

デジタルドキュメント(4)

高久雅生

2013年5月9日(木)3・4時限

前回の出席カードから（質疑）

- 第2回レポート課題の対象は、機関リポジトリの文献でもよいですか？
 - → はい、問題ありません。
- 授業開始
 - 遅れないよう注意します。
- 配布資料（レジュメ）
 - 両面印刷は行いません。

本日のお品書き

- 前回の復習
- 学術分野のデジタルドキュメント(続き)
 - 学術論文の事例にみるドキュメントのサービス機能とプラットフォーム
- 各種ドキュメントフォーマット

(前回の復習 = ふりかえり)

- 学術分野のデジタルドキュメントの実例
- オンラインジャーナルの様態
 - ランディングページ
 - 全文ファイル(PDF, HTML)
 - 各種機能
 - 論文のID:DOI
- 事例(各社プラットフォーム)
- 第2回レポート課題:来週5/16〆切

学術分野のデジタルドキュメント (3)

学術分野における文献提供の環境と利用 (2)

- 例1:『Science』 The American Association for the Advancement of Science (AAAS)
 - ScienceMag.org
- 例2:『Nature』 Nature Publishing Group
 - Nature.com
- 例3:『Journal of American Society for Information Science and Technology』 American Society for Information Science and Technology (ASIS&T)
 - Wiley.com
- 例4:『Information Processing and Management』 Elsevier
 - Sciencedirect.com
- 例5:『Information Retrieval』 Springer
 - Springer.com
- 例6:『Computing Survey』 ACM
 - ACM.org
- 例7:『情報管理』科学技術振興機構 (JST)
 - Jstage.jst.go.jp
- 例8:『社会教育』全日本社会教育連合会
 - つくばリポジトリ – Tulips-R
- 例9:『図書館情報メディア研究』筑波大学図書館情報メディア研究科
 - つくばリポジトリ – Tulips-R
- 例10:『情報の科学と技術』情報科学技術協会
 - CiNii Articles

オンラインジャーナルプラットフォーム の差異

- ・ どのようなフォーマットで提供されているか？
- ・ プラットフォームは誰が運営しているか？
 - 論文の出版/刊行の主体と異なるか？
- ・ どのようなフローで作られているか？
 - 電子化は誰が担当しているか？
- ・ どのような機能があるか？

例1

Tomoki Nakamura, Takaaki Noguchi, Masahiko Tanaka, et al.: "Itokawa Dust Particles: A Direct Link Between S-Type Asteroids and Ordinary Chondrites". *Science*, Vol.333, No.6046, 2011, p.1113-1116.

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Home > Science Magazine > 26 August 2011 > Nakamura et al., 333 (6046): 1113-1116

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The Hayabusa spacecraft arrived at S(IV)-type asteroid 25143 Itokawa (formerly 1998 SF36) in September 2005 (1). Remote-sensing measurements from the spacecraft suggest that Itokawa consists of rocks similar to LL5 and LL6 ordinary chondrites (2, 3), confirming ground-based spectral characterization (4). On 20 and 26 November 2005, the spacecraft descended to touchdown and capture dust particles from MUSES-C Regio. This area consists of dust and gravel deposits dominated by grains up to 1 cm in diameter (5). Although the sampler did not operate as planned, an elastic sampling horn impacted onto the asteroid surface, directing dust particles into the spacecraft's sample catcher device (6). The Hayabusa sample capsule successfully landed in the Woomera Prohibited Area in South Australia on 13 June 2010. Dust particles collected at the second touchdown were recovered by two methods. In one method, we used a Teflon spatula to sweep particles from about 10% of the surface of a sample catcher. In

Science 26 August 2011: 1113-1116
DOI: 10.1126/science.1207758

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ABSTRACT

The Hayabusa spacecraft successfully recovered dust particles from the surface of near-Earth asteroid 25143 Itokawa. Synchrotron-radiation x-ray diffraction and transmission and scanning electron microscope analyses indicate that the mineralogy and mineral chemistry of the Itokawa dust particles are identical to those of thermally metamorphosed LL chondrites, consistent with spectroscopic observations made from Earth and by the Hayabusa spacecraft. Our results directly demonstrate that ordinary chondrites, the most abundant meteorites found on Earth, come from S-type asteroids. Mineral chemistry indicates that the majority of regolith surface particles suffered long-term thermal annealing and subsequent impact shock, suggesting that Itokawa is an asteroid made of reassembled pieces of the interior portions of a once larger asteroid.

< Prev | Table of Contents | Next >

Itokawa Dust Particles: A Direct Link Between S-Type Asteroids and Ordinary Chondrites

Tomoki Nakamura,^{1,*} Takaaki Noguchi,² Masahiko Tanaka,³ Michael E. Zolensky,⁴ Makoto Kimura,² Akira Tsuchiyama,⁵ Aiko Nakato,¹ Toshihiro Ogami,¹ Hatsuomi Ishida,¹ Masayuki Uesugi,⁶ Toru Yada,⁶ Kei Shirai,⁶ Akio Fujimura,⁶ Ryuuji Okazaki,⁶ Scott A. Sandford,⁸ Yukihiro Ishibashi,⁶ Masanao Abe,⁶ Tatsushi Okada,⁶ Munetaka Ueno,⁶ Toshifumi Mukai,⁶ Makoto Yoshikawa,⁶ Junichiro Kawaguchi⁶

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On the Teflon spatula, we identified 1534 rocky particles by means of a field-emission scanning electron microscope. The particles have diameters ranging from 3 to 40 μm but are mostly smaller than 10 μm . Most Itokawa particles are angular and are probably broken pieces of larger rocks. Among the 1534 harvested rocky particles, 1087 are monomineralic, including 580 olivine particles, 126 low-Ca pyroxenes, 56 high-Ca pyroxenes, 186 feldspars (172 plagioclase and 14 K-feldspar), 113 troilites, 13 chromites, 10 Ca phosphates, and 3 Fe-Ni metal

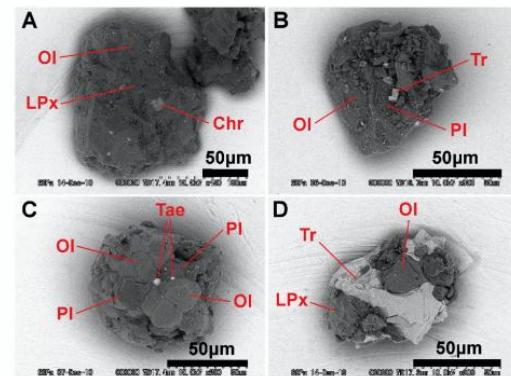


Fig. 1. (A to D) Backscattered electron (BSE) images of RA-QD02-0030 (A), RA-QD02-0024 (B), RA-QD02-0013 (C), and RA-QD02-0027 (D).

