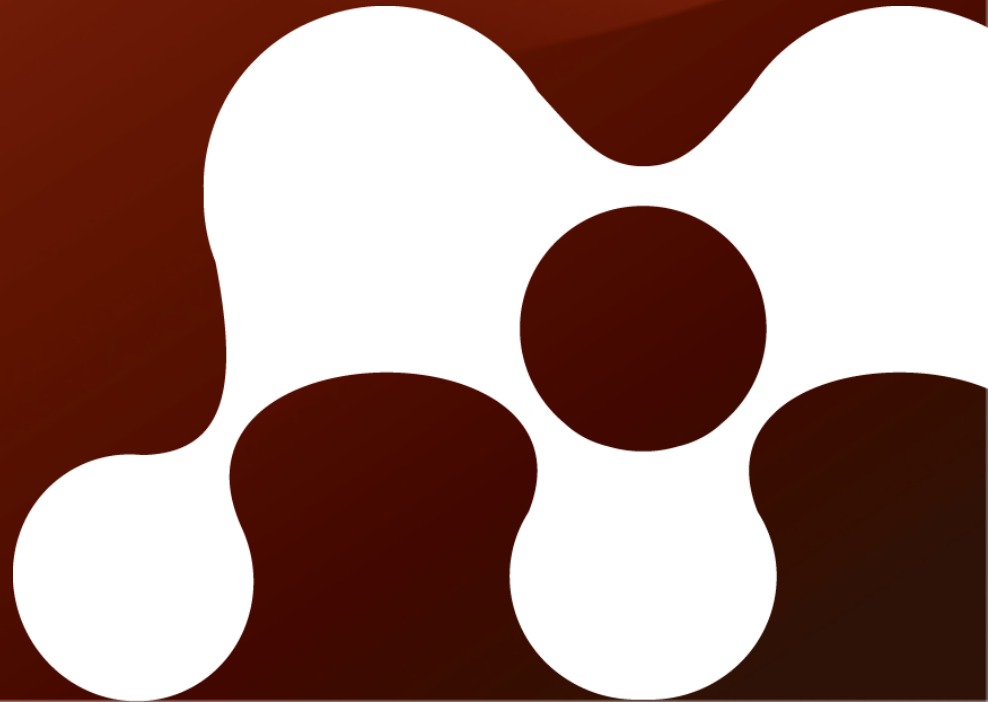


Vision, Users, Developers - what drives innovation at Mendeley?

Dr. Victor Henning
Co-Founder & CEO
Mendeley

www.mendeley.com



“Innovation is the creation of better or more effective products, processes, services, technologies, or ideas that are *accepted by markets, governments, and society.*”

Wikipedia

A brief introduction to Mendeleev

Back in
2008:

Jan



Paul



Victor

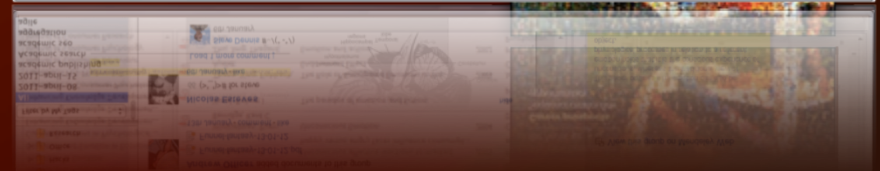


3 GERMAN PHD STUDENTS
WITH SKYPE ACCOUNTS

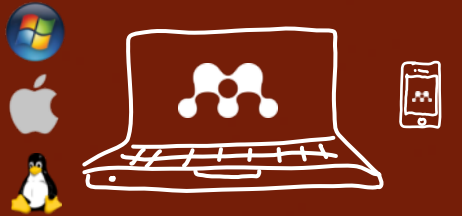




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..and aggregates everything
in the cloud



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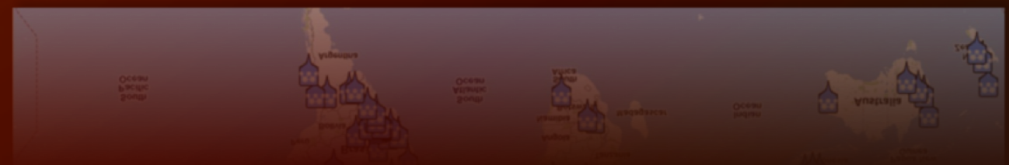
Sao Paulo University

University of California at Berkeley

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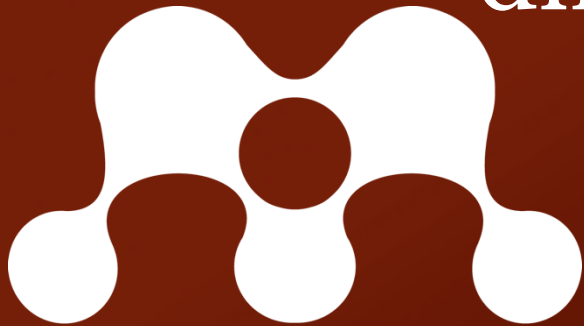
University of Edinburgh

Network of 1,200
“Mendeley Advisors” on
campuses around the world:



