

Repository aggregation : CORE as essential open scholarly infrastructure & service platform

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This deck available: <https://strathprints.strath.ac.uk/80959/>

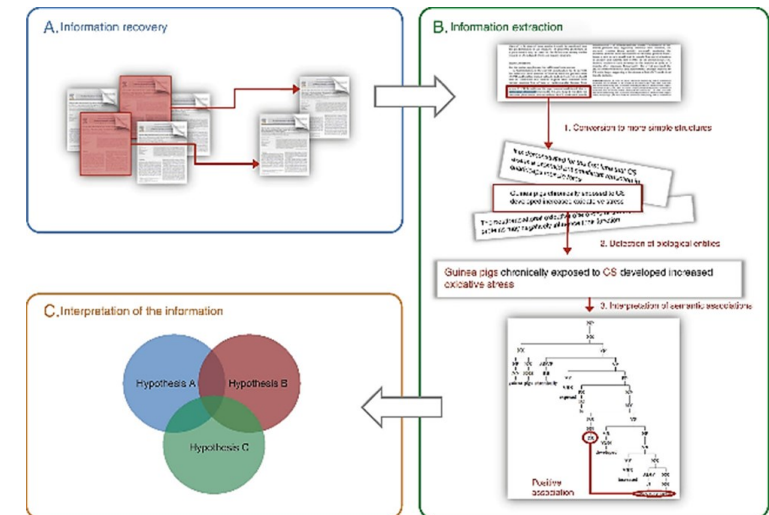
Thursday 09 June 2022

Quick background...

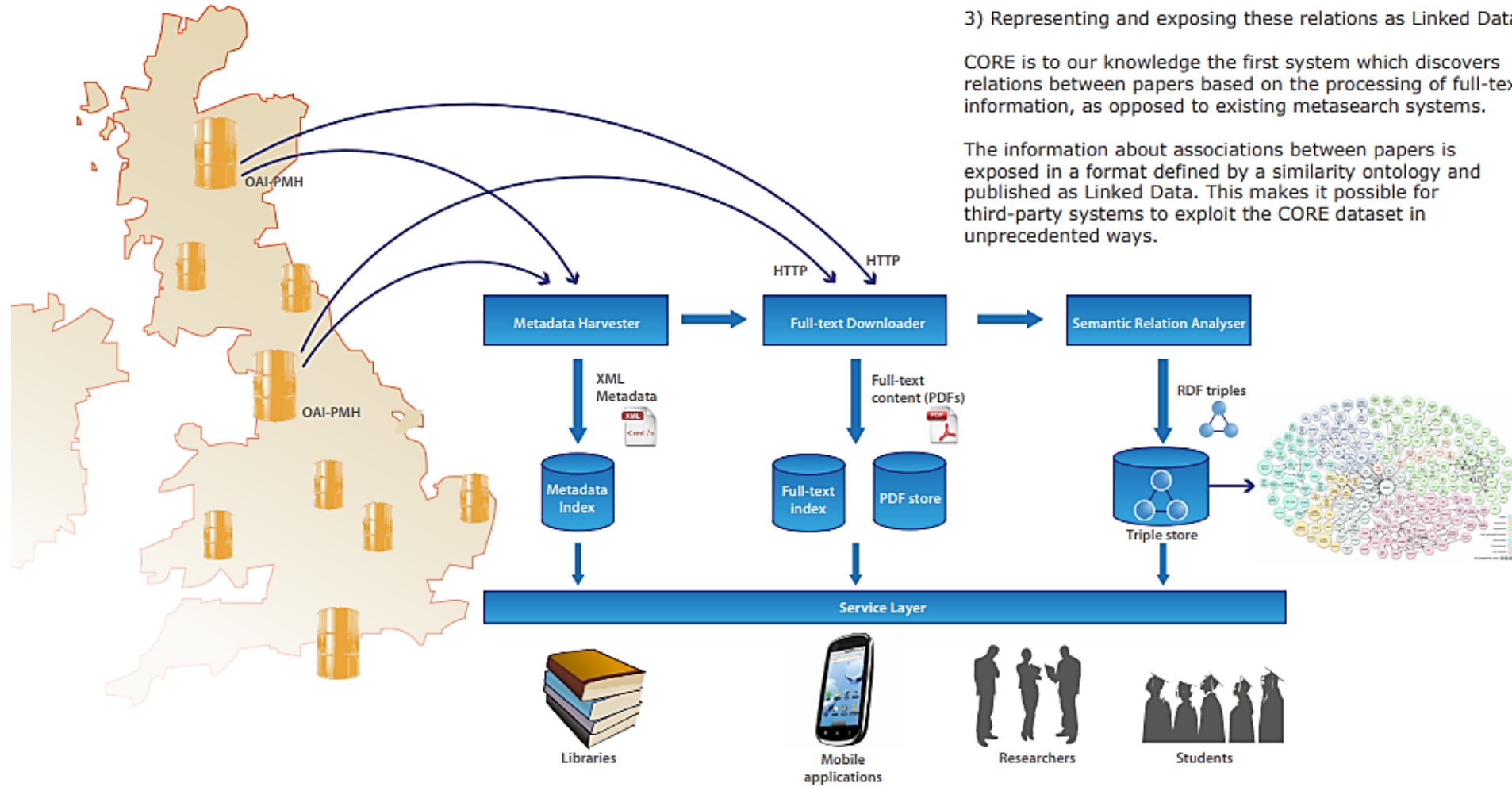
- The forgotten origin of repositories...?
- OAI-PMH and distributed global repository network
- Harvesting structured data – and beyond...
- **Harvesters = Aggregators**
- Aggregation brings huge scientific benefits & opportunities
- Contributing to the knowledge graph and knowledge commons
- Enabling creation of new scientific knowledge and discoveries
- ‘Big data’ = patterns
- OA beyond human readable access...
- CORE, BASE, OpenAIRE, OAIster
- CORE – Commitment to the Principles of Open Scholarly Infrastructure (POSI)