<http://dx.doi.org/10.1126/science.1207758>

Of the 40 particles removed by tapping (diameters ranging from 30 to 180 μm) that were analyzed by x-ray computed microtomography (7) and x-ray diffraction, 38 were subjected to more detailed mineralogic analysis.

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例2

Reka Albert, Hawoong Jeong, Albert-Laszlo Barabasi: “Internet: Diameter of the World-Wide Web”. *Nature*, Vol.401, p.1113-1116.

The screenshot shows the homepage of nature.com. At the top, there's a banner for "We're throwing a PC Party during Phusion Fest." Below the banner, the "nature" logo is prominently displayed with the subtitle "International weekly journal of science". A search bar and a "subscribe" button are visible. A sidebar on the left lists "Journal content" including "Journal home", "Advance online publication", "Current issue", "Nature News", and "Archive".

Brief Communications
Nature 401, 130-131 (9 September 1999) | doi:10.1038/43601

Internet: Diameter of the World-Wide Web

Reka Albert¹, Hawoong Jeong¹ & Albert-László Barabási¹

Despite its increasing role in communication, the World-Wide Web remains uncontrolled: any individual or institution can create a website with any number of documents and links. This unregulated growth leads to a huge and complex web, which becomes a large directed graph whose vertices are documents and whose edges are links (URLs) that point from one document to another. The topology of this graph determines the web's connectivity and consequently how effectively we can locate information on it. But its enormous size (estimated to be at least 8×10^8 documents¹) and the continual changing of documents and links make it impossible to catalogue all the vertices and edges.

The extent of the challenge in obtaining a complete topological map of the web is illustrated by the limitations of the commercial search engines: Northern Light, the search engine with the largest coverage, is estimated to index only 38% of the web². Although much work has been done to map and characterize the Internet's infrastructure³, little is known about what really matters in the search for information — the topology of the web. Here we take a step towards filling this gap: we have used local connectivity measurements to construct a topological model of the World-Wide Web, which has enabled us to explore and characterize its large-scale properties.

To determine the local connectivity of the web, we constructed a robot that adds to its database all URLs found on a document and recursively follows these to retrieve the related documents and URLs. We used the data collected to determine the probabilities $P_{\text{out}}(k)$ and $P_{\text{in}}(k)$ that a document has k outgoing and incoming links, respectively. We find that both $P_{\text{out}}(k)$ and $P_{\text{in}}(k)$ follow a power law over several orders of magnitude, remarkably different not only from the Poisson distribution predicted by the classical theory of random graphs^{3,4}, but also from the bounded distribution found in models of random networks⁵.

The power-law tail indicates that the probability of finding documents with a large number of links is significant, as the network connectivity is dominated by highly connected web pages. Similarly, for incoming links, the probability of finding very popular addresses, to which a large number of other documents point, is non-negligible, an indication of the flocking nature of the web. Furthermore, while the owner of each web page has complete freedom in choosing the number of links on a document and the addresses to which they point, the overall system obeys scaling laws characteristic only of highly interactive self-organized systems and critical phenomena⁶.

To investigate the connectivity and the large-scale topological properties of the

<http://dx.doi.org/10.1038/43601>

brief communications

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Internet

Diameter of the World-Wide Web

Despite its increasing role in communication, the World-Wide Web remains uncontrolled: any individual or institution can create a website with any number of documents and links. This unregulated growth leads to a huge and complex web, which becomes a large directed graph whose vertices are documents and whose edges are links (URLs) that point from one document to another. The topology of this graph determines the web's connectivity and consequently how effectively we can locate information on it. But its enormous size (estimated to be at least 8×10^8 documents¹) and the continual changing of documents and links make it impossible to catalogue all the vertices and edges.

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To determine the local connectivity of the web, we constructed a robot that adds to its database all URLs found on a document and recursively follows these to retrieve the related documents and URLs. We used the data collected to determine the probabilities $P_{\text{out}}(k)$ and $P_{\text{in}}(k)$ that a document has k outgoing and incoming links, respectively. We find that both $P_{\text{out}}(k)$ and $P_{\text{in}}(k)$ follow a power law over several orders of magnitude, remarkably different not only from the Poisson distribution predicted by the classical theory of random graphs³, but also from the bounded distribution found in models of random networks⁵.

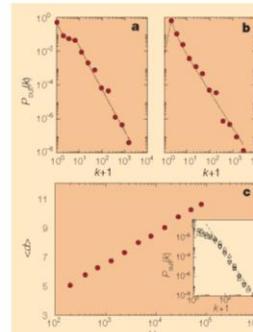


Figure 1 Distribution of links on the World-Wide Web. **a**, Outgoing links (URLs found on an HTML document); **b**, incoming links (URLs pointing to a certain HTML document). Data were obtained from the complete map of the nd.edu domain, which contains 325,729 documents and 1,469,680 links. Dotted lines represent analytical fits used as input distributions in constructing the topological model of the web; the tail of the distributions follows $P(k) \propto k^{-\gamma}$, with $\gamma_{\text{out}} = 2.45$ and $\gamma_{\text{in}} = 2.1$. **c**, Average of the shortest path between two documents as a function of system size, as predicted by the model. To check the validity of our predictions, we determined $\langle d_{\text{out,in}} \rangle = 11.2$ agrees well with the prediction $\langle d_{\text{out,in}} \rangle = 11.6$ obtained from our model. To show that the power-law tail of $P(k)$ is a universal feature of the web, the inset shows $P_{\text{out}}(k)$ obtained by staring from whitehouse.gov (squares), yahoo.com (triangles) and smu.ac.in (inverted triangles). The slope of the dashed line is $\gamma_{\text{out}} = 2.45$, as obtained from nd.edu in **a**.

incoming links, the probability of finding very popular addresses, to which a large number of other documents point, is non-negligible, an indication of the flocking nature of the web. Furthermore, while the owner of each web page has complete freedom in choosing the number of links on a document and the addresses to which they point, the overall system obeys scaling laws characteristic only of highly interactive self-organized systems and critical phenomena⁶.