Innovation needs to be
directed by vision

*Mendeley wants to make
science more efficient,
collaborative, and open*



Innovation needs to be
directed by vision

..and vision needs
to be communicated

internally and externally



Regular internal “Strategy/
Vision” talks, and putting
our vision into context

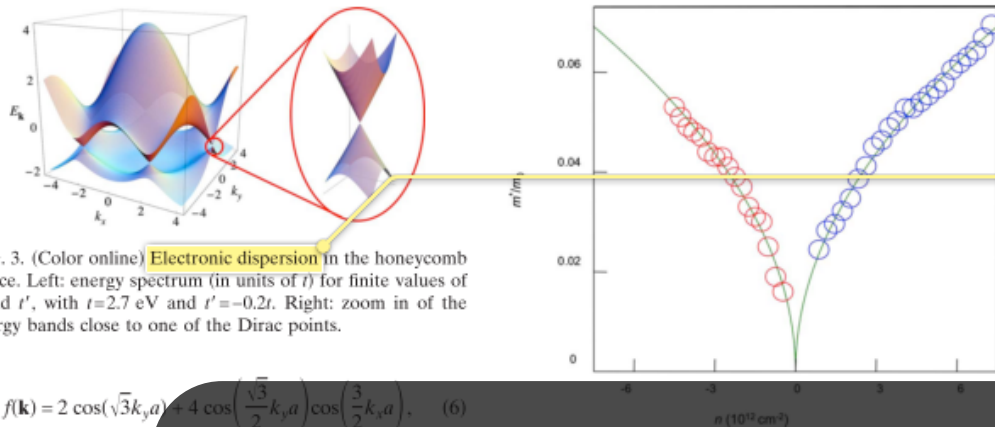


FIG. 3. (Color online) **Electronic dispersion** in the honeycomb lattice. Left: energy spectrum (in units of t) for finite values of t and t' , with $t=2.7$ eV and $t'=-0.2t$. Right: zoom in of the energy bands close to one of the Dirac points.

$$f(\mathbf{k}) = 2 \cos(\sqrt{3}k_x a) + 4 \cos\left(\frac{\sqrt{3}}{2}k_y a\right) \cos\left(\frac{3}{2}k_x a\right), \quad (6)$$

where the plus sign applies to the upper (π^+) and the minus sign to the lower (π^-) band. It is clear from Eq. (6) that the spectrum is symmetric around zero energy ($E=0$). For finite values of t' , the electron-hole symmetry is broken and the π and π^* bands become gapped. In Fig. 3, we show the full band structure of graphene with both t and t' . In the same figure, we also show a zoom in of the band structure close to one of the Dirac points (at the K or K' point in the BZ). This dispersion can be obtained by expanding the full band structure, Eq. (6), close to the \mathbf{K} (or \mathbf{K}') vector, Eq. (3), as $\mathbf{k}=\mathbf{K}+\mathbf{q}$, with $|\mathbf{q}|\ll|\mathbf{K}|$ (Wallace, 1947).

$$E_{\pm}(\mathbf{q}) \approx \pm v_F |\mathbf{q}| + O[(q/K)^2], \quad (7)$$

where \mathbf{q} is the momentum measured relatively to the Dirac points and v_F is the Fermi velocity, given by $v_F=3ta/2$, with a value $v_F=1\times 10^6$ m/s. This result was first obtained by Wallace (1947).

The most striking difference between this result and the usual case, $\epsilon(\mathbf{q})=q^2/(2m)$, where m is the electron mass, is that the Fermi velocity in Eq. (7) does not depend on the energy or momentum: in the usual case we have $v=k/m=\sqrt{2E/m}$ and hence the velocity changes substantially with energy. The expansion of the spectrum around the Dirac point including t' up to second order in q/K is given by

$$E_{\pm}(\mathbf{q}) \approx 3t' \pm v_F |\mathbf{q}| - \left(\frac{9t'a^2}{4} \pm \frac{3ta^2}{8} \sin(3\theta_{\mathbf{q}}) \right) |\mathbf{q}|^2, \quad (8)$$

where

$$\theta_{\mathbf{q}} = \arctan\left(\frac{q_x}{q_y}\right) \quad (9)$$

is the angle in momentum space. Hence, the presence of t' opens a gap in the spectrum. However, the presence of

$$v^d = \pi c \sin\left(\frac{\theta^d}{2}\right) \quad (a)$$

FIG. 4. (Color online) Cyclotron mass of charge carriers in graphene as a function of their concentration n . Positive and negative values correspond to the conduction and valence bands, respectively. The experimental data (red circles) are compared with the theoretical curves (green line). The theoretical curves are the best fit by Eq. (13). m_0 is the free electron mass. Adapted from Novoselov, Geim, Morozov, *et al.*, 2005.

1. Cyclotron mass

The energy dispersion (7) resembles the energy dispersion of a free electron, $\epsilon(\mathbf{q})=q^2/(2m)$, where m is the electron mass, and the corresponding particles are quantum mechanically described by the massless Dirac equation (see Sec. II.B for more on this analogy). An immediate consequence of this massless Dirac-like dispersion is a cyclotron mass that depends on the electronic density as its square root (Novoselov, Geim, Morozov, *et al.*, 2005; Zhang *et al.*, 2005). The cyclotron mass is defined, within the semiclassical approximation (Ashcroft and Mermin, 1976), as

$$m^* = \frac{1}{2\pi} \left[\frac{\partial A(E)}{\partial E} \right]_{E=E_F}, \quad (10)$$

with $A(E)$ the area in k space enclosed by the orbit and given by

$$A(E) = \pi q(E)^2 = \pi \frac{E^2}{v_F^2}. \quad (11)$$

Using Eq. (11) in Eq. (10), one obtains

$$m^* = \frac{E_F}{v_F^2} = \frac{k_F}{v_F}. \quad (12)$$

The electronic density n is related to the Fermi momentum k_F as $k_F^2/\pi=n$ (with contributions from the two bands $k_x^2/\pi+k_y^2/\pi=n$ with contributions from the two bands). The electronic density n is related to the Fermi momen-

Mendeley has a "Vision Team"

Annotation

Steve Dennis – 6 days ago
 A method for mitigating the effects of chromatic dispersion in fiber-optic communication links with electronic components in the receiver.

