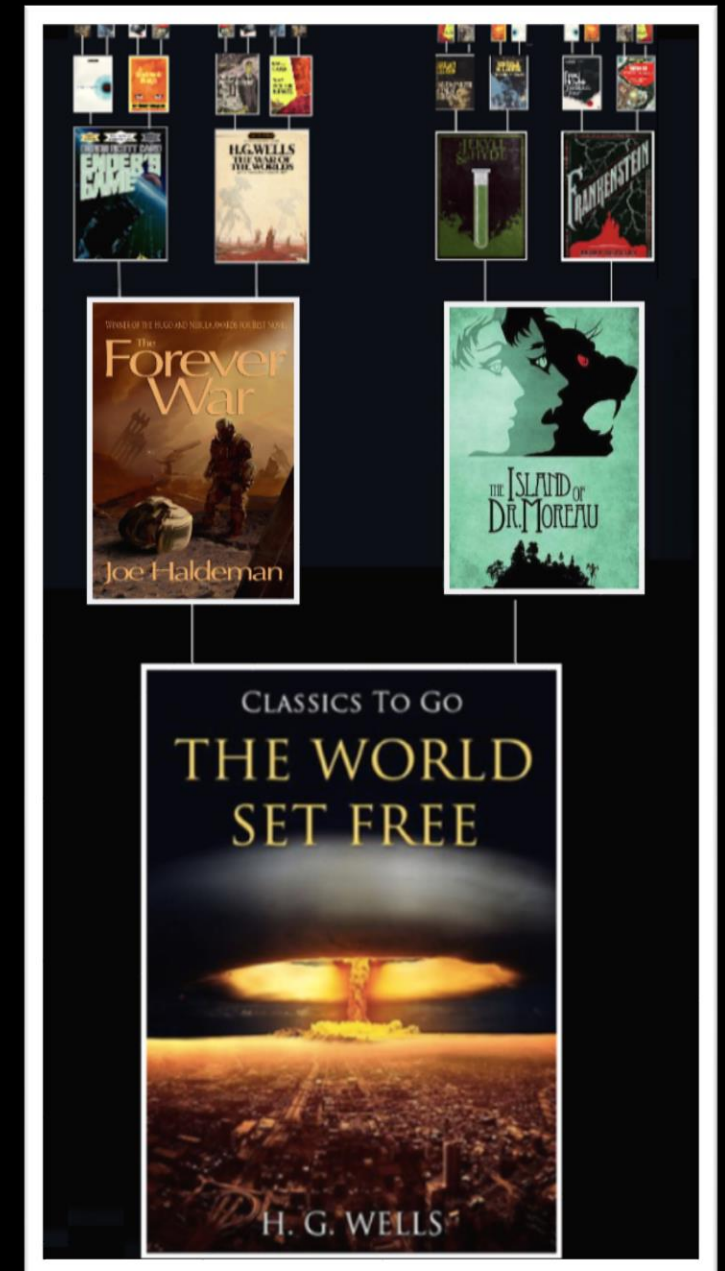
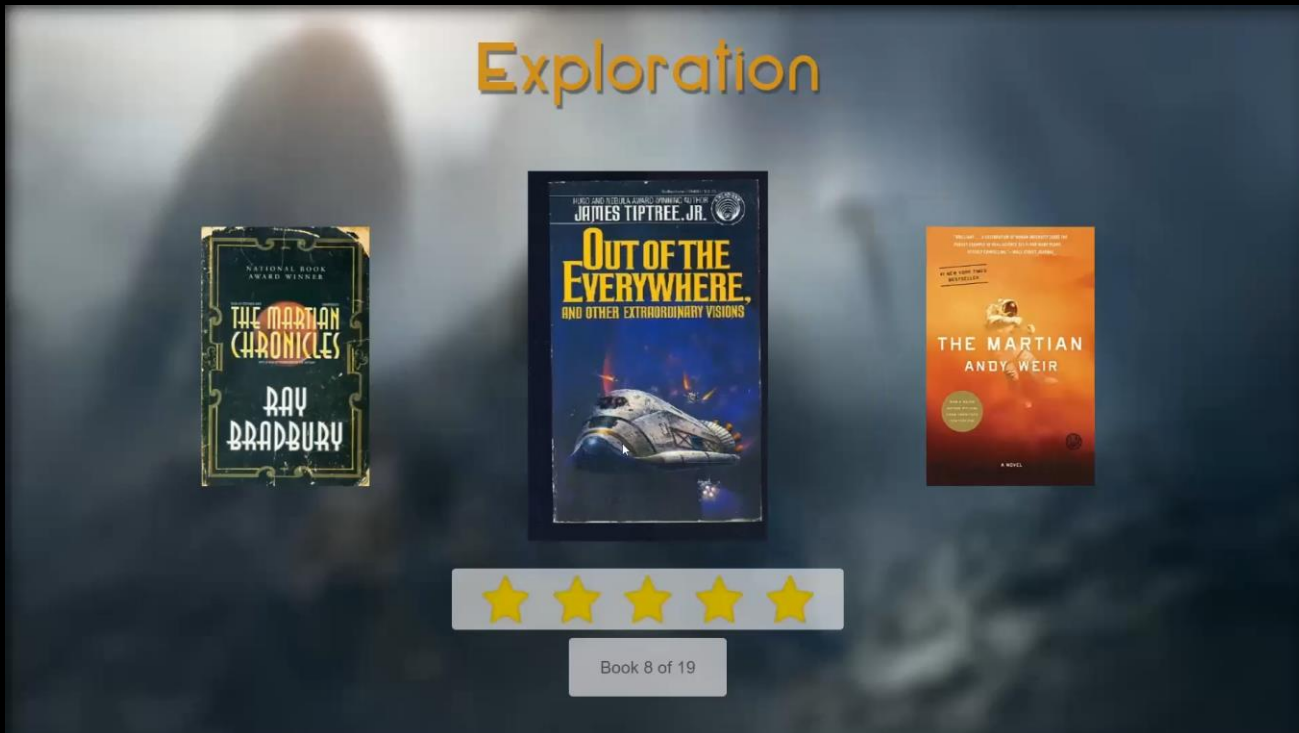
Related concepts in other vocabularies:

- Equivalent concept 536.7 Termodynamikk i Tekord
- Equivalent concept 536.7 Termodynamikk i Norsk WebDewey
- Related concept 541.369 Termodynamikk i Norsk WebDewey
- Related concept 551.522 Termodynamikk i Norsk WebDewey
- Related concept 572.436 Termodynamikk i Norsk WebDewey
- Related concept 621.4021 Termodynamikk i Norsk

Lokalt emneordssystem

KONSEPT OG PROTOTYPE

Ulike visualiseringstyper. Kan de slås sammen?