To investigate the connectivity and the large-scale topological properties of the web, we constructed a directed random

$k_i + 1$ outgoing (or incoming) links is less than $N P_{\text{out}}(k_i + 1)$ (or $N P_{\text{in}}(k_i + 1)$).

A particularly important quantity in a search process is the shortest path between two documents, d , defined as the smallest number of URL links that must be followed to navigate from one document to the other. We find that the average of d over all pairs of vertices is $\langle d \rangle = 0.35 + 2.06 \log(N)$ (Fig. 1c), indicating that the web forms a small-world network^{5,7}, which characterizes social or biological systems. For $N = 8 \times 10^8$, $\langle d_{\text{web}} \rangle = 18.59$; that is, two randomly chosen documents on the web are on average 19 clicks away from each other.

For a given N , d follows a gaussian distribution so $\langle d \rangle$ can be interpreted as the diameter of the web, a measure of the shortest distance between any two points in the system. Despite its huge size, our results indicate that the web is a highly connected graph with an average diameter of only 19 links. The logarithmic dependence of $\langle d \rangle$ on N is important to the future potential of the web: we find that the expected 1,000% increase in the size of the web over the next few years will change $\langle d \rangle$ very little, from 19 to only 21.

The relatively small value of $\langle d \rangle$ indicates that an intelligent agent, who can interpret the links and follow only the relevant one, can find the desired information quickly by navigating the web. But this is not the case for a robot that locates the information based on matching strings. We find that such a robot, aiming to identify a document at distance $\langle d \rangle$, needs to search $M(\langle d \rangle) \approx 0.53 \times 10^{0.92}$ documents, which, with $N = 8 \times 10^8$, leads to $M = 8 \times 10^7$, or 10% of the whole web. This indicates that robots cannot benefit from the highly connected nature of the web, their only successful strategy being to index as much of the web as possible.

The scale-free nature of the link distributions indicates that collective phenomena play a previously unsuspected role in the development of the web⁸, forcing us to look beyond the traditional random graph models^{5,7}. A better understanding of the web's topology, aided by modelling efforts, is crucial in developing search algorithms or designing strategies for making information widely accessible on the World-Wide Web. Fortunately, the surprisingly small diameter of the web means that all that information is just a few clicks away.

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Figure 1: Distribution of links on the World-Wide Web.

a, Outgoing links (URLs found on an HTML document); **b**, incoming links (URLs pointing to a certain HTML document). Data were obtained from the complete map of the nd.edu domain, which contains 325,729 documents and 1,469,680 links.

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例3 Natsuo Onodera, Mariko Iwasawa, Nobuyuki Midorikawa, et al.: “A method for eliminating articles by homonymous authors from the large number of articles retrieved by author search”. Journal of the American Society for Information Science and Technology, 2011, Vol.62, No.4, p.677-690

The screenshot shows the journal's homepage with a search bar and navigation links. The main content area displays the article "A method for eliminating articles by homonymous authors from the large number of articles retrieved by author search" by Natsuo Onodera, Mariko Iwasawa, Nobuyuki Midorikawa, and Fuyuki Yoshikane. The article is from Volume 62, Issue 4, pages 677-690, April 2011. It includes a thumbnail of the journal cover, author bios, and a link to the full PDF.

A Method for Eliminating Articles by Homonymous Authors From the Large Number of Articles Retrieved by Author Search

Natsuo Onodera, Mariko Iwasawa, Nobuyuki Midorikawa, and Fuyuki Yoshikane
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<http://dx.doi.org/10.1002/asi.21491>

found from the articles published during the period between 1999 and 2002 in the Web of Science (WoS), and among these names 65% were Asian (54% Japanese). Obviously, many of the author names correspond to different authors. The problem with Western author names is comparatively less critical but nevertheless exists and cannot be ignored. Aksnes (2008) showed that if the 31,135 researchers registered in the Norwegian Research Personnel Register (Ver. 2005) were listed in the ISI style, 4,362 (14%) homonymous authors would be found.

A number of methods exist to discriminate the wanted articles from the unwanted ones by homonymous authors among the articles retrieved through an author search. The best method is to obtain a list of the papers published by the target research group and compare the

This paper proposes a methodology which discriminates the articles by the target authors ("true" articles) from those by other homonymous authors ("false" articles). Author name searches for 2,595 "source" authors in six subject fields retrieved about 629,000 articles. In order to extract true articles from the large amount of the retrieved articles, including many false ones, two filtering stages were applied. At the first stage any retrieved article was eliminated as false if either its affiliation addresses had little similarity to those of its source article or there was no citation relationship between the journal of the retrieved article and that of its source article. At the second stage, a sample of retrieved articles was subjected to manual judgment, and utilizing the judgment results, discrimination functions based on logistic regression were defined. These discrimination functions demonstrated both the recall ratio and the precision of about 95% and the accuracy (correct answer ratio) of 90–95%. Existence of common coauthor(s), address similarity, title words similarity, and interjournal citation relationships between the retrieved and source articles were found to be the effective discrimination predictors. Whether or not the source author was from a specific country was also one of the important predictors. Furthermore, it was shown that a retrieved article is almost certainly true if it was cited by, or cocited with, its source article. The method proposed in this study would be effective when dealing with a large number of articles whose subject fields and affiliation addresses vary widely.