Save - Comment

Rosario García de Zúñiga Canivell – 6 days ago
 Have you read this?
[Reduction of Fermi velocity in folded graphene observed by resonance Raman spectroscopy](#)
 Zhenhua Ni, et al. in Physical Review B (2008)

Steve Dennis – 3 mins ago
 Thanks!

Figure

$E_{\pm}(\mathbf{q}) \approx \pm v_F |\mathbf{q}| + O[(q/K)^2]$

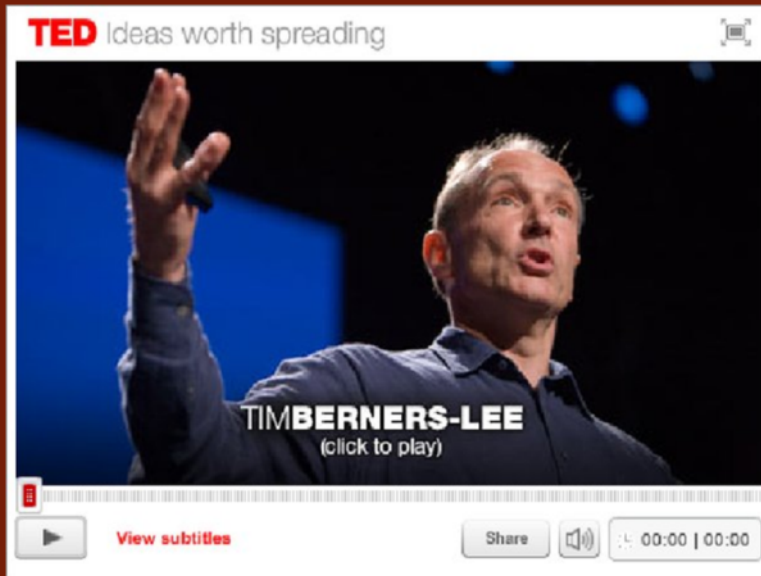
Comment

Supports

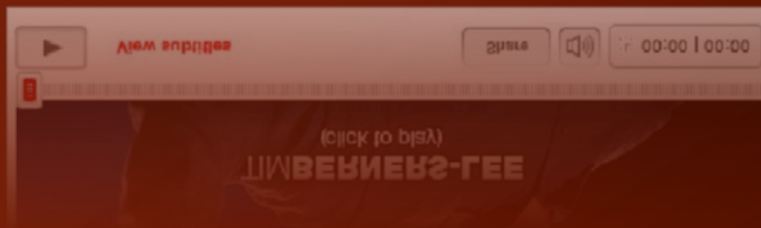
[Reduction of Fermi velocity in folded graphene observed by resonance Raman spectroscopy](#)
 Zhenhua Ni, et al. in Physical Review B (2008)

Comment

Putting our vision into context



But a lot of the state of knowledge of the human race is sitting in the conscious of the huge challenges scientists' computers and is – currently not shared. We need to get it unlocked so we can tackle the brain for Alzheimer's. those huge problems.“



Giving the vision a human face



Professor Randy Borum

Professor, University of South Florida
Tampa, Florida, United States

Research field: Social Sciences

Global security
Armed conflict & Irregular warfare
Terrorism/Violent Extremism
Armed groups