KONSEPT OG PROTOTYPE

Slik at vi kan få dette?

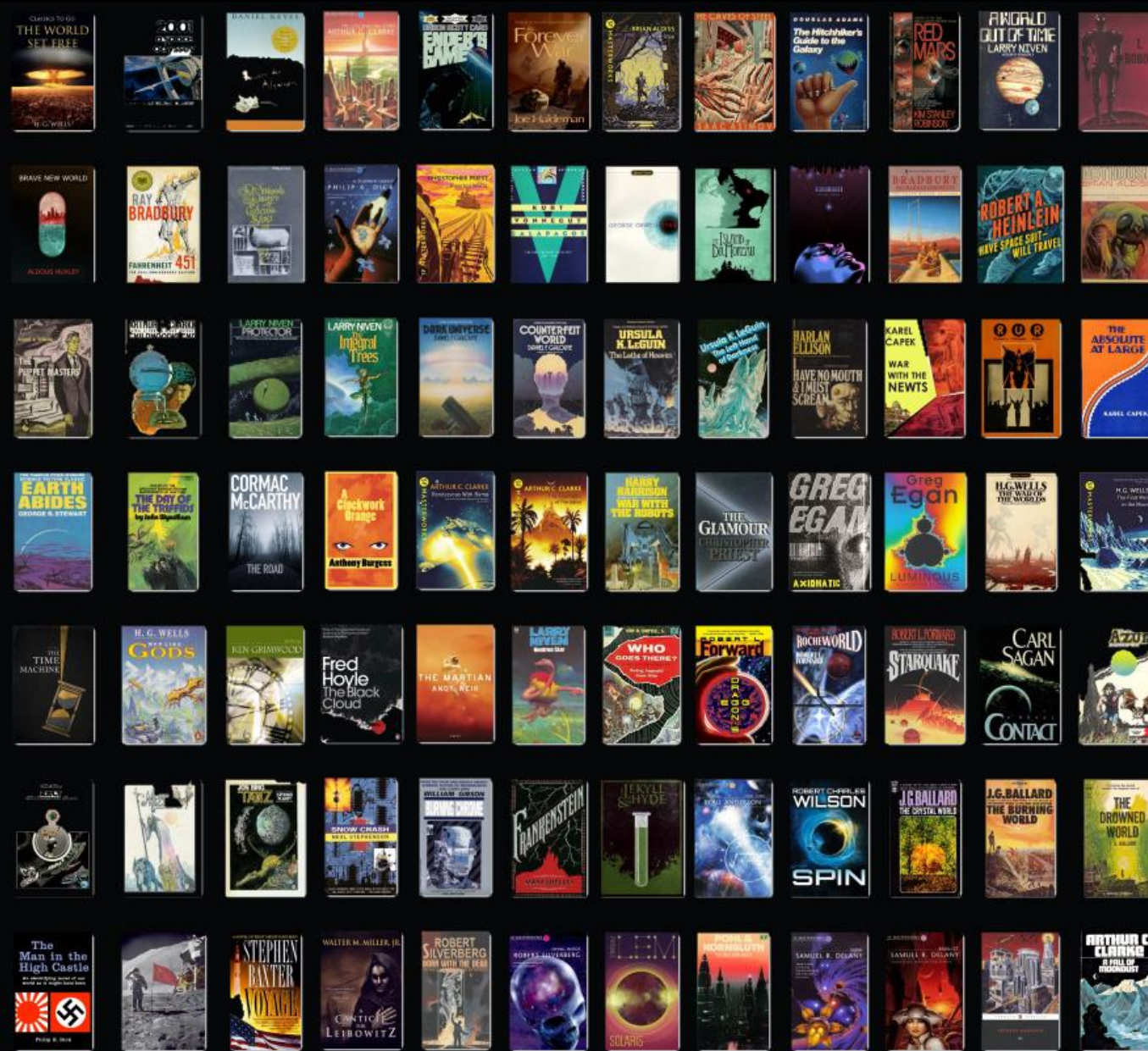


Og dette?