Don Swanson ≠ Don Johnson



The Connecting REpositories (CORE) project aims to facilitate the access and navigation across relevant scientific papers, stored in Open Access repositories across the UK.



This is being achieved by:

- 1) Harvesting metadata and full-text content from Open Access repositories.
- 2) Applying text mining techniques to discover semantically related articles.
- 3) Representing and exposing these relations as Linked Data.

CORE is to our knowledge the first system which discovers relations between papers based on the processing of full-text information, as opposed to existing metasearch systems.

The information about associations between papers is exposed in a format defined by a similarity ontology and published as Linked Data. This makes it possible for third-party systems to exploit the CORE dataset in unprecedented ways.

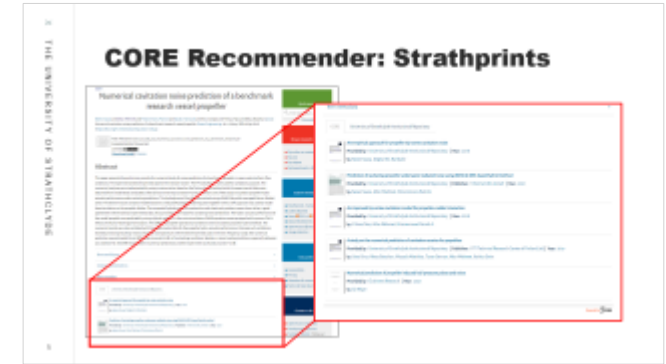
Data aggregation enables...

\ Data \

- **CORE dataset:** download millions of outputs for TDM (largest dataset...)
- **CORE API:** harness platform to perform TDM or build novel applications
- **'FastSync':** Does what it says on the tin!
- And **search** circa 250 million items...