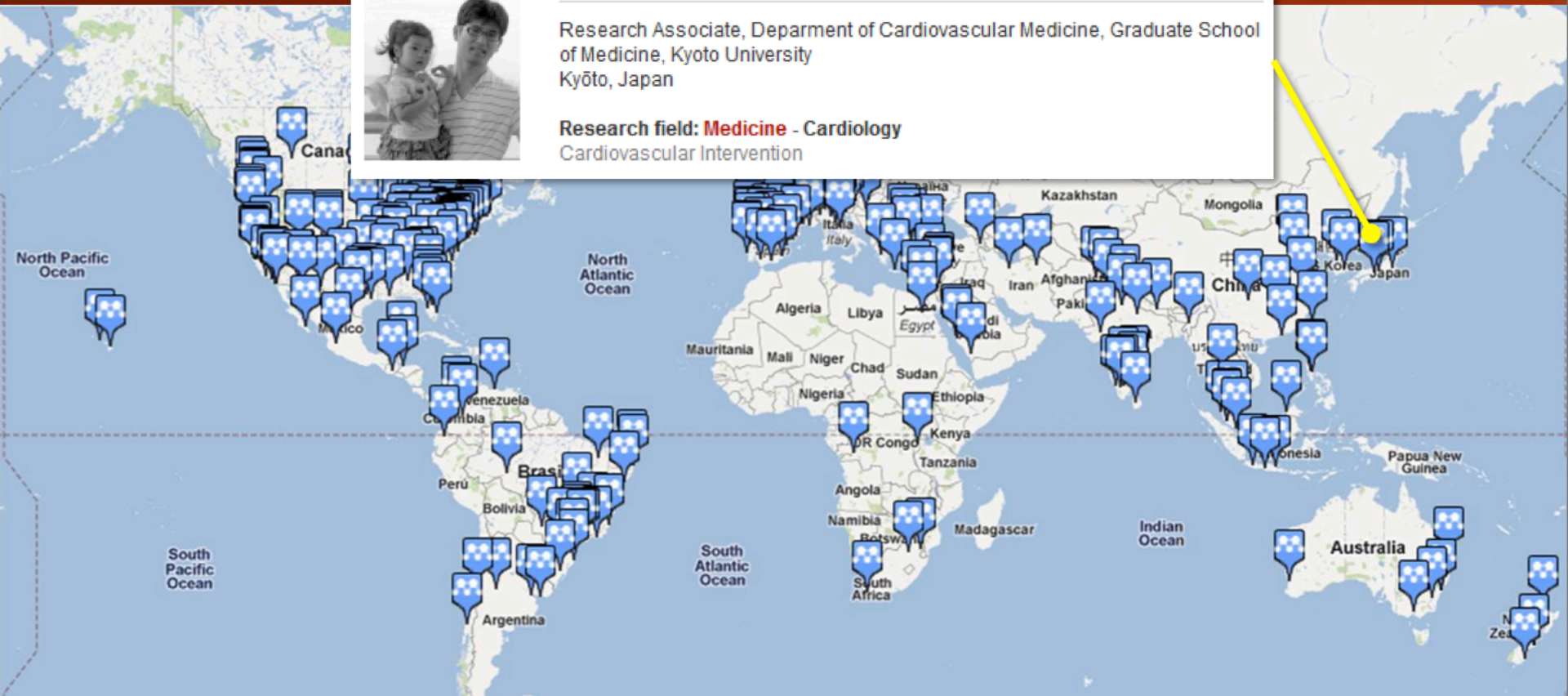
Giving the vision a human face



Naritatsu Saito, M.D., Ph.D.

Research Associate, Department of Cardiovascular Medicine, Graduate School of Medicine, Kyoto University
Kyōto, Japan

Research field: **Medicine** - Cardiology
Cardiovascular Intervention



Giving the vision a human face



Thabo Mavundza, Agricultural Engineer

Agricultural Engineer, Mpumalanga Department of Agriculture, Rural Development and Land Administration
Nelspruit, South Africa

Research field: Engineering

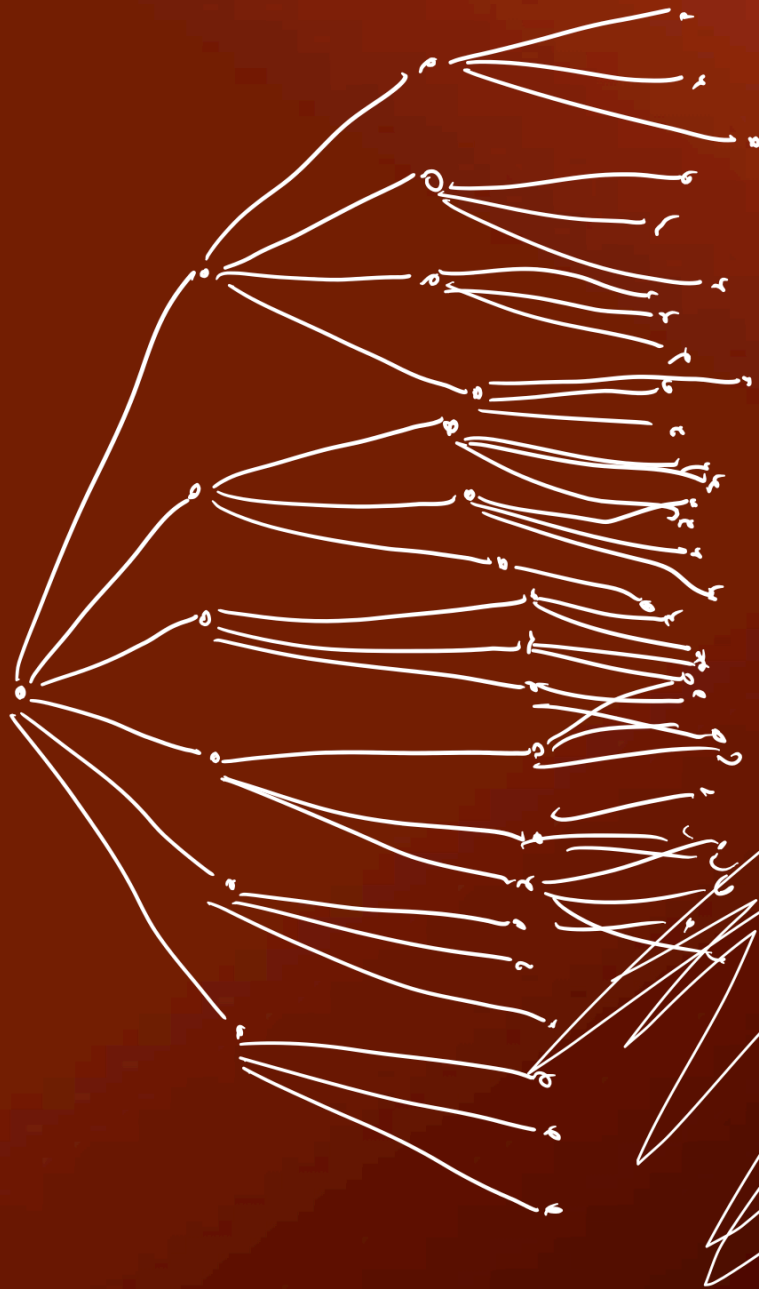
Farm mechanization and Animal Infrastructure
Precision Livestock Farming
Food Engineering