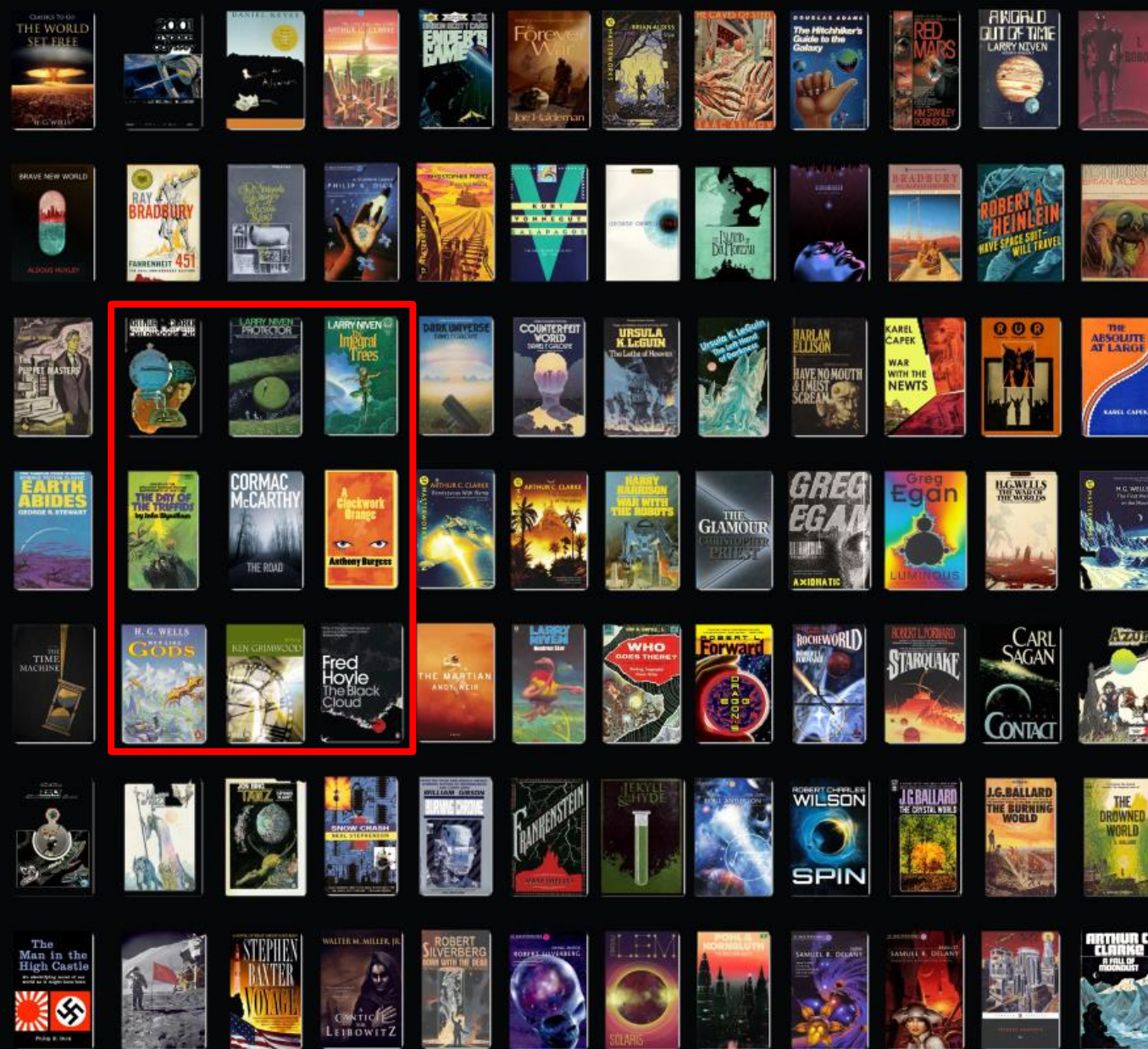
KONSEPT OG PROTOTYPE

Prototypen inneholder rundt 80 bøker,
men den kan (og bør) inneholde mange flere



KONSEPT OG PROTOTYPE

Brukeren ser bare 9 bøker om gangen



KONSEPT OG PROTOTYPE

Brukeren ser bare 9 bøker om gangen

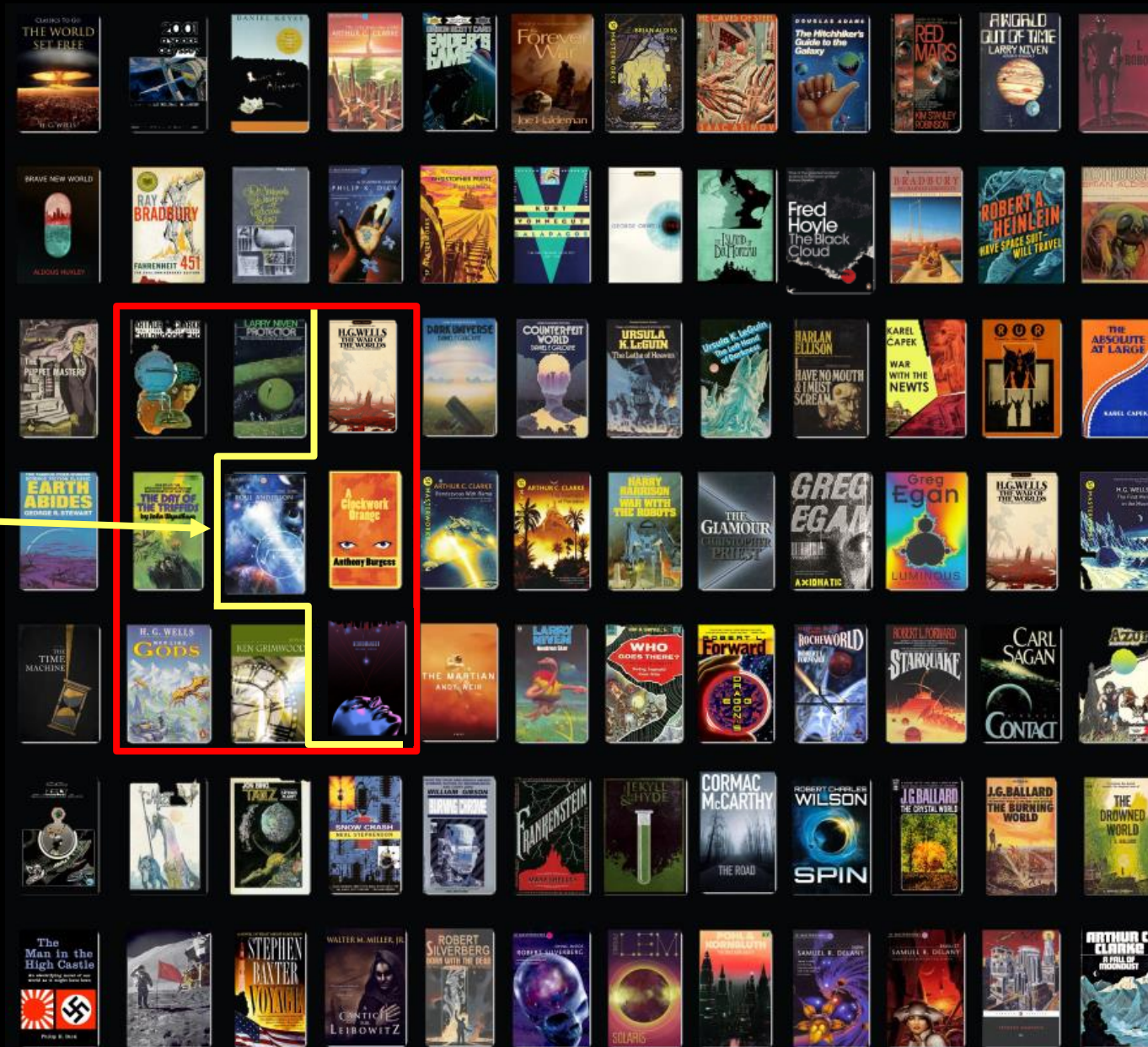
Og de færreste bøkene brukeren er interessert i vil være synlige om gangen