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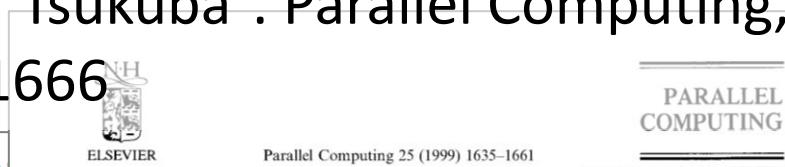
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例4

Kisaburo Nakazawa, Hiroshi Nakamura, Taisuke Boku, Ikuo Nakata, Yoshiyuki Yamashita: “CP-PACS: A massively parallel processor at the University of Tsukuba”. *Parallel Computing*, 1999, Vol.25, No.13, p.1635-1666

The screenshot shows the ScienceDirect website interface. At the top, there are links for Hub, ScienceDirect, Scopus, AI, Register, Login, and Go to. Below that, it says "Brought to you by: University of Tsukuba Li". The main navigation bar includes Home, Publications, Search, My settings, My alerts, Help, Export citation, PDF (1227 K), More options..., and a search bar for "Search ScienceDirect". The article title "Parallel Computing" is displayed, along with the volume information "Volume 25, Issues 13–14, December 1999, Pages 1635–1661". The authors' names are listed as Kisaburo Nakazawa^{a,*}, Hiroshi Nakamura^b, Taisuke Boku^c, Ikuo Nakata^d, Yoshiyuki Yamashita^c. The abstract, keywords, and references sections are also visible.



CP-PACS: A massively parallel processor at the University of Tsukuba

Kisaburo Nakazawa^{a,*}, Hiroshi Nakamura^b, Taisuke Boku^c, Ikuo Nakata^d, Yoshiyuki Yamashita^c

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^b Research Center for Advanced Science and Technology, The University of Tokyo, 4-6-1 Komaba, Meguro-ku, Tokyo 153-8904, Japan

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Received 2 October 1998; received in revised form 16 December 1998

Abstract

Computational Physics by Parallel Array Computer System (CP-PACS) is a massively parallel processor developed and in full operation at the Center for Computational Physics at the University of Tsukuba. It is an MIMD machine with a distributed memory, equipped with 2048 processing units and 128 GB of main memory. The theoretical peak performance of CP-PACS is 614.4 Gflops. CP-PACS achieved 368.2 Gflops with the Linpack benchmark in 1996, which at that time was the fastest Gflops rating in the world.

CP-PACS has two remarkable features. Pseudo Vector Processing feature (PVP-SW) on each node processor, which can perform high speed vector processing on a single chip superscalar microprocessor; and a 3-dimensional Hyper-Crossbar (3-D HXB) Interconnection network, which provides high speed and flexible communication among node processors.

In this article, we present the overview of CP-PACS, the architectural topics, some details of hardware and support software, and several performance results. © 1999 Elsevier Science B.V. All rights reserved.

Keywords: Massively parallel processor; Distributed memory; Processor architecture; Interconnection network; Benchmark

[http://dx.doi.org/10.1016/S0167-8191\(99\)00078-2](http://dx.doi.org/10.1016/S0167-8191(99)00078-2)

* Corresponding author.

例5 Omar Alonso: “Implementing crowdsourcing-based relevance experimentation: an industrial perspective”. Information Retrieval, 2013, Vol.16, No.2p.101-120

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Information Retrieval
April 2013, Volume 16, Issue 2, pp 101–120

Implementing crowdsourcing-based relevance experimentation: an industrial perspective

Omar Alonso

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Abstract

Crowdsourcing has emerged as a viable platform for conducting different types of relevance evaluation. The main reason behind this trend is that it makes possible to conduct experiments extremely fast, with good results at a low cost. However, like in any experiment, there are several implementation details that would make an experiment work or fail. To gather useful results, clear instructions, user interface guidelines, content quality, inter-rater agreement metrics, work quality, and worker feedback are important characteristics of a successful crowdsourcing experiment. Furthermore, designing and implementing experiments that require thousands or millions of labels is different than conducting small scale research investigations. In this paper we outline a framework for conducting continuous crowdsourcing experiments, emphasizing aspects that should be of importance for all sorts of tasks. We illustrate the value of characteristics that can impact the overall outcome using examples based on TREC, INEX, and Wikipedia data sets.

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CROWD SOURCING

Implementing crowdsourcing-based relevance experimentation: an industrial perspective

Omar Alonso

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Abstract

Crowdsourcing has emerged as a viable platform for conducting different types of relevance evaluation. The main reason behind this trend is that it makes possible to conduct experiments extremely fast, with good results at a low cost. However, like in any experiment, there are several implementation details that would make an experiment work or fail. To gather useful results, clear instructions, user interface guidelines, content quality, inter-rater agreement metrics, work quality, and worker feedback are important characteristics of a successful crowdsourcing experiment. Furthermore, designing and implementing experiments that require thousands or millions of labels is different than conducting small scale research investigations. In this paper we outline a framework for conducting continuous crowdsourcing experiments, emphasizing aspects that should be of importance for all sorts of tasks. We illustrate the value of characteristics that can impact the overall outcome using examples based on TREC, INEX, and Wikipedia data sets.

Keywords Relevance assessment & evaluation · Crowdsourcing · Experiment design · Methodology

1 Introduction

Crowdsourcing has been used for a wide range of applications, from relevance evaluation (Alonso and Mizzaro 2012), machine learning (Alonso et al. 2009) and natural language processing (Snow et al. 2008), just to name a few. The cost of running experiments in conjunction with the flexibility of the editorial approach at a larger scale, makes this approach very attractive for quickly testing new ideas. It is also possible to introduce experimentation early in the system development cycle.

Now that crowdsourcing is being adopted by industry and academia, people are noticing that its deployment in practice is not that simple. Tasks have to be designed carefully with

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About this Article

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» Data Mining
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例6 Hitoshi Terai, Hitomi Saito, Yuka Egusa, Masao Takaku, Makiko Miwa, Noriko Kando: “Differences between informational and transactional tasks in information seeking on the web”.