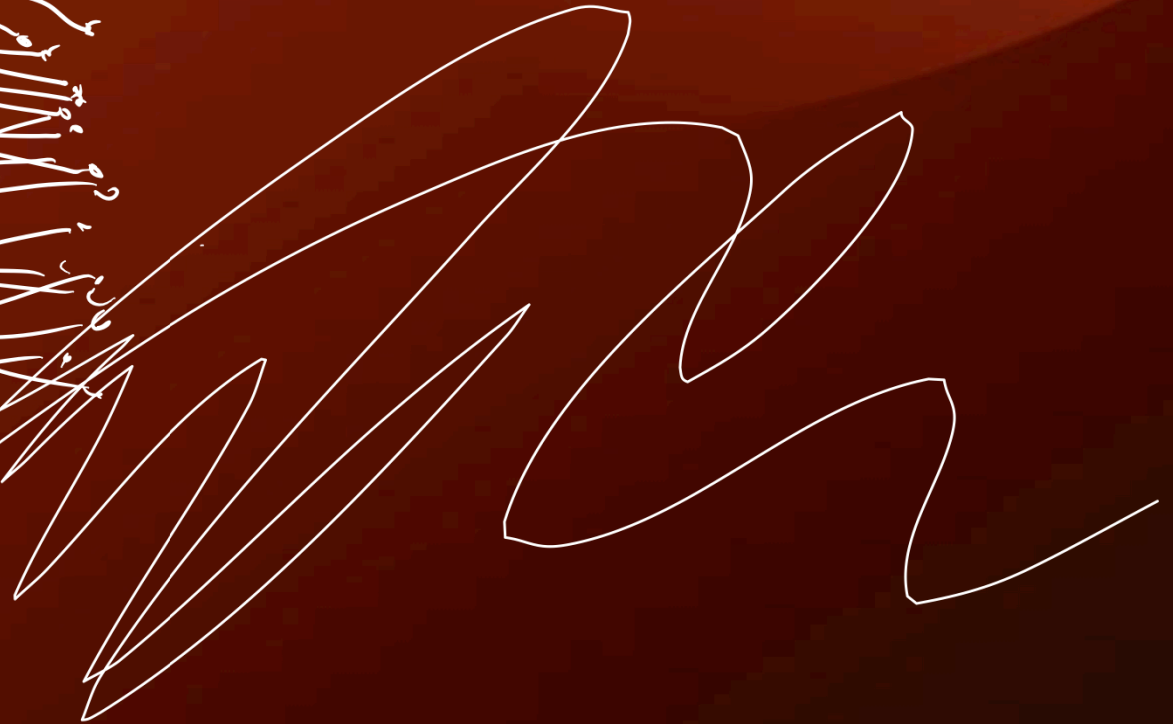
Understanding our vision and our users
attracts talent into the organization and
guides the innovation pushed by our
developers.

What enables innovation?

Focus



Too many projects =
path dependencies



Team Structure

The evolution of our team structure

One big family



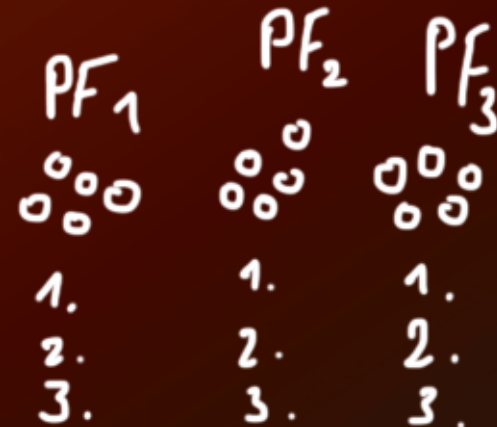
Functional teams



Project teams



Product family teams

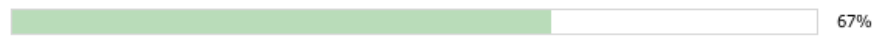


Processes and tools

Roadmap

Milestone: Desktop Sprint 14 - Paul Erdős

8 months late (01/09/11)

 Show already completed milestones


[Closed tickets: 14](#) / [Active tickets: 7](#) / [Total tickets: 21](#)

Milestone: Desktop Sprint 15

8 months late (09/09/11)



[Closed tickets: 5](#) / [Active tickets: 7](#) / [Total tickets: 12](#)

Milestone: Datamining Sprint 45

7 months late (16/09/11)



[Closed tickets: 2](#) / [Active tickets: 1](#) / [Total tickets: 3](#)

Milestone: Graz Secondment (James)

7 months late (15/10/11)



[Closed tickets: 11](#) / [Active tickets: 2](#) / [Total tickets: 13](#)

Todo

- #17028 Analyse arXiv data
- #17034 Code to evaluate clustering of user documents with a specified identifier type

Current

No results

Done

- #16697 Stop GetAuthors, GetTags, GetReaders from using old category map.
- #16702 Extract PubMed documents and user docs with PubMed IDs
- #16745 Compute distribution of similarities between imported PubMed/arXiv docs and their corresponding user docs
- #16911 Create ground truth data set out of arXiv data.
- #16954 Take user docs with identifiers and output those where the identifier can be validated.
- #17015 Generate duplicate and non duplicate pairs of documents from user documents with validated arXiv ids

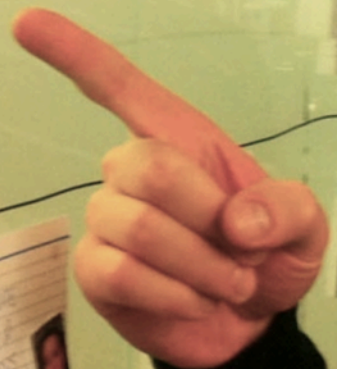
YES WE
KANBAN!

pa
SOCIAL FILMS
CUSTOMER / PROGRAMS
2/10/11

11
KONSTRUCTION
up / KANBAN
2/10/11

1067
Plan 2
Methodology workflow
Improvements
2/10/11

Design of
use - Review of
workflows
2/10/11



Shiplt? Shiplt.



