

**Open Access, Science Commons
and Open Science**

Quoting from the Science Commons website
(<http://sciencecommons.org>) :

"The time it takes to go from identifying a gene to developing a drug currently stands at 17 years — forever, for people suffering from disease."

"There are terabytes of research data being produced in laboratories around the world, but the best web search tools available can't help us make sense of it."

"Why? Because more stands between basic research and meaningful discovery than the problem of search."

- **Copyrights for published data (Open Access)**
- **Open distributed collaboration (Open Science)**
- **Knowledge fragmentation and data standards (Science Commons)**

Copyrights for published data

As part of the publication process you surrender copyright to the journal over all the material of your manuscript (by signing a "Copyright Transfer Agreement").

An article by Peter Murray-Rust in Nature Precedings titled "Open Science" (January 2008 - <http://precedings.nature.com/documents/1526/version/1>)

Case of a student that posted on her blog (= web page) a graph from a manuscript

What followed her post was notices for legal action from the journal, based on the claim of copyright violations !

Fundamental of science: open with research results, share, get/provide feedback

Journal copyright: do not to serve the interests of the scientist, but protect the profits of the publishing house.

Broadcasting of the article content on any medium is not allowed.

Then we all perform infringement each time we use in our presentations a graph from a published paper that is copyrighted !!!

Suppose you see a pattern in the data which the authors haven't observed (or maybe they noticed but did not want to write about ?)

How will your observation reach people's ears-eyes :

- Publish a new article about it -> for a single observation ???
- Write a letter to the journal-> maybe they publish, not much space to discuss
- Put it on the web -> reach many people, open access, space for lots of discussion

But watch out for the lawyers !

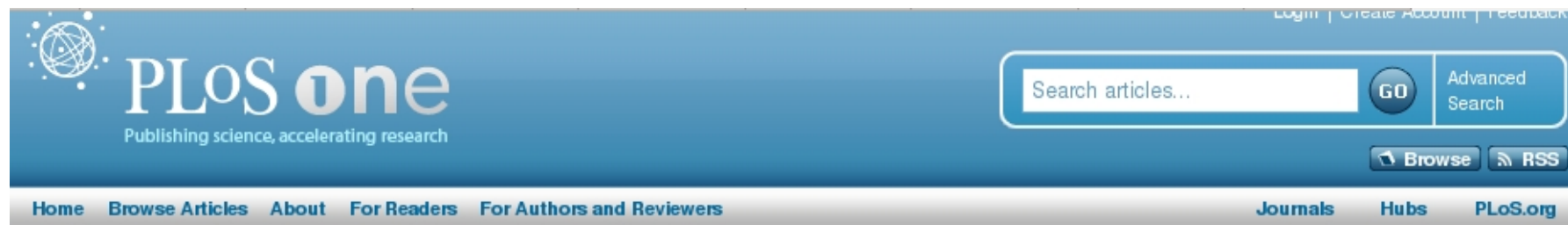
In the current Internet era, copyrights stifle progress

Audience free to link, read, post and discuss, data-mine the content of an article

Benefits the authors, feedback / discussion / peer-review on large scale

Open access = equal opportunity (pricey library subscriptions/developed nations)

Web 2.0 offers the medium and tools for this :



RESEARCH ARTICLE

OPEN ACCESS

A Publish-Subscribe Model of Genetic Networks

Brett Calcott^{1,2}, Duygu Balcan³, Paul A. Hohenlohe^{4,5*}

1 Philosophy Program, RSCS, Australian National University, Canberra, Australia, 2 Centre for Macroevolution and Macroecology, Australian National University, Canberra, Australia, 3 School of Informatics, Indiana University, Bloomington, Indiana, United States of America, 4 Department of Zoology, Oregon State University, Corvallis, Oregon, United States of America, 5 Center for Ecology and Evolutionary Biology, University of Oregon, Eugene, Oregon, United States of America

Abstract

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- Neuroscience (131)
- Pharmacology (46)



Contribute, comment and collaborate

arXiv.org > cs > cs.DS

Data Structures and Algorithms

Authors and titles for recent submissions

- Thu, 9 Oct 2008
- Tue, 7 Oct 2008
- Mon, 6 Oct 2008
- Thu, 2 Oct 2008
- Tue, 30 Sep 2008