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Differences between informational and transactional tasks in information seeking on the Web

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Differences between Informational and Transactional Tasks in Information Seeking on the Web

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We examine the influence of task types on information-seeking behaviors on the Web by using screen capture logs and data. Eleven participants performed two different types of web search, an informational task and a transactional task, aloud protocols and behaviors were recorded. Analyses of the screen capture logs showed that the task type affected information-seeking behaviors. In the transactional task, participants visited more web pages than for the informational task, reading time for each page was shorter than in the informational task. A preliminary analysis of eye-movement data for revealed characteristics of the scanpaths followed in search result pages as well as the distribution of lookzones for each

ABSTRACT

We examine the influence of task types on information-seeking behaviors on the Web by using screen capture logs and eye-movement data. Eleven participants performed two different types of web search, an informational task and a transactional task, and their aloud protocols and behaviors were recorded. Analyses of the screen capture logs showed that the task type affected the participants' information-seeking behaviors. In the transactional task, participants visited more web pages than for the informational task, but their reading time for each page was shorter than in the informational task. A preliminary analysis of eye-movement data for nine participants revealed characteristics of the scanpaths followed in search result pages as well as the distribution of lookzones for each task.

Categories and Subject Descriptors

H.3.3 [Information Storage and Retrieval]: Information Search and Retrieval

Keywords

information-seeking behavior, task type, eye-movements analysis, user studies, Web search

so on. Understanding the information-seeking behavior of users is critical for service providers and search engine developers. How users search for information on the Web depends on their particular purposes, so it is necessary to consider task characteristics when studying information-seeking behavior on the Web. We chose to capture exploratory search processes which reflect naturally occurring information needs [12].

Prior studies that investigated the relations between characteristics of tasks and information-seeking behavior have used various tasks, such as known-item, subject, fact-finding, and information gathering. These tasks considered to be classified into "navigational" or "informational" categories in Broder's taxonomy [2]. However, Broder [2] and Keller, Watters, and Shepard [7] suggest that transactional information must occupy a stable fraction of the information needs in Web searches. Therefore, it could be useful to investigate users' Web searches in tasks to obtain transactional information. In this study, we compare the information-seeking behaviors between an informational task and a transactional task.

Moreover, we analyze information-seeking behaviors by using eye-tracking data as well as the protocol and log data. Eye-tracking data has been used in only a few prior studies. We think it is necessary to refine the methodology by further accumulating research findings. The prior studies using eye-tracking data analyzed the interaction of user and search engine. In contrast, we investigate not only the interaction of user and search engine, but also the interaction of user and the entire Web space encompassing the search for individual Web pages presented in the search results. To achieve such a goal, however, it is necessary to clarify the interaction of user and search engine and the interaction of user and individual Web pages. Therefore, in this study, we first analyze the influence of task characteristics on information-seeking behavior on the Web based on log data. Moreover, as a preliminary analysis of eye-tracking data, we analyze eye-tracking during the browsing of search results pages.

In the rest of the paper, Chapter 2 describes related works

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例7 高久雅生, 谷藤幹子: “材料系研究所における機関リポジトリ NIMS eSciDoc の開発から応用まで: 研究者総覧 SAMURAI と研究ライブラリコレクション”. 情報管理, 2012, Vol.55, No.1, p.29-41

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材料系研究所における機関リポジトリ NIMS eSciDoc の開発から応用まで 研究者総覧 SAMURAI と研究ライブラリコレクション
高久 雅生¹⁾, 谷藤 幹子¹⁾
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抄録 引用文献(35) 被引用文献(2)

物質・材料研究機構 (NIMS) では、2008年よりデジタルライブラリー構想に基づく機関リポジトリ NIMS eSciDoc の開発と運用を始めた。eSciDocは柔軟な拡張可能性と豊富な Web API を併せ持つドイツ製のオープンソースのリポジトリソフトウェアであり、単に文献リポジトリにとどまらず、eサイエンスのための汎用ツールとしての機能を持ち合わせている。このような利点を活かして開発、運用してきた機関リポジトリ NIMS eSciDoc の現状と課題を報告する。あわせて、機関リポジトリと対をなして取り組んでいる研究者総覧 SAMURAI についても報告する。SAMURAI は、NIMS 研究者約 500 人を対象に、その連絡先や業績文献、研究内容などをわかりやすく伝えるサービスとして、機関リポジトリや外部データベースと密に連携しながら、2010 年より運用を開始した。本報告では、これらのサービス内容と利用動向とともに、今後の展開について述べる。

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物質・材料研究機構 (NIMS) では、2008 年よりデジタルライブラリー構想に基づく機関リポジトリ NIMS eSciDoc の開発と運用を始めた。eSciDoc は柔軟な拡張可能性と豊富な Web API を併せ持つドイツ製のオープンソースのリポジトリソフトウェアであり、単に文献リポジトリにとどまらず、e サイエンスのための汎用ツールとしての機能を持ち合わせている。このような利点を活かして開発、運用してきた機関リポジトリ NIMS eSciDoc の現状と課題を報告する。あわせて、機関リポジトリと対をなして取り組んでいる研究者総覧 SAMURAI についても報告する。SAMURAI は、NIMS 研究者約 500 人を対象に、その連絡先や業績文献、研究内容などをわかりやすく伝えるサービスとして、機関リポジトリや外部データベースと密に連携しながら、2010 年より運用を開始した。本報告では、これらのサービス内容と利用動向とともに、今後の展開について述べる。
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Minai, Hideki
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ARTICLE

図書館協議会の可能性 —草の根からの図書館振興

筑波大学図書館情報メディア系教授 薬袋秀樹

はじめに

近年、公立図書館における図書館協議会の活動に関するニュースを聞くことが多い。以前と比べて、図書館協議会の活動は活発化していると言われるが、課題も多い。

図書館協議会の設置の現状については、三年ごとに、文部科学省の「社会教育調査」で県別、地方公共団体の種類別に設置図書館数の調査が行われている(注)。全国の図書館協議会の詳しい実績については、一九八五年に日本図書館協会(当時、二〇一二年に平山陽菜・池内淳(筑波大学図書館情報メディア系)が調査を行っている(注))。公立図書館の特定事項に関する調査で取り上げられる場合もある。