Datamining

Create: Bug Task New Feature

Summary
Issues
Agile
Popular Issues
Components
Labels
Source

Summary

Reports ▾ Filters ▾

Description

Lead: [James Gibbons](#)
Key: DM

Activity Stream

▾

Issues: Unresolved

- [DM-1293](#)
Fix issue with queue that causes the thrift transport to break
- [DM-1149](#)
Moving (core) JP queues to Amazon SQS
- [DM-1980](#)
Instance article recommendations through Mendeley Suggest

Today



Charlotte Organ created [DM-2023 - User has paper in library, paper not recognised as being in library by catalog](#)
A user has a paper in their library that they added on 18/01/2012. The catalog does not recognise this paper as being in the library, and still offers to Save Reference To Library from the catalog page when the user is logged in.
User report: <https://mendeleysupport.desk.com/agent/case/19803>

1 hour ago [Comment](#) [Vote](#) [Watch](#)



James Gibbons stopped progress on [DM-1700 - IEEE Document Import](#)
 1 hour ago [Comment](#) [Vote](#) [Watch](#)



Daniel Jones commented on [DM-1989 - set up regular mirroring of new IEEE content](#)
Spring Integration is written to work with known endpoints, so doesn't like recursing over directory trees. We could write an extension to do so, but it seems like overkill if we can get the script working. I've raised an issue on the Spring
[Read more >](#)

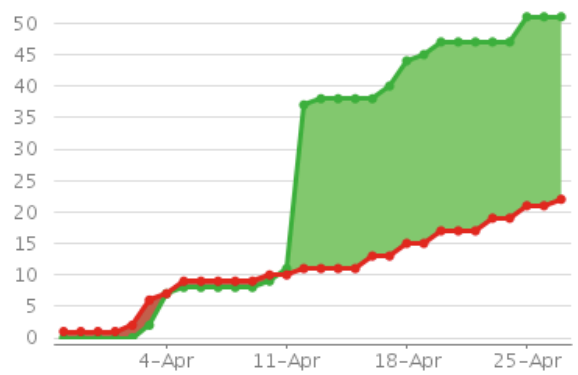
1 hour ago [Comment](#) [Watch](#)

Daniel Jones changed the Assignee to 'Robin Stephenson' on [DM-1989 - set up regular mirroring of new IEEE content](#)

This looks like some local Linux-y issue. I can run the script fine when copying to a directory that's not `/srv/ieee-mirror/`, and I can similarly copy the files to my machine without issue. Deleting the troublesome files and re-running the script
[Read more >](#)

2 hours ago [Comment](#) [Vote](#) [Watch](#)

Issues: 30 Day Summary



Issues: **22** created and **51** resolved

Issues: Updated recently

[DM-2023](#) Today 15:17
User has paper in library, paper not recognised as being in library by catalog



Playfulness



HACK DAY

- Uni List for Page
- Paper of the Day iPad App
- Visual Catalog Explorer™ - Firefox Bookmarks extension
- WordPress Related Citation
- Feed chrome extension
- Delicious & Connotea → Meebley
- Annotation Wall → The Mordley
- Recommendation Game → Voice
- WALL OF WEB 2.0
- Related Journals
- Dedupe Game



Not a hacker.



Cameron Neylon

[@CameronNeylon](#)

N 55°56' 0" / W 3°11' 0"

Open Science, Open Access, and bringing more experimental techniques to the biosciences. I work for the UK STFC but tweets are my personal opinion.

<http://cameronneylon.net>

[JSON](#) | [XML](#) | [BibTeX](#) | [RIS](#)

Identifiers

Metrics

Journal Articles (14)

Friends (53)

