



Digital Vita: Research networking in the context of CV management

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Social networking is hot

- Membership in social networking sites is booming:
 - Friendster: 50,000,000
 - Facebook: 58,000,000
 - MySpace: 217,000,000
- How about scientists?
- Adults invade Facebook! (WSJ 11/3/07)

Weaver AC, Morrison RR. Social Networking. Computer 2008;41(2):97-100

How do scientists look for collaborators?

- ask colleague(s) and get a referral
- search the literature and cold-call
- ~~• use electronic systems, e.g. Community of Science~~

Kraut RE, Galegher J, Egidio C. Relationships and tasks in scientific research collaboration. Hum-Comput Interact 1987-1988;3(1):31-58.

Why don't scientists use expertise locating systems?

1. low awareness
2. incomplete domain coverage
3. outdated/sparse profiles
4. lack of critical mass
5. traditional approaches very ingrained

Scientists are not looking for a blind date.

Collaboration ...

- ... is often a long-term relationship.
- ... requires predicting future performance.
- ... benefits from deep knowledge about the collaborator.
- ... can have significant professional impact.
- ... is sometimes hard to end.

⇒ contrast to “expertise location” in traditional CSCW research

Schleyer TK et al.. Conceptualizing and advancing research networking systems.
ACM T Comput-Hum Int. 2011. (in press)

With regard to collaboration, scientists face “an embarrassment of riches.”

- science increasingly multi- and inter-disciplinary
- more collaborators through growing research enterprise
- collaborators easier to find through Google, MEDLINE, etc.
- remote collaborations increasingly practical

Braun T, Schubert A. A quantitative view on the coming of age of interdisciplinarity in the sciences 1980-1999. *Scientometrics* 2003 Sep;58(1):183-9.

Plenty of expertise locating systems

- Community of Science (www.cos.com)
- LinkedIn (www.linkedin.com)
- Innocentive (www.innocentive.com)
- Index Copernicus Scientists
(<http://scientists.indexcopernicus.com/>)
- Research Crossroads
(<http://www.researchcrossroads.com/>)
- BiomedExperts
(<http://www.biomedexperts.com/>)

Are current systems responsive to the requirements of scientists seeking collaborators?



Project goals

- develop preliminary requirements for researcher discovery system
- design a set of services and implement in a prototype system
- deploy system in practice
- evaluate

Methods

Project team

- 2 dental informatics faculty
- 1 School of Business faculty
- 1 library and information science faculty
- 5 MS students in human-computer interaction:
 - psychology
 - computer science
 - Design
- implementation team (2.5 programmers, .5 project manager)

Methods (cont.)

Background research

- literature review
- affinity diagramming
- contextual inquiries (10 scientists)
- semistructured interviews (30 scientists)

Methods (cont.)