[total of 10 entries: 1-10]
 [showing up to 25 entries per page: fewer | more]

Thu, 9 Oct 2008

[1] [arXiv:0810.1355](#) [ps, pdf, other]

Community Structure in Large Networks: Natural Cluster Sizes :

Jure Leskovec, Kevin J. Lang, Anirban Dasgupta, Michael W. Mahoney

Comments: 66 pages, a much expanded version of our WWW 2008 paper

Subjects: **Data Structures and Algorithms (cs.DS)**; Physics and Society (physics.soc-ph)

Tue, 7 Oct 2008

[2] [arXiv:0810.0906](#) [ps, pdf, other]

A linear time algorithm for L(2,1)-labeling of trees

Toru Hasunuma, Toshimasa Ishii, Hirotaka Ono, Yushi Uno

Comments: 18 pages (Title 1 page, Main part 10 pages, References 1 page, Appendix 6 pages)

Subjects: **Data Structures and Algorithms (cs.DS)**

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Active Discussions



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Paolo Tieri et al.

1 comment, last about

Open access to 501,094 e-prints in Physics, Mathematics, Computer Science, Q

Subject search and browse: Physics Search Form Interface

3 Oct 2008: [arXiv passes half-million article milestone](#)

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- High Energy Physics - Phenomenology ([hep-ph new](#), [recent](#), [find](#))
- High Energy Physics - Theory ([hep-th new](#), [recent](#), [find](#))
- Mathematical Physics ([math-ph new](#), [recent](#), [find](#))
- Nuclear Experiment ([nucl-ex new](#), [recent](#), [find](#))
- Nuclear Theory ([nucl-th new](#), [recent](#), [find](#))
- Physics ([physics new](#), [recent](#), [find](#))
 includes (see detailed description): Accelerator Physics; Atmospheric and Oc
 Statistics and Probability; Fluid Dynamics; General Physics; Geophysics; Hi
- Quantum Physics ([quant-ph new](#), [recent](#), [find](#))

Mathematics

- Mathematics ([math new](#), [recent](#), [find](#))
 includes (see detailed description): Algebraic Geometry; Algebraic Topology;
 Systems; Functional Analysis; General Mathematics; General Topology; Geo
 Theory; Numerical Analysis; Operator Algebras; Optimization and Control; Pr

Nonlinear Sciences

- Nonlinear Sciences ([nlin new](#), [recent](#), [find](#))
 includes (see detailed description): Adaptation and Self-Organizing Systems;

Computer Science

- Computing Research Repository (CoRR [new](#), [recent](#), [find](#))
 includes (see detailed description): Architecture; Artificial Intelligence; Compu
 Computer Vision and Pattern Recognition; Computers and Society; Cryptogra
 Literature; Graphics; Human-Computer Interaction; Information Retrieval; Infr

More Examples

Open distributed collaboration (Open Science)

group of minds can reach faster a solution, harness collective intelligence

prime example: Linux and all open source software

Linus invented besides the OS, a new system of mass collaboration

Open Innovation, search of skills further than local talent pool
(http://en.wikipedia.org/wiki/Open_innovation)

Web 2.0 difference of a wiki or blog from a traditional web-page :

--> everyone can edit through browser, no need to maintain HTML/server

academia promotion to tenure: number of peer-reviewed publications

no metric system that provides accreditation to online distributed collaboration

Welcome **2008 IGEM** Teams

OpenWetWare Lab Notebooks

New features include: Dynamic calendars, Create or view entries with a click

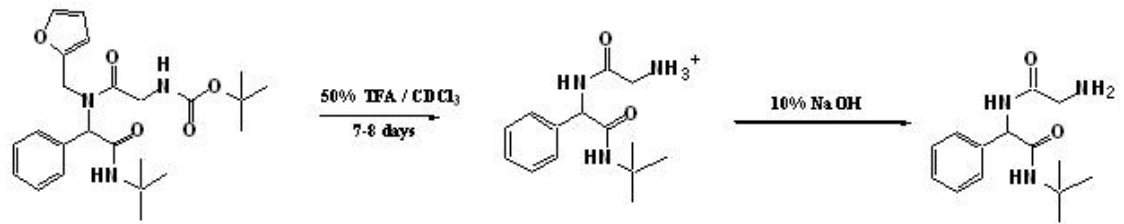
OWW Community Blog

Springer buys open access publisher BioMed Central

According to Scientific American, the not-so-open-access publisher Springer has just acquired the very open access pioneer site BioMed Central.