Shares How often works by this author have been shared by others

citeulike

43

 MENDELEY

138

Citations How often works by this author have been cited by others

Microsoft
Academic
Search

114

Scopus

176

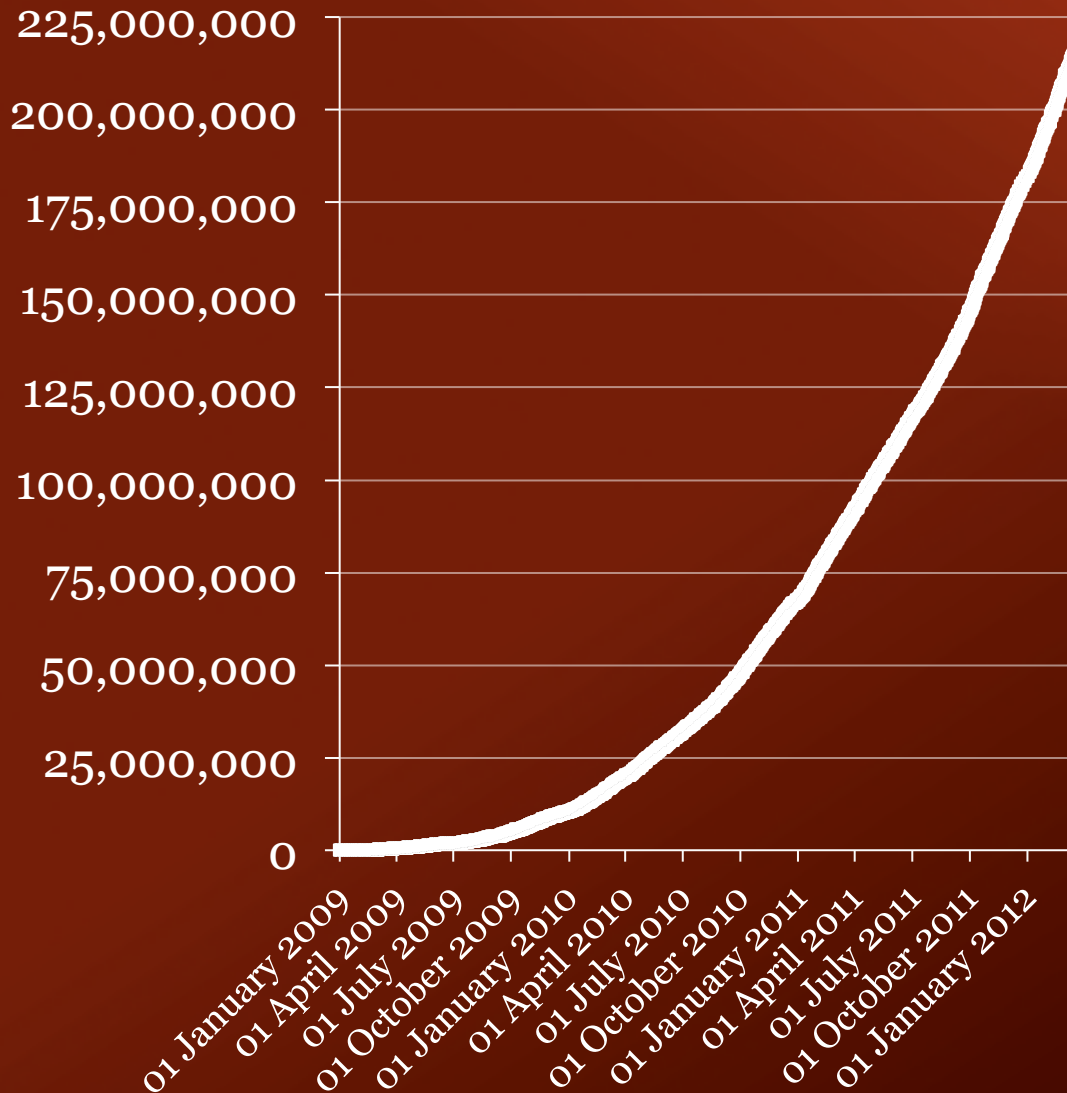
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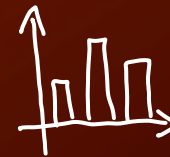
Interdisciplinary user demographics