図書館協議会の現状 可能性 課題

について、関係文献と筆者の協議会委員の経験をもとに論じてみたい。

の条例で定めなければならない（一六条）。

二〇一一年に、地域の自主性及び自立性を高めるための改革の推進を図るための関係法律の整備に関する法律(平成二三年法律第一〇五号)によって

図書館法が改正され、「委員の任命の基準については、文部科学省令で定めるための関係法律の整備に関する法律(平成二三年法律第一〇五号)によつて

たる規定が改訂された。この規定によると、図書館法施行規則(文部科学省令)が改正され、参考すべき基準として、「学校教育及び社会教育の関係者、家庭教育の向上に資する活動を行う者並びに学識経験のある者の中から任命することとする」と定められた(二二条)。

(二) 図書館法の改正(つづいて)二〇〇八年の図書館

条例(協議会の委員は、当該図書館を設置する地方公共団体の教育委員会が任命する)(二二条)。協議会の設置、委員の定数、任期等必要な事項は地方公共団体

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第三

例9 柳玄姫, 葉袋秀樹: “韓国の図書館法と社会的背景”. 図書館情報メディア研究, 2013, Vol.10, No.2, p.1-17.

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韓国の図書館法と社会的背景

柳 玄姫*, 葉袋 秀樹**

The Korean Library Laws and their social background

Hyeonsook RYU, Hideki MINAI

抄録

韓国では、1963年に図書館法が制定され、1987年に改正されたが、1991年に廃止されて、代わりに図書館振興法が、1994年に図書館・読書振興法が制定され、2006年には、再び図書館法が制定された。1987年の改正図書館法を含めて、5つの法律が存在してきたが、これらの基本的内容が共通するものであることをから、これらの法律を5つの図書館法ととらえることができる。本研究の目的は、それらがどのような社会的背景のもとで、制定・改正されてきたのかを考察することである。

本研究では、まず、韓国の図書館法の制定や改正の社会的背景について、政治・経済、教育・文化の4つの面から考察した。次に、法律の改正や制定の変遷の内容と特徴を考察し、法律の時代区分を試み、3期に分け、各期の法律の特徴を分析した。そして、図書館法の変遷と社会背景の関係について考察した。

その結果、韓国の図書館法は、政治の民主化、経済の発達、公教育の普及、文化政策の確立などを背景として制定・改正されてきたことが明らかになった。

Abstract

In Korea, the Library Law was adopted in 1963. It has been amended in 1987, but was abolished in 1991. Instead, Library Promotion Law has been enacted as Library and Reading Promotion Law in 1994. In 2006, Library Law has again been adopted. Including the Amended Library Law of 1987, a total of 5 laws have existed. Owing to the mutual contents of these, it is possible to treat them as 5 different Library Laws. The object of this paper is to examine the social background, bringing about their enactments and amendments.

Firstly, this paper examines the social background of Korean Library Laws adoption and amendments from four perspectives: political, economic, educational and cultural. Secondly, it considers the contents and characteristics of amendments and enactment changes. Furthermore, this paper attempts a periodization of the 5 laws, dividing them into 3 terms and analysing their characteristics in every period. Then, the paper examines the relationship between the social background and the changes of the Library Laws.

The main conclusions drawn from this paper argue that democratisation of politics, economic development, prevalence of public education and the policy on culture constitute the background for the adoption and amendments of Korean Library Laws.

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例10 大向一輝: “CiNii Articlesのシステムデザインとデータモデル”. 情報の科学と技術, 2012, Vol.62, No.11, p.473-477.

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抄録

学術情報サービスにおいて、コスト面での制約がある中で大量のアクセスを高速に処理するためには、サービスが備えるべき機能を精査し、その機能の実現に適したシステム設計を行う必要がある。CiNii Articlesでは月間3500万～5000万のアクセスに対応するため、機能要件を検索と書誌表示に限定し、高速な検索エンジンと単純な処理のみを行うRDBを組み合わせることで性能要件を達成した。また、書誌IDを維持・管理するシステムを構築することで信頼性の高い情報サービスの提供を行っている。

In order to process large amount of access at low cost, it is necessary to design the system considering important functions to be provided. In CiNii Articles, we have achieved the performance requirements by using search engine and simple DBMS. We also provide reliable information service by the bibliographic ID management system.

収録刊行物

<http://ci.nii.ac.jp/naid/110009544496>

NII-ELS

書き出し

RefWorks書き出し
EndNote書き出し

Information Science and Technology Association

特集 : データベース構築の今

CiNii Articles のシステムデザインとデータモデル

大向 一輝*

学術情報サービスにおいて、コスト面での制約がある中で大量のアクセスを高速に処理するためには、サービスが備えるべき機能を精査し、その機能の実現に適したシステム設計を行う必要がある。CiNii Articles では月間3500万～5000万のアクセスに対応するため、機能要件を検索と書誌表示に限定し、高速な検索エンジンと単純な処理のみを行うRDBを組み合わせることで性能要件を達成した。また、書誌IDを維持・管理するシステムを構築することで信頼性の高い情報サービスの提供を行っている。

キーワード : システムデザイン, 検索エンジン, データベース管理システム, ユニーク ID, 名寄せ

1. はじめに

人々の情報収集の手段として、ウェブは極めて重要な存在となった。学術情報流通の分野においても、ウェブを通じた情報提供サービスの比重が高まっており、研究者や学生にとってなくてはならないインフラとして認識されつつある。実際、サービスへのアクセス数や論文ファイルのダウンロード数は毎年最高値を記録しており、その勢いが衰える気配はない。その意味で、サービス提供者の責任は日増しに大きくなっている。一方、国内では学術情報サービスは公的機関が多く役割を担っているが、昨今の財政状況の中では、需要が伸びていると言えども、それに応じた予算を投入することが難しくなっている。

このように、限られた資源の中で、増え続けるアクセスにどう対応していくかはサービス提供者が抱える共通の課題である。この課題に応えるためには、サービスの要件を明確にするだけでなく、各種のソフトウェアあるいはハードウェアの特徴や制約を知り、それらを生かしたシステムを設計しなければならない。とくに、学術情報サービスは大規模なデータを取り扱うことから、そのデータの構造や管理手法について熟知しておく必要がある。