[Charts and plots on OWW made easy](#)

Exp101 Protected page discussion history notify me



Objective

To isolate the [product](#) after a prolonged treatment of [99C](#) with 50% trifluoroacetic acid in CDCl₃ in order to confirm the [Missing Methyl Mystery Mechanism](#) also discussed, as the [Disappearing Methyls](#) puzzle in the [UsefulChem](#) blog

Procedure

To a solution of ugi product [99C](#) (88.6 mg, 0.2 mmol) in CDCl₃ (500uL), trifluoroacetic acid (500uL) was added in an NMR tube. The reaction was monitored by NMR. After a complete conversion the solution was poured into a centrifuge tube and neutralized with 10% NaOH solution, extracted from with dichloromethane, dried with anhydrous MgSO₄. The product was subjected to NMR analysis after.

Results

Ugi Product (99C from [Exp099](#))
[H NMR](#)
 101A
 t = 06min

Jean-Claude Bradley: open notebook in chemistry

- | In vivo | In vitro |
|--|--|
| <p>Arabidopsis thaliana [hide]</p> <ul style="list-style-type: none"> Arabidopsis gDNA isolation Transformation Protocol for Arabidopsis | <p>Nucleic acids [show]</p> <p>DNA [hide]</p> <ul style="list-style-type: none"> 'Round-the-horn site-directed mutagenesis Affymetrix DNA labelling for gene expression arrays Agarose gel electrophoresis Anneal Extend PCR Protocol for linking 2 pieces of DNA Annealing and primer extension Annealing primers Assembly pcr Bioanalyzer Centrifugal filtration/Nucleic acids DNA Precipitation DNA Synthesis from Oligos DNA ligation Designing primers Electrophoretic mobility shift assay |
| <p>Escherichia coli [show]</p> | |
| <p>Bacillus subtilis [show]</p> | |
| <p>Mesoplasma florum [hide]</p> <ul style="list-style-type: none"> Culture media Mesoplasma florum:Microarray design Mesoplasma florum:Codon usage Mesoplasma florum:Physiology Mesoplasma florum:Genome | |
| <p>Mouse [show]</p> | |
| <p>Mycobacterium smegmatis [show]</p> | |

Bora Zivkovic: first to blog unpublished scientific hypotheses and data

Rosie Redfield: blogging her research

Reed Cartwright: being offered authorship after blogging about one paper

C.Neylon and P. Szczesney: molecular model for a grant through FriendFeed

John Wilkins: publishing a paper that started as series of blog posts

Jean-Claude Bradley: chemistry wiki



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- ▶ Friends - Web 2.0
- ▶ **OpenScience**
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- ▶ Professional
- ▶ Singularity
- ▶ Twitter
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- new list

Me

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- FriendFeed Feedb...
11 minutes ago
- Python for Bioinfo...
17 minutes ago
- prefs | 15 more »

Everyone



OpenScience

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The Life Scientists: Ricardo Vidal posted a link

[The New GIBCO® Bottle](#)



3 hours ago - via Bookmarklet - [Comment](#) - [Like](#) - [Hide](#) - [More](#) ▾

😊 Shirley Wu and Eva liked this

💬 Invitrogen's redesigned cell culture bottle. Looks great. - Ricardo Vic

💬 I'm a fan of good design. This almost makes me want to do cell cult

Science Online: Jo Brodie posted a message

"Bob Garfield of On The Media interviews Robert Cox of Media Bloggers (A otherwise) against bloggers, prompting the MBA to look into bloggers' in transcript here <http://www.onthemedialog.org/tran...>"

10 hours ago - [Comment](#) - [Like](#) - [Hide](#) - [More](#) ▾

The Life Scientists: Ricardo Vidal posted a message

"Similar (but different!) to a question I placed before, I'd like to compile a used/engineered in some particular way to better our lives. Suggestions"