User-generated tags

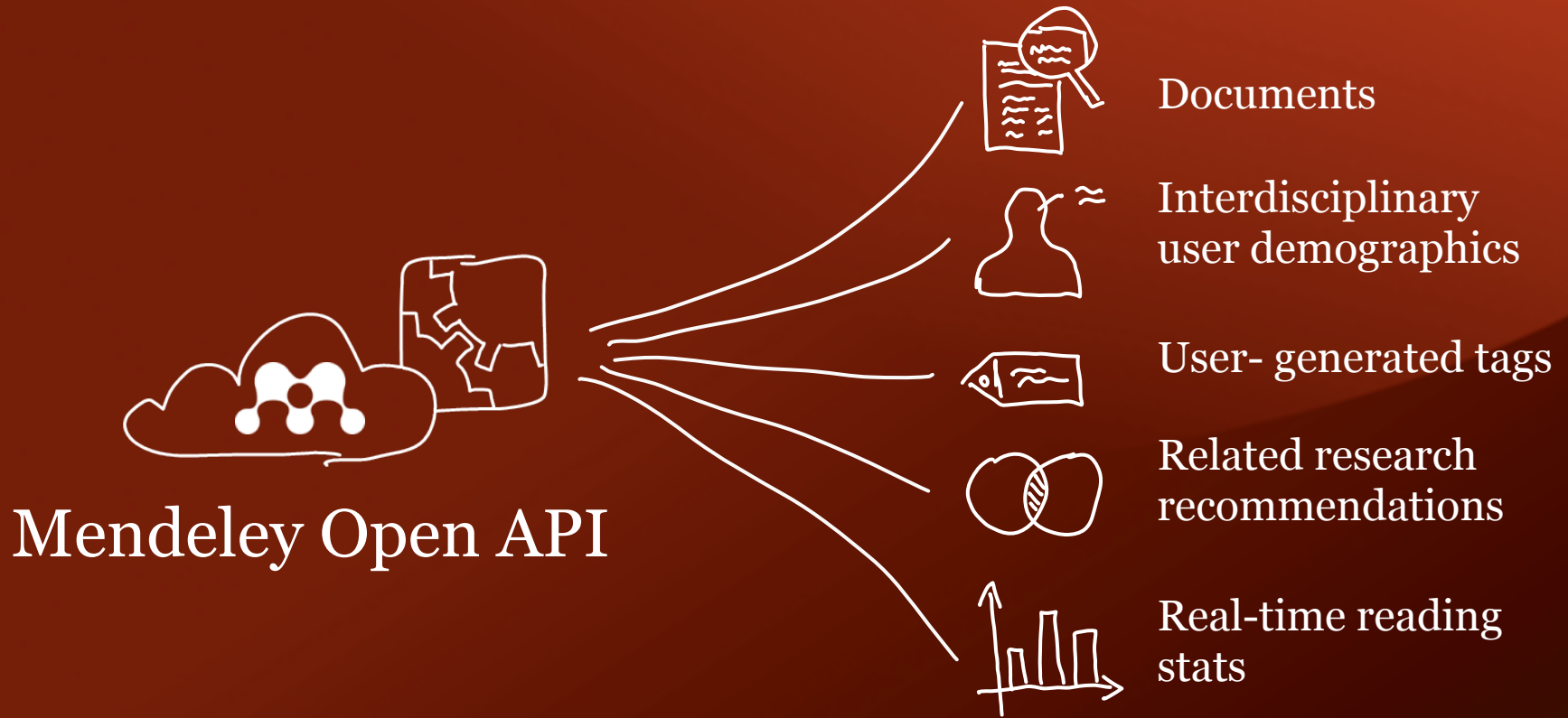


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Mendeley Unofficial Mendeley Android client

"Great app! Indispensable for academic works!"
Federico Viola

"As an academic with a terrible memory for names and dates, I expect having access to my mendeley database in my pocket will be a real lifesaver!"
Stefan Berteau

-  All Docs
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-  Authors
-  Tags
-  SearchHub
-  Groups

Measuring the evolutionary rate of protein-protein interaction

Wenfeng Qian, Xiongfei He, Edwin Chan, Hualiang Xu, Jianzhi Zhang
Published in Proceedings of the National Academy of Sciences of the United States of America (Vol 111)

Abstract
Despite our extensive knowledge about the rate of protein sequence evolution for thousands of genes in stem function evolution is virtually unknown, especially at the genomic scale. This lack of knowledge is in part due to the consequent difficulty in gauging and comparing rates of protein function evolution. Interacting with other proteins, and protein-protein interaction (PPI) can be tested by standard assays. It is assumed by the rate of PPI evolution. Here, we experimentally examine 87 potential interactions between orthologs in the related budding yeast *Saccharomyces cerevisiae* have been reported to interact. Our analyses, we estimate that the evolutionary rate of protein interaction (PPI) can be tested by standard assays. The rate of protein sequence evolution measured by the number of amino acid substitutions per protein per year. This genome-wide duplication would be inferred to think that this rate can be compared to other species.

Sign in with your Mendeley account to post a review!

Views
should have discussed a whole genome duplication
By Giovanni Dall'Olmo · 8 hours ago · Recommended: Yes · Difficulty level: Intermediate · Reviewer: Yes
This paper provides an estimate of the rate of protein-protein interaction gain or loss between two species. The problem is that the authors did not discuss the fact that a genome-duplication event occurred but may invalidate their conclusions about the overall PPI loss/gain rate of 2.6 (1.0) 10(-10) per PPI per year. This genome-wide duplication would be inferred to think that this rate can be compared to other species.

Apart from this point, I liked the paper and think it is a very good experiment. The authors did an impressive job, and their results are valid for these two species.

References: ★★★★★ Originality: ★★★★★ Argumentation: ★★★★★ Readability: ★★★★★

ScienceCard
Authors Articles Journals About Sign out Signed in as Victor Mendeley

Cameron Neylon
Open Science, Open Access, and bringing more experimental techniques to the biosciences. I work for the UK STFC but tweet as my personal opinion.
<http://cameronneylon.net>

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How often articles by this author have been read, bookmarked or blogged by others

61	118	0	4

Citations
How often articles by this author have been cited by others

44	120

15 Articles

Applying neutral drift to the directed molecular evolution of a 7-glycosyltransferase into a 7-galactosyltransferase: Two different evolutionary pathways lead to the same variant Smith W, Hale J, Neylon C. BMC Research Notes. 2012;4:1151 http://dx.doi.org/10.1186/1745-7189-4-1151	25	6	1	1
Stitching science together Neylon C. Nature. 2009;461(7263):881-881 http://dx.doi.org/10.1038/461881a	2	1	1	2
Funding ban could break careers at the toss of a coin Neylon C. Nature. 2009;459(7247):642-641 http://dx.doi.org/10.1038/459642a	17	2	17	2
Head in the clouds: Re-imagining the web-based networked world Neylon C. 2009;4(12)	4	25	6	17
ALREADY LIVE DO NOT PUBLISH Data on display Bradley J, Neylon C. Nature. 2008;455(7241):272-272 http://dx.doi.org/10.1038/455272a	1	5	6	16
Small angle neutron and X-ray scattering in structural biology: recent examples from the literature Neylon C. European Biophysics Journal. 2008;37(1):133-141 http://dx.doi.org/10.1007/s00441-007-9200-9	1	11	3	15
Diffraction Micro Bar Codes for Encoding of Biomolecules in Multiplexed Assays Broder G, Ranaivosoa R, She J, Bano S, Birnboim S, Cavalli G, et al. Analytical Chemistry. 2008;80(16):3900-3909 http://dx.doi.org/10.1021-aa080163a	1	11	3	15
Open Science: Tools, approaches, and implications Wu & Neylon C. Science Proceedings. 2008 http://dx.doi.org/10.1038/441				
Multistep Synthesis on SU-8: Combining Microfabrication and Solid-Phase Chemistry on a Single Material Cavalli G, Bano S, Ranaivosoa R, Broder G, Martins H, Neylon C, et al. Journal of Combinatorial Chemistry. 2007;9(11):1482-1472 http://dx.doi.org/10.1021-cc070163a				

THANK
YOU!