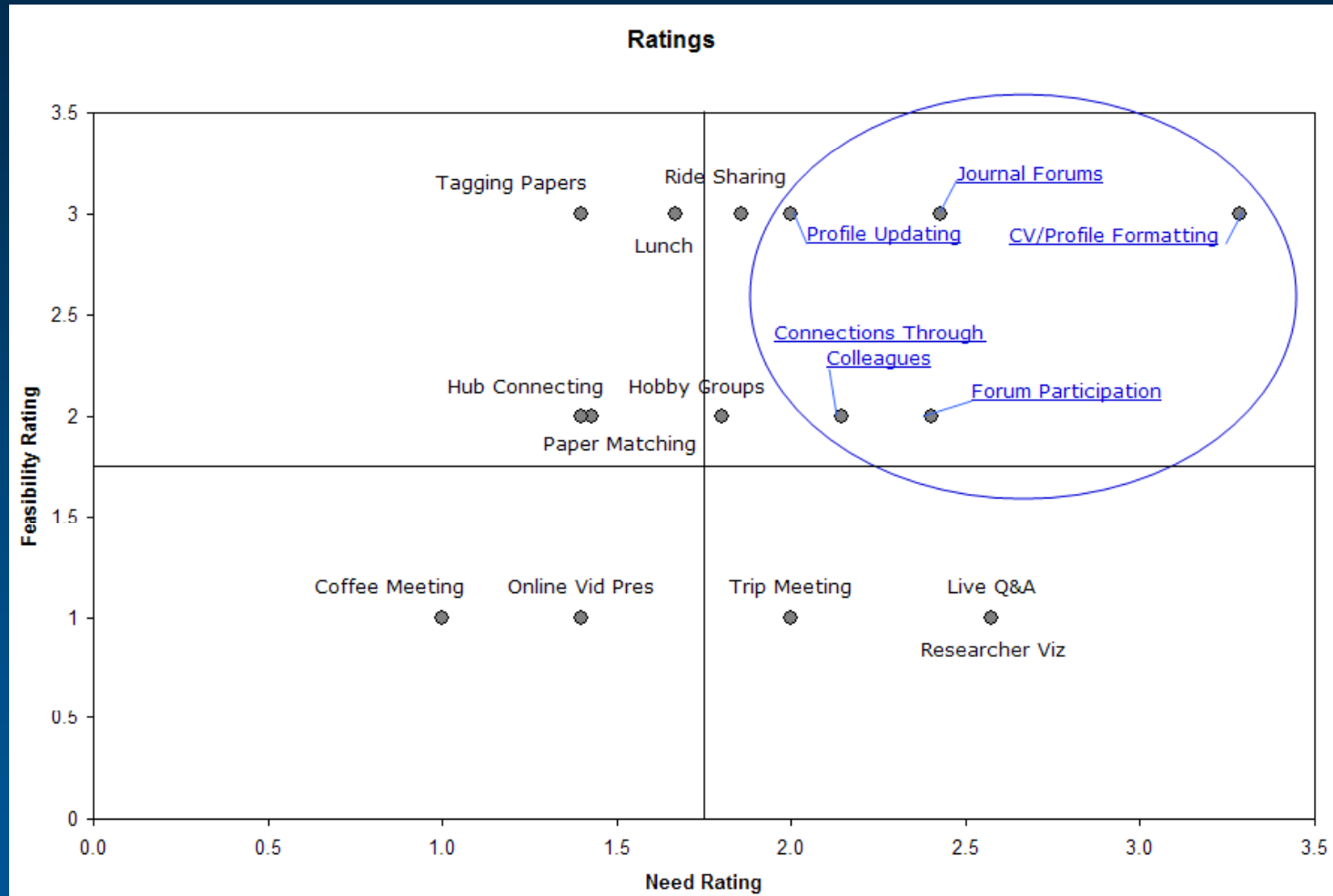
Development

- ideation
- concept validation
- prototyping
- formative evaluation



Results

Ideation and concept validation



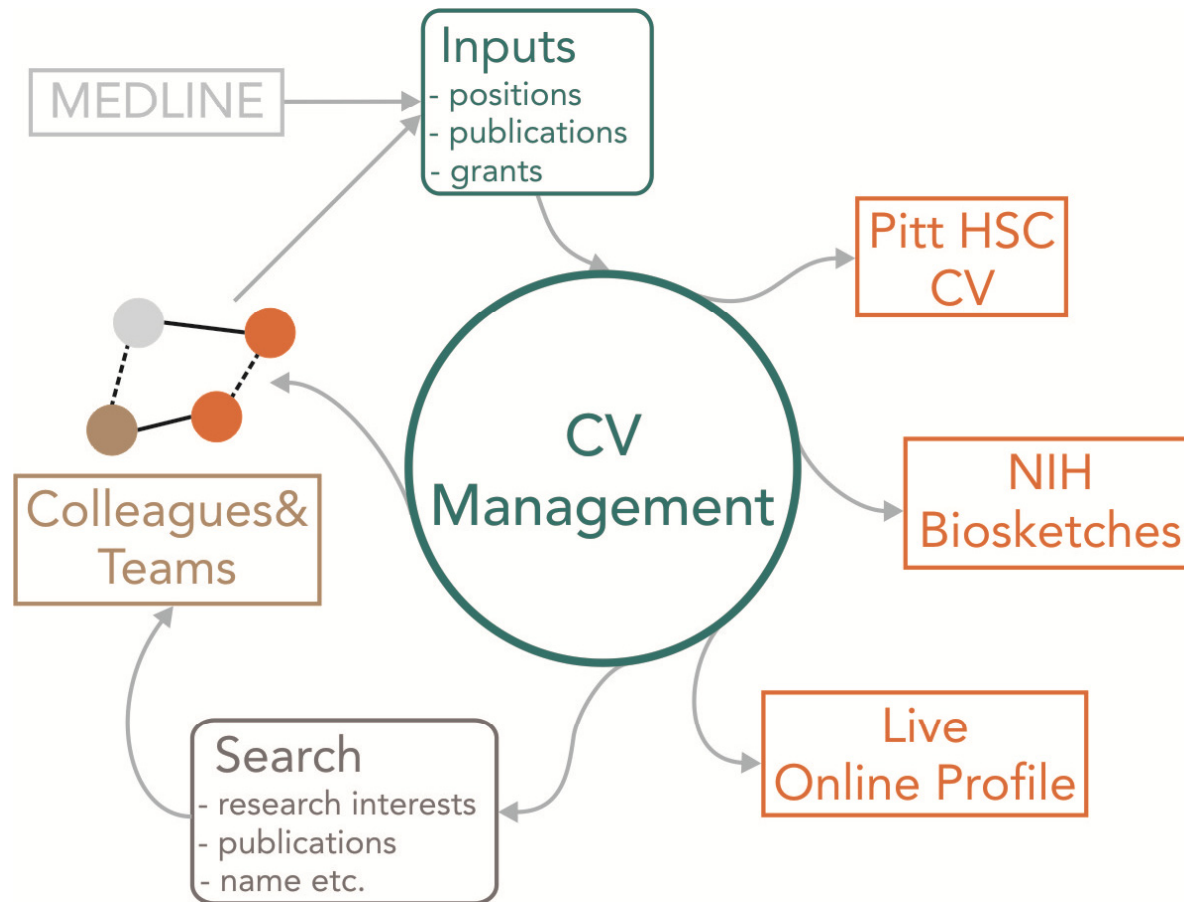
Requirements

- effort balanced with perceived benefit
- profiles comprehensive and up-to-date
- exploit social network
- model proximity
- assessment of compatibility, work style and other “soft” traits

Schleyer TK, et al. Requirements for expertise location systems in biomedical science and the Semantic web. Proceedings of the 3rd Expert Finder Workshop on Personal Identification and Collaboration; 2008

Requirements (cont.)

- social networks based solely on co-authorship incomplete
- accommodate preferences for privacy and public availability of information
- search effectively across disciplines
- facilitate non-intuitive connections



Digital Vita live

Research Gateway **digital vita** welcome, Titus Schleyer [Sign Out](#) | [Help](#) | [My Settings](#)

Home My Information My Documents My Colleagues Search

[Generate a Document](#) Request or Send a Document

Use this page to make changes, updates and additions to your biographical information. Items you update here will also be updated in the documents you have already created on the [My Documents](#) page.

You have no additions.

Biographical

Personal Statements (2)

Research Interests (38)

Education & Training (4)

Academic Appointments (10)

Other Professional Positions (6)

Grants & Contracts (27)

Awards & Honors (5)

Publications (141)

Certifications & Licenses (4)

Professional Societies (9)

Presentations (79)

Service Activities (118)

Mentoring and Advising (29)

Publications [Add Entry](#)