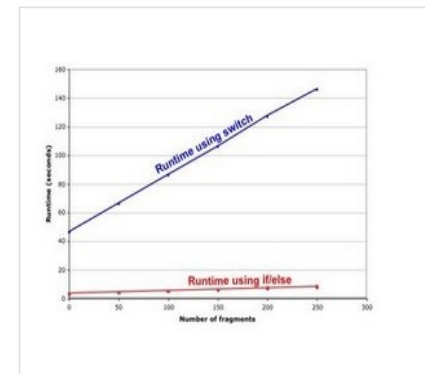
RRRESEARCH

THINKING ABOUT OUR RESEARCH INTO THE MECHANISM, FUNCTION AND EVOLUTION OF DNA UPTAKE BY HAEMOPHILUS INFLUENZAE AND OTHER BACTERIA.

SUNDAY, JUNE 01, 2008

Thank you for the comments!

The profiling I did yesterday, using DProf as suggested in a comment from Keith, showed that most of the runtime was spent in the Switch statements that are the heart of the sliding-window scoring algorithm. In new comments, Keith and Conrad explained that 'Switch' is not the fastest way to do the scoring, and that replacing it with a cascade of if/else statements could be a lot faster. (Faithful commenter Neil had also pointed out that Switch is buggy, but it wasn't setting off any alarms.)



So I've just replaced all three of the switch scoring steps with if/else cascades, and here's the spectacular results. Thanks, guys!

POSTED BY ROSIE REDFIELD AT 11:11 AM

ABOUT ME



ROSIE REDFIELD CANADA

I run a

microbiology research lab in the Life Sciences Centre at the University of British Columbia.

[VIEW MY COMPLETE PROFILE](#)

PREVIOUS POSTS

[Benchmarking\(?\) the USS model](#)

[Speeding up the simulation of USS evolution](#)

[Why won't USSs accumulate in our model?](#)

[Progress on USS bioinformatics](#)

[Biological relevance of](#)

Knowledge fragmentation and data standards (Science Commons)

data locally deposited in the computers of research groups

or “available upon request” -- *on-the-fly-just-designed-to-get-the-job-done* format

need **Open** and **re-usable** scientific data, standardized data formats

semantic web technologies, XML -- machine processable

added value through aggregation

The screenshot shows a real estate website interface. On the left, there are sections for 'Get Directions', 'My Maps', 'Tip: Pan or zoom the map to see more.', 'Photos' (with a grid of images), and 'Videos' (with video thumbnails and descriptions). The main area is a map of Washington, DC, with a 'Traffic' overlay and a 'Price' filter set to '\$250 - \$750'. The map shows various neighborhoods and is populated with red and yellow pins representing listings. On the right, there is a sidebar with a table of listings. The table has columns for 'pics', 'price', and 'description'. The listings include details such as 'female roommate needed for 2bd/1bth apartment Avail. Oct 25 -', 'Townhouse in Vienna/Dun/Tysons Corner - looking for one more roommate!', 'Awesome 1 BR available in 4BR U St Row House!', 'Room For Rent -', 'A Part of Single family -', 'Beautiful room for rent close to Dc and Baileys's Crossroads -', 'Great sized room .terrific location -', 'Large Bedroom in Townhouse - Walk to Metro St -', 'One bedroom/3 blocks from shops & metro -', 'Room with Private Bath*All Utilities Included! -', 'Rm/BA - Great location! Share home with 1 person * -', 'Cozy Room in Great Neighbor Close to 95, Shops & Restaurants -', 'Beautiful Basement for rent with full Bath -', 'Nice Sfh, cool roommates, and reasonable rent! Sterling address! -', '2 Small Bedrooms in 4 bedroom Apt. Available Nov. 5th -', 'Room plus use of house -', 'Available immediately- one room for share in Springfield -', 'Charming Two-Bedroom House to Share- Horse Farm & Estate in Middleburg -', and '\$650'.