De er mest sannsynligvis spredd tilfeldig i samlingen



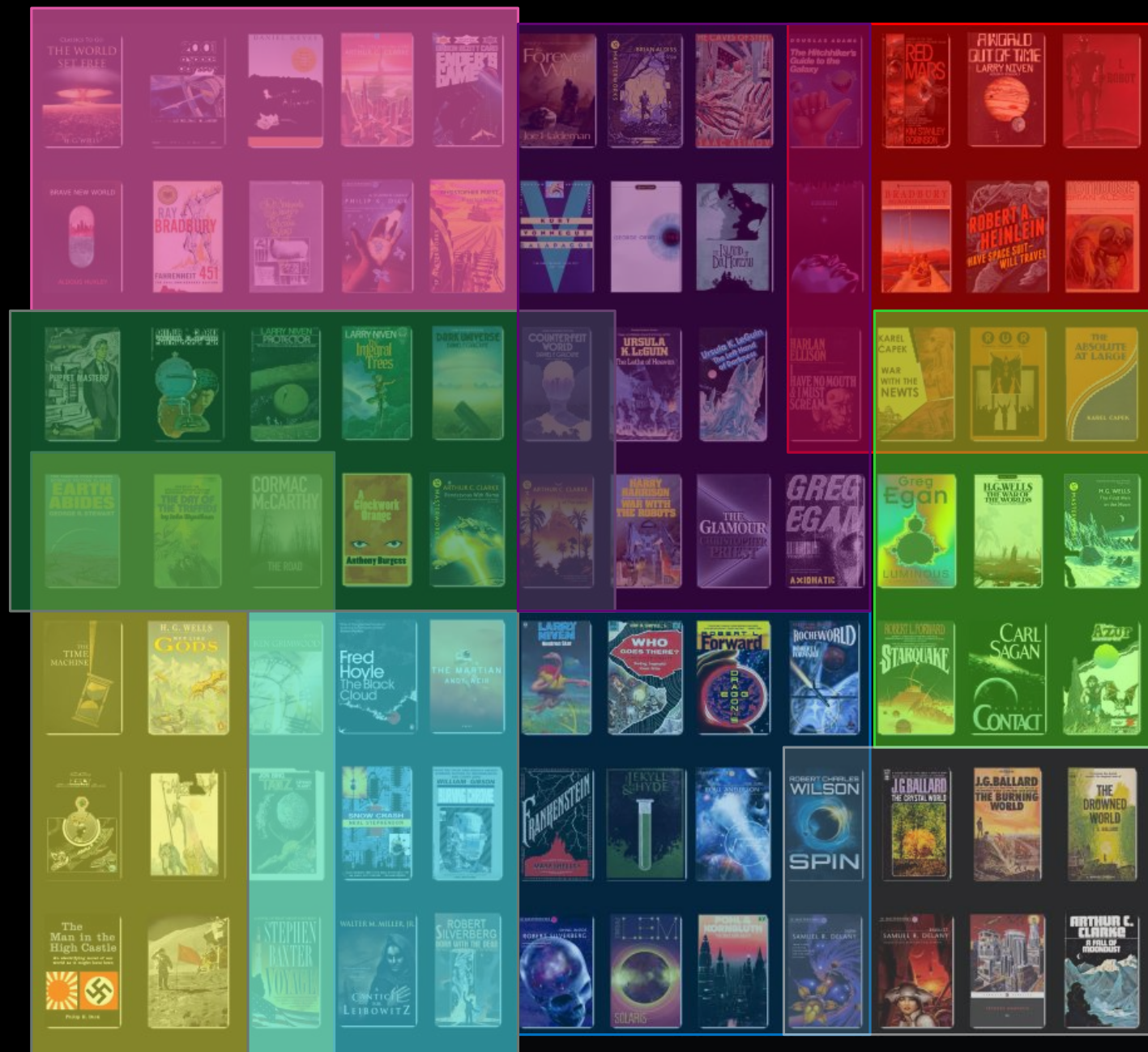
KONSEPT OG PROTOTYPE

Hvis disse kunne samles hadde det vært behjelpelig for brukeren!



KONSEPT OG PROTOTYPE

Hvis bøkene kan grupperes på en hensiktsmessig måte, kan brukeren lettere finne de som er av interesse



KONSEPT OG PROTOTYPE

Og dersom brukeren kan raskt vises i ønsket retning på en tydelig måte, vil det unngå brukes for mye tid i de «uinteressante områdene»

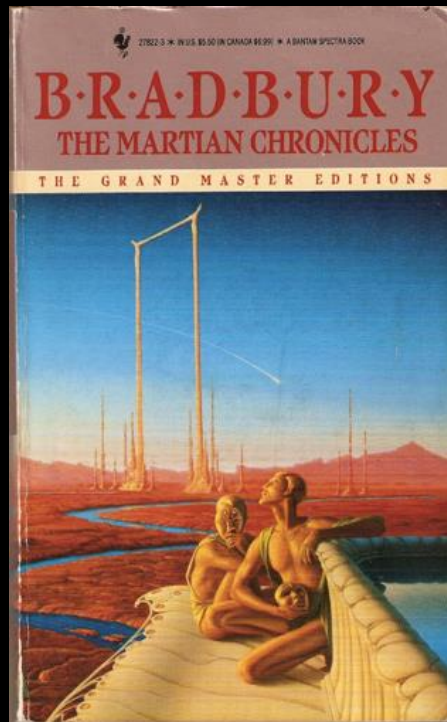


<http://ub-www01.uio.no/prosjekter/virak2019scifi/>



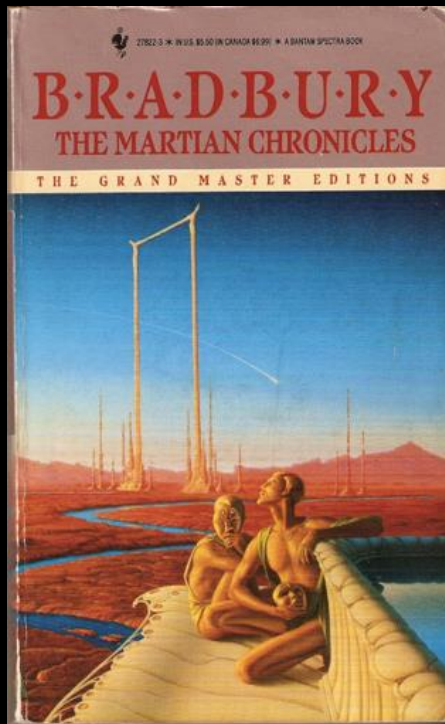
KONSEPT OG PROTOTYPE

Hvordan bygges dette lappeteppet opp?