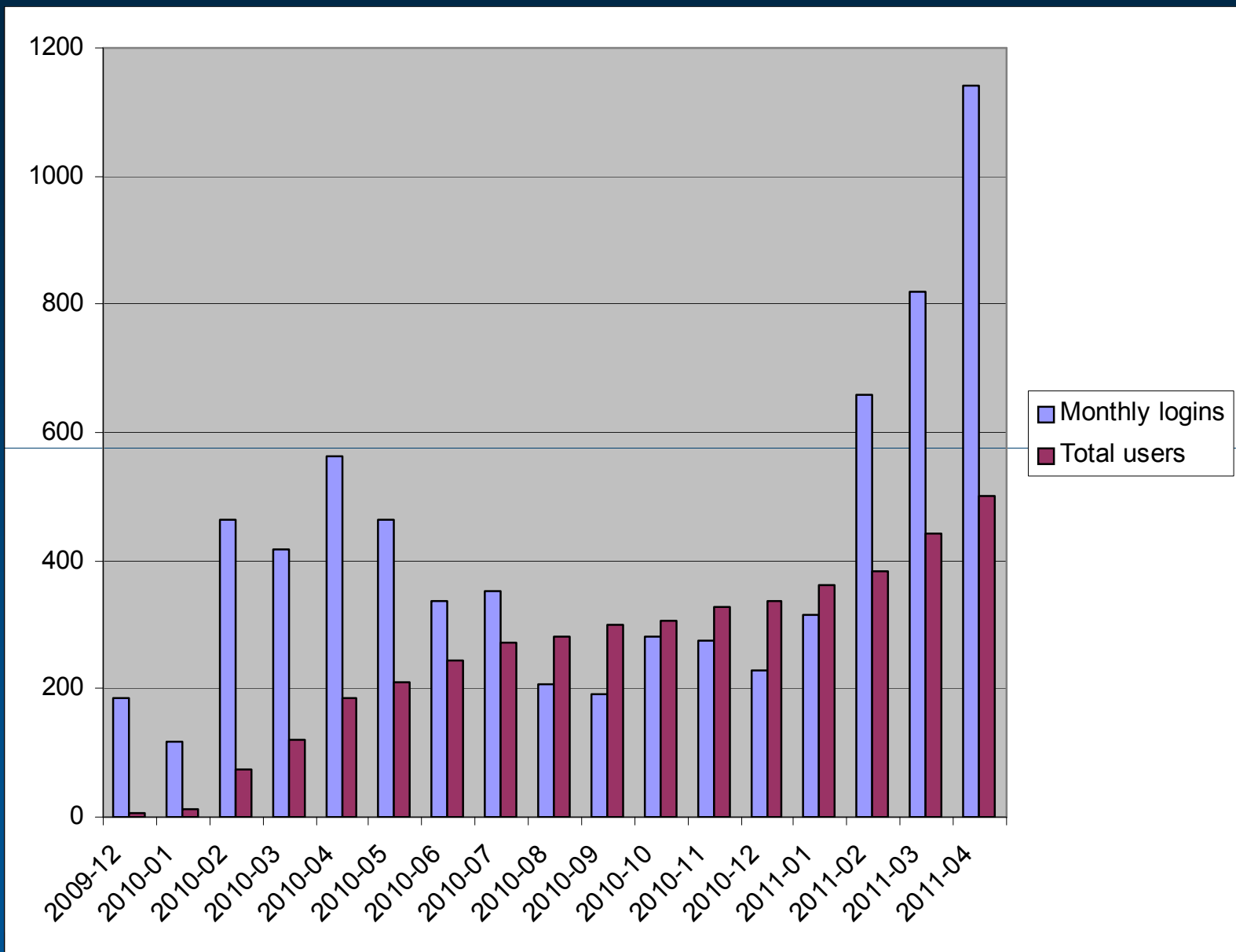
Show Sort By Show per page prev 1 next

Viewing 74 Journal Articles of 141 total publications.

- 1 Song M, Spallek H, Polk DE, Schleyer TK, Wali T. How information systems should support the information needs of general dentists in clinical settings: suggestions from a qualitative study. BMC Medical Informatics and Decision Making. 2010; 10(7).
- 2 Irwin JY, Torres-Urquidy MH, Schleyer T, Monaco V. [A preliminary model of work during initial examination and treatment planning appointments](#). British Dental Journal. 2009 Jan 10; 206(1):E1; discussion 24-5.
- 3 Torres-Urquidy MH, Wallstrom G, Schleyer TK. [Detection of disease outbreaks by the use of oral manifestations](#). Journal of dental research. 2009 Jan; 88(1):89-94.
- 4 Torres-Urquidy MH, Acharya A, Hernandez-Cott P, Misner J, Schleyer T. [Evaluating the effectiveness of modeling principles for data models](#). Studies in health technology and informatics. 2009; 143:525-33.
- 5 Thyvalikakath TP, Monaco V, Thambuganipalle H, Schleyer T. [Comparative study of heuristic evaluation and usability testing methods](#). Studies in health technology and informatics. 2009; 143:322-7.
- 6 Christensen L, Harkema H, Irwin J, Schleyer TK, Haug P, Chapman WW. Medical Understanding and Semantic Analysis. 2009. (accepted)
- 7 Acharya A, Schleyer TK. Electronic dental record information model. Int J Medical Engineering and Informatics. 2009; 1(4):418-434.
- 8 Thyvalikakath TP, Monaco V, Thambuganipalle HB, Schleyer T. [A usability evaluation of four commercial dental computer-based patient record systems](#). Journal of the American Dental Association (1939). 2008 Dec; 139(12):1632-42.