本稿では、筆者らが開発・運用を行っている学術情報サービスである「CiNii（サイニイ）」を取り上げ、その設計方針と実装について述べる。2012年9月の時点では、CiNiiのサービスには国内の論文情報を提供する「CiNii Articles」と、大学図書館の図書・雑誌の情報を提供するという2種類のシステムが併存している。CiNii Articlesについて述べる。なお、CiNiiでも CiNii Articles と同様の設計方針を踏襲

2. データベースとしての CiNii Articles

2.1 CiNii Articles の概要

CiNii Articles は国立情報学研究所（NII）が2005年から運営している国内最大規模の学術論文検索・提供サービスである。学術会や大学との連携によって NII が電子化を行った約 400 万件の論文情報を加え、国立国会図書館の雑誌記事索引、科学技術振興機構の J-Stage、各大学・研究機関が運営する機関リポジトリなどの論文情報を合わせて約 1,500 万件の論文・記事が検索対象となっている。NII が電子化した論文は CiNii Articles 上で本文ファイルを提供し、外部のサービスに存在している論文についてはリンクを表示する。また、NII が構築している引用文献索引データベースの情報を用いて、論文の引用・被引用関係を表示することができる。

2.2 機能要件

ユーザー側から見た CiNii Articles の主な機能としては、入力されたキーワードに合致する論文の一覧を表示する検索機能と、個々の論文の書誌を表示する書誌表示機能、本文ファイルの提供機能、刊行物・巻・号ごとに論文の一覧を表示するディレクトリ機能などがある。いずれの機能も、ユーザーの操作によってシステム内のデータが書き換えられることはなく、ユーザーはまっさらな情報を受け取るのみである。一方、CiNii Articles で扱うデータは、後述のパックエンドシステムで作成され、毎週1回の頻度でパッチ処理によって更新が行われる。

このように、ユーザーに対しては表示のみを行い、パッチ処理によってデータを更新するという構成は情報システムとして特段珍しいものではない。また、論文の書誌データはあらかじめ構造化されているため、リレーショナルデータベース（RDB）になじみやすい。単純化すれば、論文情報を提供するサービスは、書誌データを RDB に一括登録し、検索や書誌表示といった要求に応じて問い合わせを行い、その結果を表示するようなシステムであればよい。その意味では CiNii Articles は典型的なデータベースシステム

	雑誌名	出版社	プラットフォーム	提供フォーマット	電子化の主体	機能
例1	Science	AAAS	AAAS	PDF, HTML, +α	出版社	◎
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例3	JASIS&T	ASIS&T	Wiley	PDF, HTML, +α	Wiley	◎
例4	IPM	Elsevier	Elsevier	PDF, HTML, +α	出版社	◎
例5	IR	Springer	Springer	PDF, HTML, +α	出版社	◎
例6	IIiX	ACM	ACM	PDF, HTML, +α	出版社	◎
例7	情報管理	JST	J-STAGE	PDF, HTML, +α	JST	◎
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例9	図書館情報 メディア研究科	筑波大学	つくばリポジトリ	PDF(スキャン)	つくばリポジトリ	△
例10	情報の科学と技術	情報科学技術協会	CiNii	PDF(スキャン)	CiNii	△

学術分野におけるデジタルドキュメント

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- Eジャーナル
- Eブック
 - 専門書
 - 事典
 - レファレンスブック
 - データシート
- 技術報告(テクニカルレポート; Technical report)
- 会議論文集(プロシードィングス; Proceedings)
- 口頭発表資料
 - スライド
 - ポスター
- 教材

Eブックの例

John Domingue, Dieter Fensel, James A. Hendler, Eds. "Handbook of Semantic Web Technologies". Springer, 2011, 1056p.
(eISBN:978-3-540-92913-0)



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2011

Handbook of Semantic Web Technologies

Editors: John Domingue, Dieter Fensel, James A. Hendler

ISBN: 978-3-540-92912-3 (Print) 978-3-540-92913-0 (Online)

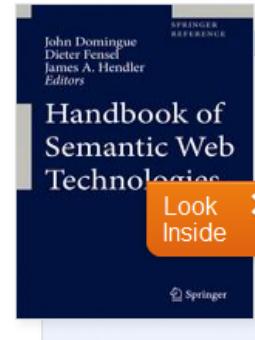
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<http://dx.doi.org/10.1007/978-3-540-92913-0>

Reference Work Entry

Introduction to the Semantic Web Technologies

John Domingue, Dieter Fensel, James A. Hendler

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Pages 1-41

Reference Work Entry

Semantic Web Architecture

Andreas Harth, Maciej Janik, Steffen Staab

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Pages 43-75

Eブックの例(事典)

“Encyclopedia of Library and Information Sciences”, Third Edition. Taylor & Francis, 2012.
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DOI: 10.1081/E-ELIS3
ISBN: 978-0-8493-9712-7; eISBN: 978-0-8493-9711-0
Last Updated: 10 Aug 2012

Subject: Information Science, Librarianship,
Publisher: Taylor & Francis

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Barbara B. Moran, Elisabeth Leonard
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Academic Libraries
Susan Carol Curzon, Jessie Quiñónez-Skrivner

会議論文集の例

The screenshot shows the IEEE Computer Society Digital Library interface. At the top, there's a search bar and navigation links for "Home", "Digital Library Home", "Search", "Resources", "Institutional and Library Resources", "Newsletter", and "About the Digital Library". A banner for "Japan Consortium - Tsukuba University" is visible. Below the banner, the URL "http://www.computer.org/csdl/proceedings/icde/2012/4747/00/4747a001-abs.html" is displayed. The main content area shows the title "2012 IEEE 28th International Conference on Data Engineering" and the location "Arlington, Virginia USA" from April 01-April 05, ISBN: 978-0-7695-4747-3. It includes a "Table of Contents" section with various document links like "Front cover", "Title page i", "Title page iii", "Copyright Page", "Table of contents", "Message from the Program Chairs and the General Chair", and "Conference Organization". Each item has a thumbnail, a PDF link, and an "OvidLinkSolve" button.