KONSEPT OG PROTOTYPE

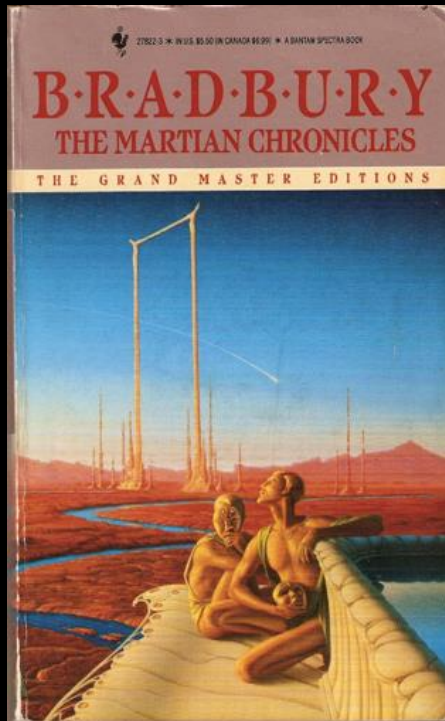
Hvordan bygges dette lappeteppet opp?



- Mars

KONSEPT OG PROTOTYPE

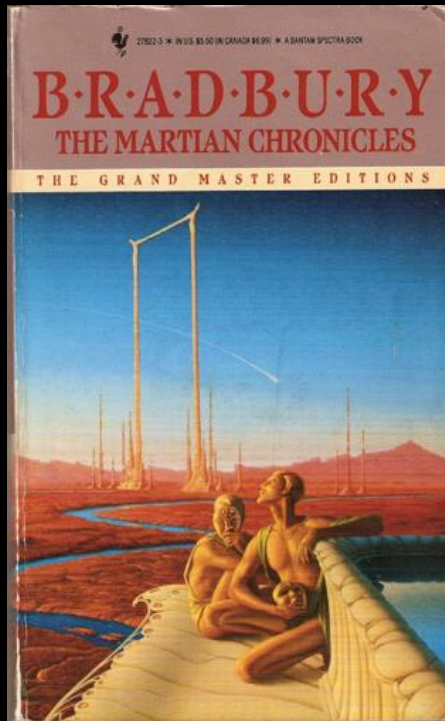
Hvordan bygges dette lappeteppet opp?



- Mars
- Extraterrestrial Civilizations

KONSEPT OG PROTOTYPE

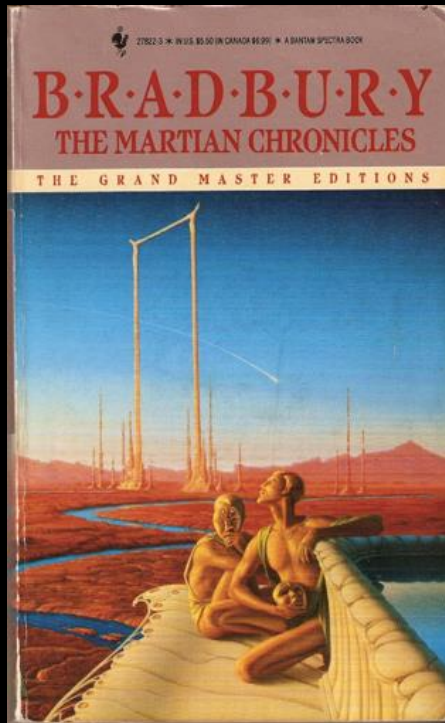
Hvordan bygges dette lappeteppet opp?



- Mars
- Extraterrestrial Civilizations
- Extraterrestrial Worlds

KONSEPT OG PROTOTYPE

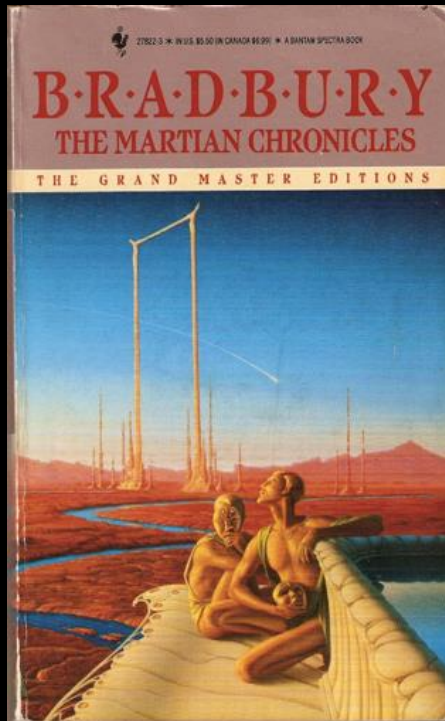
Hvordan bygges dette lappeteppet opp?



- Mars
- Extraterrestrial Civilizations
- Extraterrestrial Worlds
- Extraterrestrial Contact

KONSEPT OG PROTOTYPE

Hvordan bygges dette lappeteppet opp?



- Mars
- Extraterrestrial Civilizations
- Extraterrestrial Worlds
- Extraterrestrial Contact



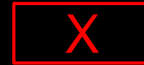
- Mars
- Future Engineering
- Mathematics

KONSEPT OG PROTOTYPE

Hvordan bygges dette lappeteppet opp?