Implementation

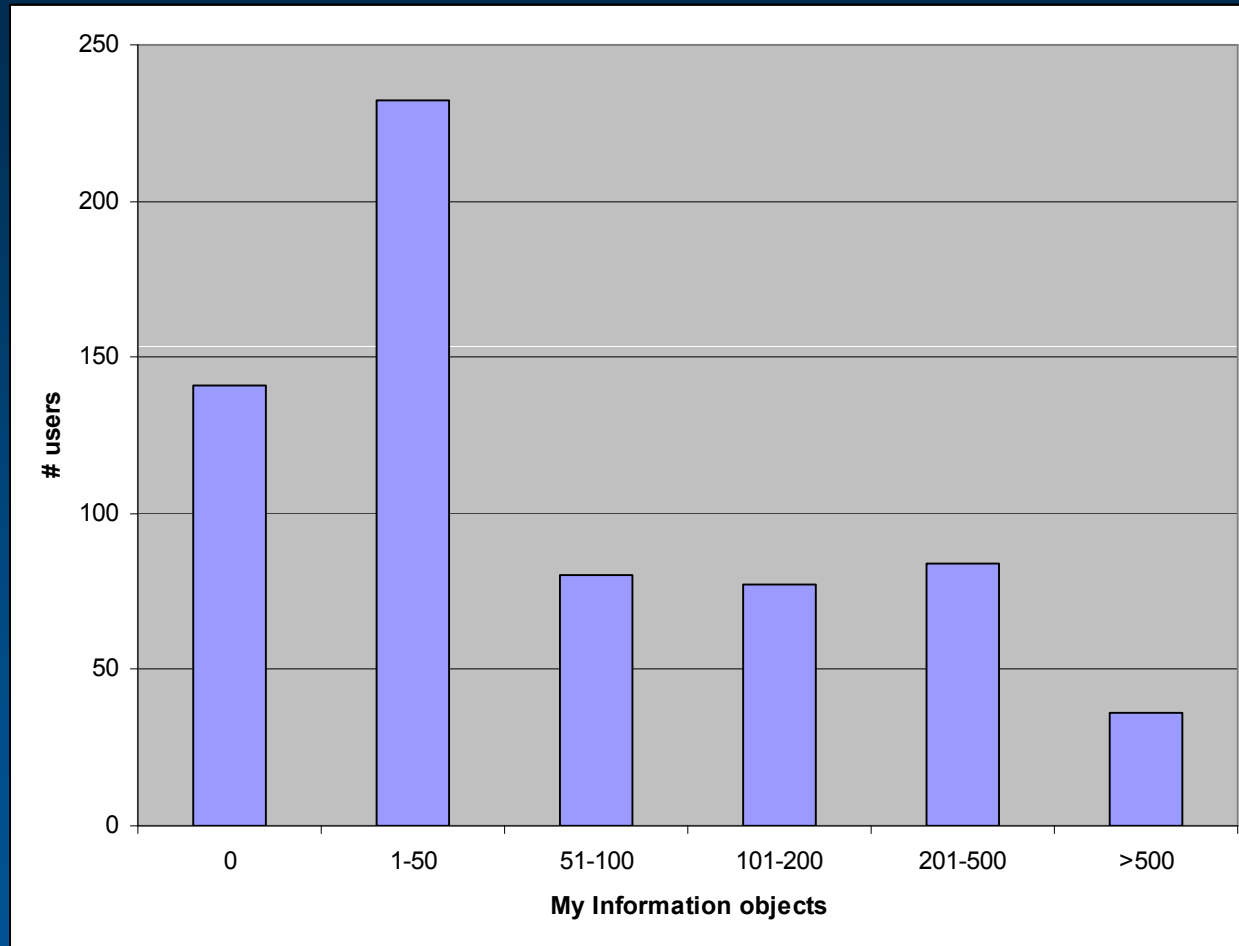
- “soft” rollout beginning 10/2009
- currently:
 - 650 users at Pitt, some elsewhere
 - 1,140 logins in 4/11
 - 22,204 publications
 - 3,227 grants
 - 6,346 presentations
 - 3,278 mentoring records



User “types”

Super-delegate	bulk CV data entry for 5-50 people	8
Delegate	admin. support staff for center/dept. faculty	25
Sole user	faculty who do most work themselves	610

Size of CVs in Digital Vita



Sources for selected objects

Object type	Entry		
	Manual	Manual propagated	Import from MEDLINE
Poster	1,660	94	0
Journal article	5,464	4,942	10,264
Conference paper	436	63	0
Published abstract	2,438	627	0

Current evaluation

- adoption and use of the system
- user attitudes, satisfaction and acceptance
- outcomes
 - short-term: biosketch generation and routing, new research teams, efficiency gain
 - long-term: high-impact collaborations formed, collaborative publications, external system utilization

Barriers to the implementation of Digital Vita

- Well-connected researchers will outperform system – most of the time.
- Collaboration-seeking methods and needs evolve with scientist's career.
- DV economizes on many tasks but adds others.
- The desire for “publicness” differs among scientists.
- ... and many other problems associated with social networks (e.g. free ridership, differential incentives, etc.).

Discussion

- collaboration-seeking a complex activity
- does not depend on solely factual information about potential collaborators
- current approaches to finding collaborators time- and effort-intensive
- CV a good source of factual information

Project Website

<http://di.dental.pitt.edu/orc/>



Thank you for
your attention.
Questions?