pics	price	description
	\$400	female roommate needed for 2bd/1bth apartment Avail. Oct 25 -
	\$700	Townhouse in Vienna/Dun/Tysons Corner - looking for one more roommate! -
	\$730	Awesome 1 BR available in 4BR U St Row House! -
	\$400	Room For Rent -
	\$700	A Part of Single family -
	\$500	Beautiful room for rent close to Dc and Baileys's Crossroads -
	\$500	Great sized room .terrific location -
	\$595	Large Bedroom in Townhouse - Walk to Metro St -
	\$750	One bedroom/3 blocks from shops & metro -
	\$700	Room with Private Bath*All Utilities Included! -
	\$700	Rm/BA - Great location! Share home with 1 person * -
	\$360	Cozy Room in Great Neighbor Close to 95, Shops & Restaurants -
	\$600	Beautiful Basement for rent with full Bath -
	\$500	Nice Sfh, cool roommates, and reasonable rent! Sterling address! -
	\$475	2 Small Bedrooms in 4 bedroom Apt. Available Nov. 5th -
	\$650	Room plus use of house -
	\$600	Available immediately- one room for share in Springfield -
	\$650	Charming Two-Bedroom House to Share- Horse Farm & Estate in Middleburg -

The standards at work on the www !
(mashups)

data standards - open access

easily integrating data from various sets of published experiments, new insights

also open access to standardized literature -- PubMed XML

imagine looking for a section that was somewhere in those 50 papers I read last year.... :-)

```
<Article PubModel="Electronic">
```

```
<Journal>
```

```
<ISSN IssnType="Electronic">1471-2164</ISSN>
```

```
<JournalIssue CitedMedium="Internet">
```

```
<Volume>8</Volume>
```

```
<PubDate>
```

```
<Year>2007</Year>
```

```
</PubDate>
```

```
</JournalIssue>
```

```
<Title>BMC genomics</Title>
```

```
<ISOAbbreviation>BMC Genomics</ISOAbbreviation>
```

```
</Journal>
```

```
<ArticleTitle>Quantitative assessment of relationship between
```

```
</ArticleTitle>
```

```
<Pagination>
```

```
<MedlinePgn>222</MedlinePgn>
```

```
</Pagination>
```

```
<Abstract>
```

```
<AbstractText>BACKGROUND: Comparative sequence analysis is new proteins in genome annotation. However, sequence comparison function assignment errors. Thus, it is important to perform sequence-based function assignment using large-scale data analysis of the relationship between sequence similarity and
```

The screenshot shows a search interface with a hierarchical menu on the left. The menu includes categories like 'biological processes', 'reduction of virulence', 'Technology, Industry, Agriculture', 'Diseases [8]', 'Chemicals and Drugs', 'Anatomy [8]', 'Natural Sciences', 'Techniques and Methods', 'Health Care [9]', 'Named Groups [1]', 'Psychiatry and Behavioral Sciences', and 'Unclassified [2]'. Below the menu is a 'who' section titled 'Top authors for query' with a list of authors and their article counts: Kamoun S [7], Tyler B [5], Birch P [5], Govers F [4], Young C [3], and a 'more' link. There is also a 'Find specific author' link.



17 articles

Agricultural University, The Netherlands.



To see other authors, see the **who** section on the left side.



4: Oomycete RXLR effectors: delivery, functional redundancy and durable disease resistance.

PMID: [18511334](#) [Related Articles](#)



[Birch PR et al.](#), [Curr Opin Plant Biol](#): , 2008

Understanding how these effectors are translocated, their precise roles in **virulence**, and the extent to which functional redundancy exists in **oomycete RXLR** effector complements, are major challenges for the coming years.



7: RXLR-Mediated Entry of Phytophthora sojae Effector Avr1b into Soybean Cells Does Not Require Pathogen-Encoded Machinery.

PMID: [18621946](#) [Related Articles](#)



[Dou D et al.](#), [Plant Cell](#): , 2008

Furthermore, fusion of the Avr1b **RXLR**-dEER domain to **green fluorescent protein** (GFP) allows GFP to **enter** soybean root cells autonomously.

- **No Copyrights for published data (Open Access)**
- **Accreditation for Open distributed collaboration (Open Science)**
- **Data standards - value through aggregation (Science Commons)**

Thank you - time for Q & A

More detailed writings on these at my blog:

<http://semanticlifescience.wordpress.com>