\ Discovery \

- **CORE Discovery:** Unpaywall but using CORE dataset ([Mozilla](#); [Chrome & Chromium](#); [Opera](#))
- **CORE Recommender:** Recommendation engine for repos
- **OAI resolver:** New! Does what it says on the tin - again!
- **Repository Dashboard:** Maintain, analyse & validate your repository data within CORE



CORE Recommender: Strathprints

Login

Numerical cavitation noise prediction of a benchmark research vessel propeller

Sezen, Savas and Atlar, Mehmet and Fitzsimmons, Patrick and Sasaki, Noriyuki and Tani, Giorgio and Yilmaz, Naz and Aktas, Batuhan (2020) *Numerical cavitation noise prediction of a benchmark research vessel propeller*. *Ocean Engineering*, 211, 107549. ISSN 0029-8018 (<https://doi.org/10.1016/j.oceaneng.2020.107549>)

Text. Filename: Sezen_et al_OE_2020_Numerical_cavitation_noise_prediction_of_a_benchmark_research.pdf
Accepted Author Manuscript
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Abstract

This paper presents the preliminary results of a numerical study for noise prediction of a benchmark propeller in open water/uniform flow conditions. The experimental benchmark test data for the research vessel, "The Princess Royal", were used for validation purposes. The numerical analyses were implemented by using a viscous solver based on the finite volume method while the experimental data were obtained from model tests conducted at the Genova University Cavitation Tunnel. The main aim of the study is to predict propeller hydro-acoustic performance under cavitating conditions. The hydrodynamic flow field was solved using a RANS (Reynolds-averaged Navier-Stokes) solver. The Schnerr-Sauer cavitation model based on a reduced Rayleigh-Plesset equation together with a VOF approach was used to model sheet cavitation on the propeller blades. The computed hydrodynamic characteristics and sheet cavity patterns were shown to be in good agreement with the Genoa experimental data, thus providing a firm basis for cavitating noise predictions. The hydro-acoustic performance of the model propeller was predicted by using a hybrid method. In the noise simulations, RANS equations were equipped with a porous FW-H (Ffowcs Williams-Hawkings) formulation. The different propeller operational conditions were simulated using this hybrid method. The numerical results were also validated with the experimental data for the propeller hydro-acoustic performance. Whereas such validations showed promising results by means of overall noise spectrum with the benchmark test cases in the low-frequency range, the numerical prediction overestimated the 1st BPF values (around 20 dB) in five loading conditions. Besides, in some loading conditions, especially between 200 and 800 Hz, the difference between numerical predictions and the experiment was found around 5-10 dB.

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Item metadata

CORE University of Strathclyde Institutional Repository

An empirical approach for propeller tip vortex cavitation noise
Provided by: University of Strathclyde Institutional Repository | **Year:** 2018
by Sezen Savaş, Doğrul Ali, Bal Şakir

Prediction of cavitating propeller underwater radiated noise using RANS & DES-based hybrid method
Provided by: University of Strathclyde Institutional Repository | **Publisher:** 'Informa UK Limited' | **Year:** 2021
by Sezen Savas, Atlar Mehmet, Fitzsimmons Patrick

An improved tip vortex cavitation model for propeller-rudder interaction
Provided by: University of Strathclyde Institutional Repository | **Year:** 2018
by Yilmaz Naz, Atlar Mehmet, Fitzsimmons Patrick A.

A study on the numerical prediction of cavitation erosion for propellers
Provided by: University of Strathclyde Institutional Repository | **Publisher:** VTT Technical Research Center of Finland Ltd | **Year:** 2017
by Usta Onur, Aktas Batuhan, Maasch Matthias, Turan Osman, Atlar Mehmet, Korkut Emin

Numerical prediction of propeller induced hull pressure pulses and noise
Provided by: Chalmers Research | **Year:** 2021
by Ge Muye

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Critical open scholarly infrastructure

- CORE = essential open scholarly infrastructure
- Aligns with the raison d'être of the repository cooperative & network
- Repositories are not islands
- Importance of the 'network effect';
 - More repositories delivering more content = greater knowledge creation
 - This is *critical*
- But also delivers greater platform potential;
 - Better recommendations, more paywalls thwarted, new services built on the platform in future
- CORE sustainability & the future...

Further reading

- \ CORE \ <https://core.ac.uk/>
- \ CORE API \ <https://core.ac.uk/services/api>
- \ CORE Dataset \ <https://core.ac.uk/services/dataset>
- [Introducing CORE \(2019\) \[video\]](#)