- Mars
- Future Engineering
- Mathematics



KONSEPT OG PROTOTYPE

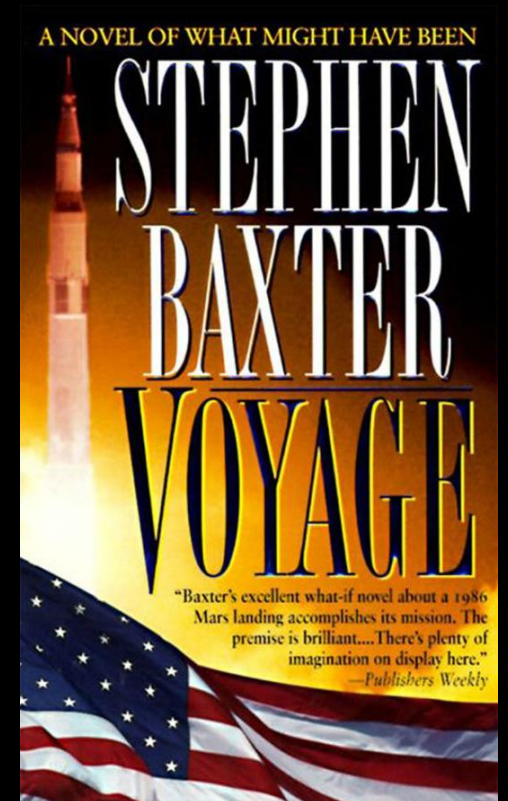
Hvordan bygges dette lappeteppet opp?



- Mars
- Future Engineering
- Mathematics

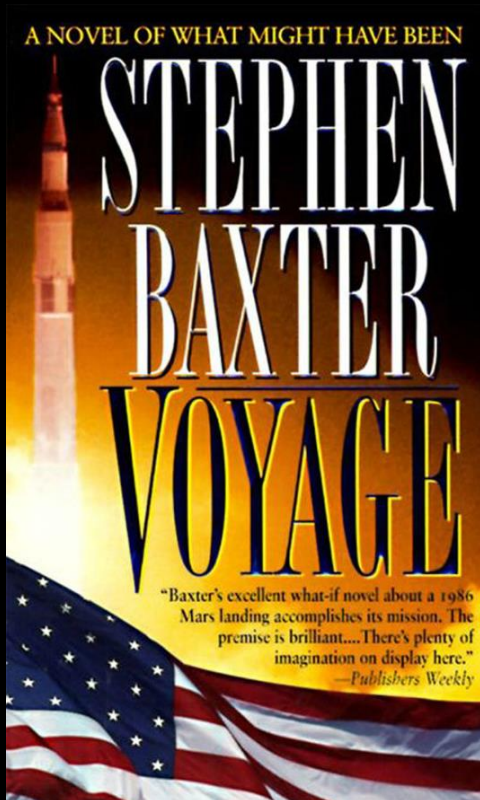


- Alternate Reality
- Mars



KONSEPT OG PROTOTYPE

Hvordan bygges dette lappeteppet opp?



- Alternate Reality
- Mars



The Man in the High Castle

An electrifying novel of our world as it might have been

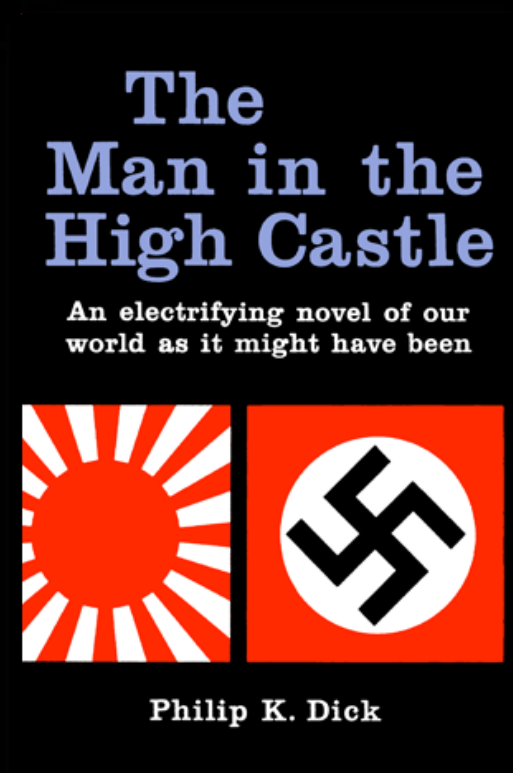


Philip K. Dick

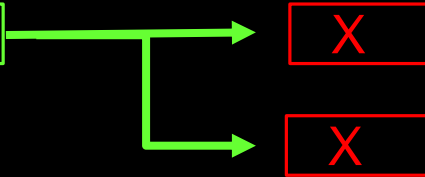
- Alternate Reality
- Dystopia

KONSEPT OG PROTOTYPE

Hvordan bygges dette lappeteppet opp?