“Proceedings of the 28th International Conference on Data Engineering”, 2012, Arlington, Virginia USA, IEEE. (ISBN: 978-0-7695-4747-3)

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<http://www.computer.org/csdl/proceedings/icde/2012/4747/00/4747a001-abs.html>

<http://www.computer.org/csdl/proceedings/icde/2012/4747/00/4747a001-abs.html>

Cybersecurity.

テクニカルレポートの例

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Online ISSN: 1884-0795

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2013

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NII-2010-001E	Shaoying Liu and Shin Nakajima <i>A Decompositional Approach to Automatic Test Case Generation Based on Formal Specifications</i>	Jan 12, 2010

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The PageRank Citation Ranking: Bringing Order to the Web.

Page, Lawrence and Brin, Sergey and Motwani, Rajeev and Winograd, Terry (1999) *The PageRank Citation Ranking: Bringing Order to the Web*. Technical Report. Stanford InfoLab.

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PDF
299Kb

Abstract

The importance of a Web page is an inherently subjective matter, which depends on the readers interests, knowledge and attitudes. But there is still much that can be said objectively about the relative importance of Web pages. This paper describes PageRank, a method for rating Web pages objectively and mechanically, effectively measuring the human interest and attention devoted to them. We compare PageRank to an idealized random Web surfer. We show how to efficiently compute PageRank for large numbers of pages. And, we show how to apply PageRank to search and to user navigation.

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Subjects: Computer Science > Digital Libraries

Projects: [Digital Libraries](#)

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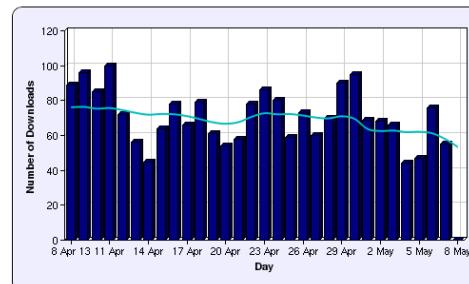
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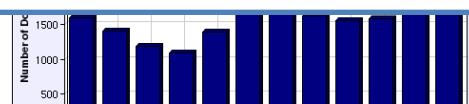
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さて、ここで改めて…

学術分野のドキュメントの場合、デジタルドキュメントならでは特徴とは、一体なんだろうか？

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 - 例1: Dlib Magazine(<http://www.dlib.org/>)
 - 1995年創刊
 - 例2: PLoS One(<http://www.plosone.org/>)
 - 2006年創刊
 - 例3: PeerJ (<https://peerj.com/>)
 - 2013年創刊
- 紙メディアからの離脱
 - △ Issue
 - △ Volume
 - ? ページ
 - ○ Article number

論文の要素、構造

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 - タイトル
 - 著者
 - 抄録(要旨)
 - キーワード
 - 本文
 - 章
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(Supplementary material)
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 - ビデオ
 - 音声
 - ...
- デジタルドキュメントならではの要素が多く出てくる
- Science誌での例から:
<http://dx.doi.org/10.1126/science.1207758>

オンラインジャーナルの動向 －オープンサイエンス(Open Science)－

- 背景
 - オープンアクセス
 - オープンデータ
- インフォーマルコミュニケーションの補完
- ウェブ上でのコメント、査読機能
- (査読とはどうあるべきか？)
- (科学的であるとはどういうものか？)



Exposed proteins of the *Schistosoma japonicum* tegument

Jason Mulvenna^{1,2}*, Luke Moerdyk³, Malcolm K. Jones^{4,5}, Supavee Nawaratna⁶, Erica M. Lovis¹, Geoffrey N. Cobert⁶, Michelle Colgrave⁶, Alan Jones⁷, Alex Loukas⁸, Donald P. McManus⁹

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⁴The University of Queensland, School of Veterinary Sciences, Qld 4072, Australia

⁵CSIRO Livestock Industries, Brisbanes, Qld 4037, Australia

⁶The University of Queensland, Institute for Molecular Biosciences, Qld 4072, Australia

⁷These authors contributed equally to the manuscript.

Research highlights

- Proteins exposed on the surface of parasitic worms are an important source of novel drug and vaccine targets.
- These proteins are the most accessible to the host and likely to possess functions important for the survival of the worm.
- Biotinylation (labelling of lysine side-chain residues with biotin) of whole worms is a useful technique for separating exposed proteins from other protein constituents of the tegument.
- Using this technique in combination with LC-MS/MS we identified 54 proteins as putatively host-exposed in *Schistosoma japonicum*.
- Using confocal and electron microscopy, the immunolocalisation of these proteins was observed.

Subcellular content

... proteins

5 of 54 (100%)

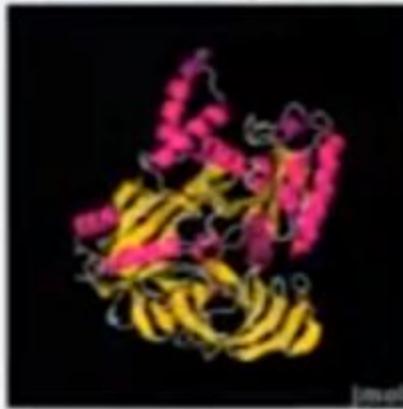
All 54 (100%)



elongation factor 1-Schistosoma japonicum]

348 aa protein

Connexin-26-interacting protein (NCBP1)



1 msd

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Subcellular Location

Cytosol/nucleus

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Parallel Computing, Volume 25, Issues 13–14, December 1999, Pages 1635–1656
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- ・次回は、さらに詳しくドキュメントフォーマットについてさらに考えてみたいと思います。

出席票提出

- 最後に、出席票に日付・氏名・所属、感想・質問等(あれば)を記入の上、忘れず提出してください。

提出位置：

3編生

2013xxxxx,

2012xxxxx

3年次

(知識)

2011xxxxx

3年次

(創成)

2011xxxxx

4年次

2010xxxxx,

etc.