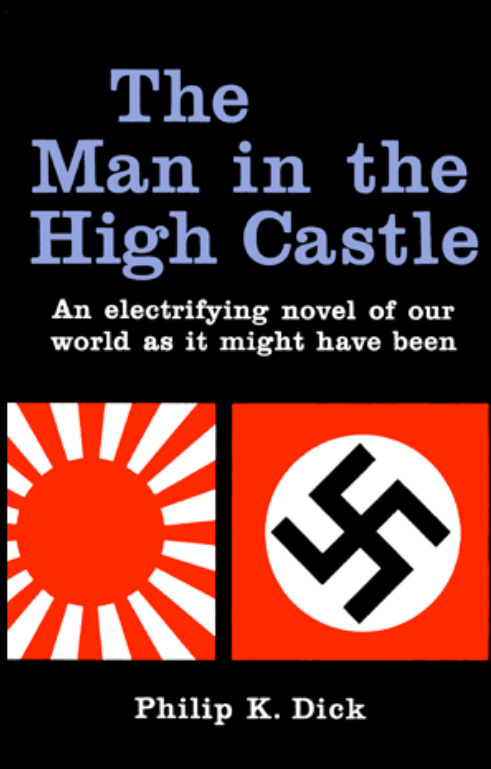


- Alternate Reality
- Dystopia

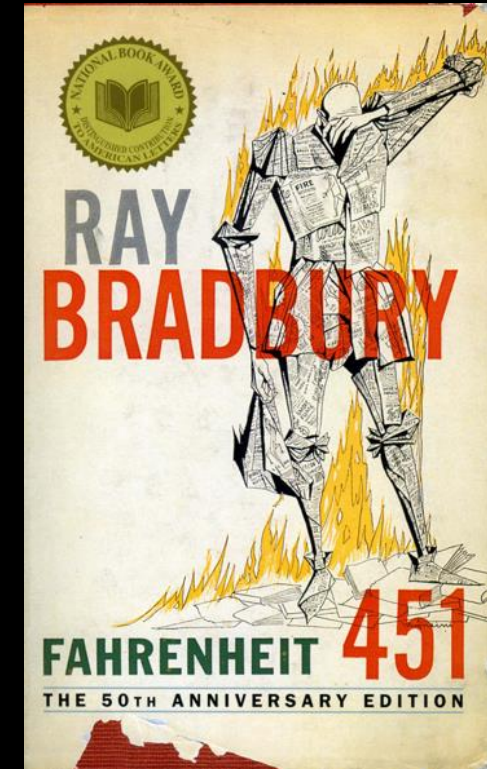


KONSEPT OG PROTOTYPE

Hvordan bygges dette lappeteppet opp?

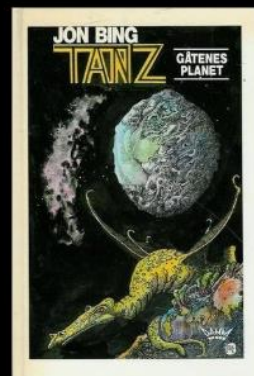
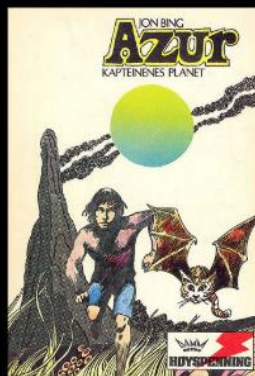
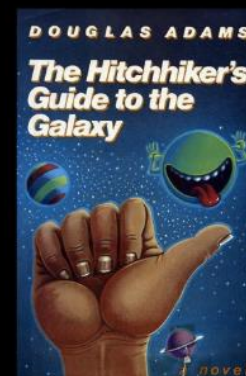
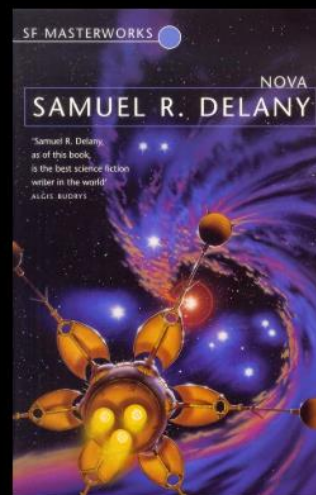
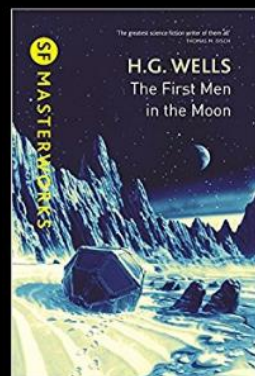
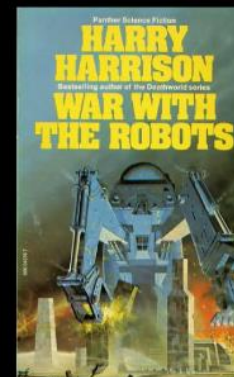
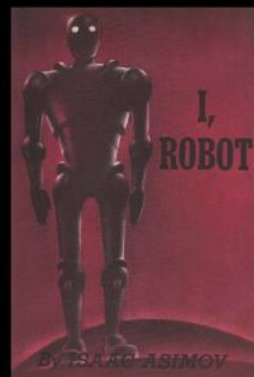
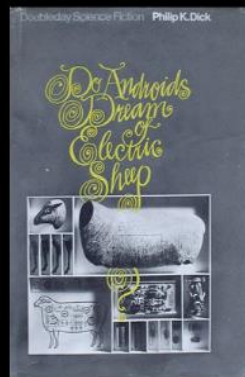


- Alternate Reality
- Dystopia
- Dystopia
- Surveillance
- Future Societies



KONSEPT OG PROTOTYPE

Horisontal retning
representerer tettere
koblinger enn
vertikale.



KONSEPT OG PROTOTYPE

Hvor kommer metadataene fra?

De settes inn i et Google regneark fra to ulike kilder:

-Alma (katalogen vår):

-Tittel, år, forfatter, etc

-Hylleplassering

-Utlånsstatus

Google Books API:

-Omslagsbeskrivelse

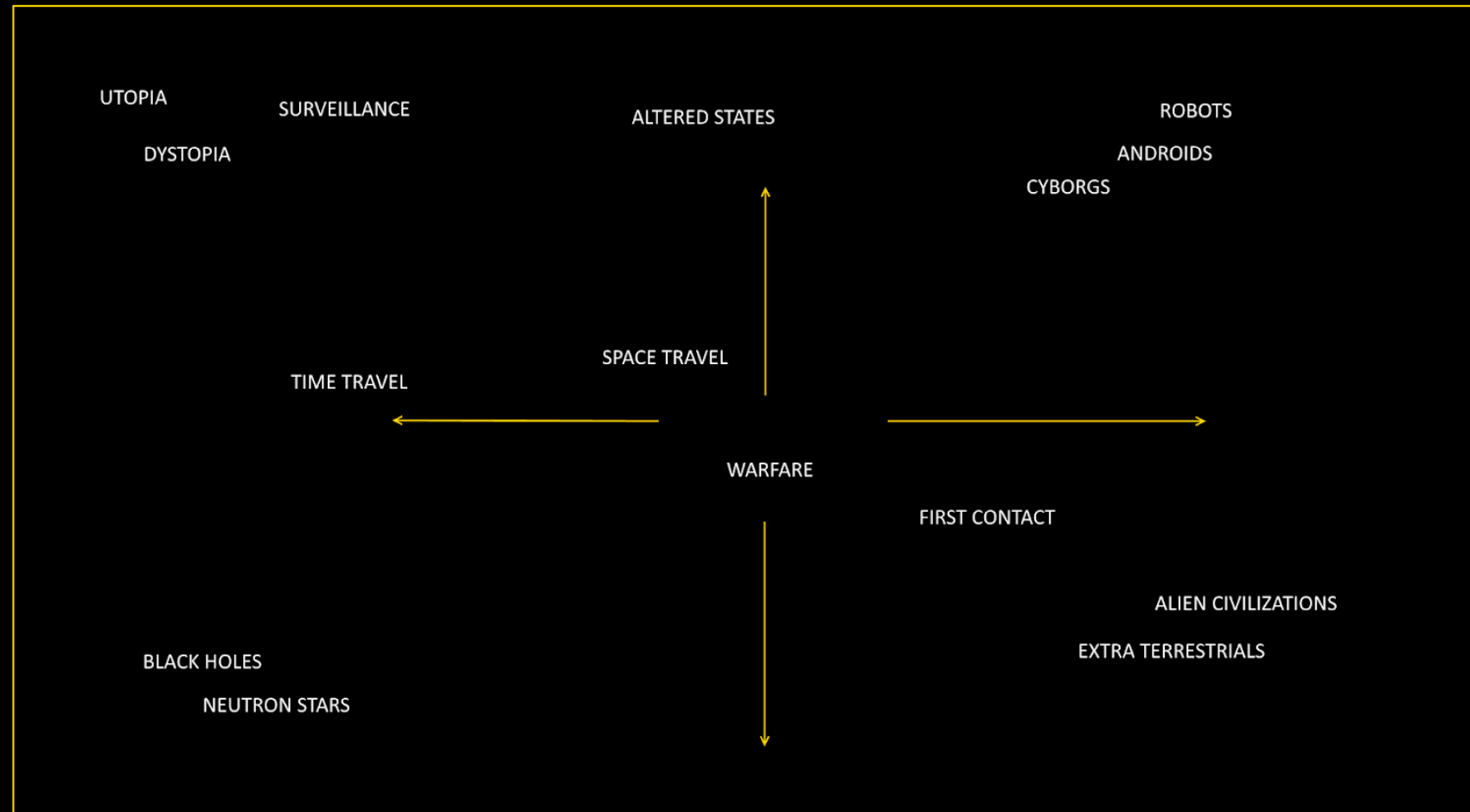
-Forsidebilde

<https://docs.google.com/spreadsheets/d/1u8YNjdFuFwePQgpz6Ee8YNNRYsT9HwkFj6G27wgg2Hs4/edit#gid=1933596397>

VEIEN VIDERE

Bygge opp et mer nyansert nettverk – et jevnere og mindre lappete lappeteppe!

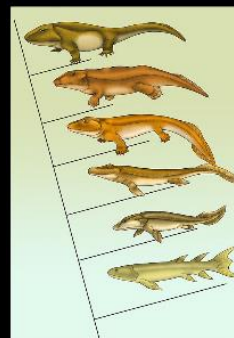
Dette vil både skje med fler emneord og fler bøker - og med bedre algoritmer enn de enkle som foreligger nå.



VEIEN VIDERE

Legge til fasetter slik at man kan avgrense på emneord, forfatter, år o.l.

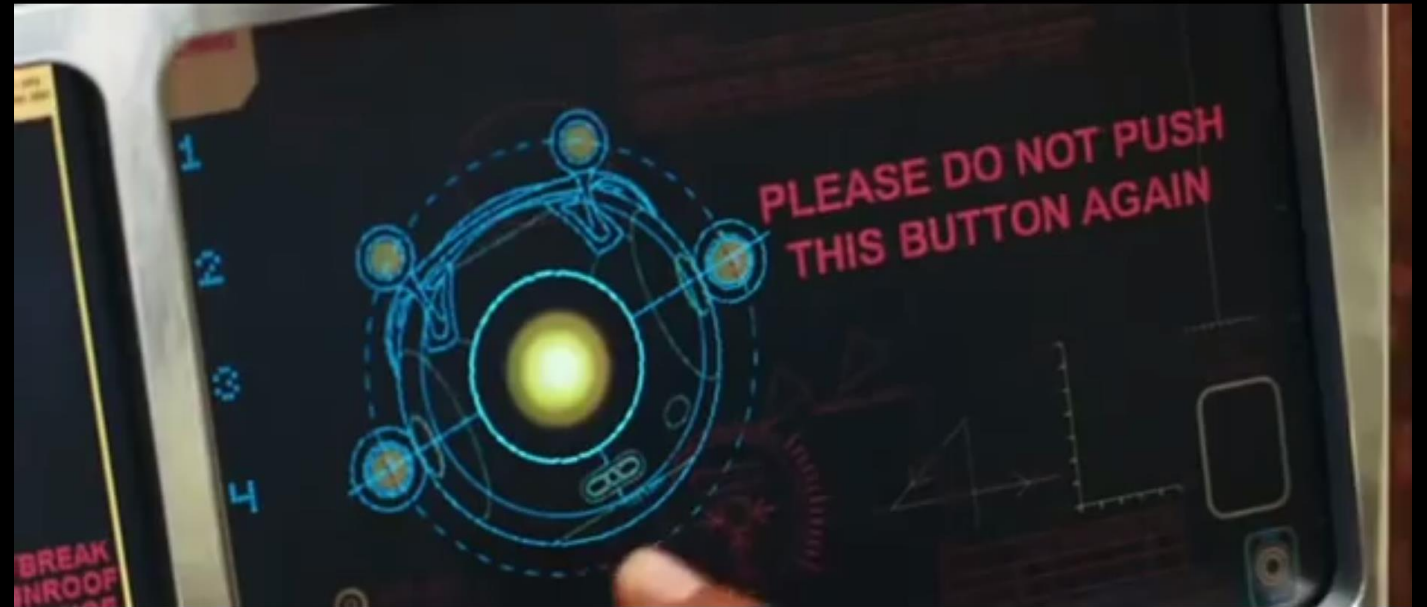
Og at man kan kunne skifte mellom forsidevisning og emneordvisning.



VEIEN VIDERE

Utvikle et emneordsystem for scifi-termer basert på vårt realfagstermsystem.

Bruke «crowdsourcing» til å få brukerforslag på emneord og bygge opp et nettsamfunn rundt samlingen



TAKK FOR OSS!

Spørsmål?



Konferansen for universitets-og høyskolebibliotek

Stavanger 13.-14. juni 2019

KI 15:40 - Digitale Klipp

Tjodhallen