UCSF Profiles – Researcher Networking and More!

**Summary**

UCSF Profiles ([http://profiles.ucsf.edu](http://profiles.ucsf.edu)) facilitates discovery of 6000+ researchers at UCSF, including 110,000+ associated publications, their co-authors, networks, interests, videos, awards, and more.

Launched in 2010 as an application to enable “research networking” (like LinkedIn for researchers, but with automatically populated data and institutional provenance), UCSF Profiles has enabled significantly more than that at UCSF and nationwide. This public application, built on an open source product and converted by UCSF from a software application to a software platform, continues to accrue users at a rapid pace (monthly visits = 65,000+) and creates a novel people-focused digital entryway to the university. Now, 3 years after launch, and through the work of our team at UCSF’s Clinical and Translational Science Institute (CTSI), UCSF Profiles has also become:

- An integral resource for enabling research, facilitating student and faculty mentoring, enriching patient interaction with the medical enterprise, and achieving administrative efficiencies
- An automated source of publication and CV data that feeds thousands of other UCSF campus web pages, saving thousands of hours of administrative data entry
- A robust source of data which enables management reporting and “precision” targeted emails
- A software platform for open source innovation, now enabling other institutions to develop new features
- A third major public web gateway to the institution, in addition to ucsf.edu and directory.ucsf.edu

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**Project Description**

**A national challenge and UCSF’s solution to identify expertise and enable collaboration**

In 2009, UCSF’s search for tools that would facilitate expertise mining and match-making among campus researchers led us to select Harvard’s open source “Profiles” product. We spent a year collaborating with Harvard to improve the functionality of Profiles, and adapted it to the needs of the UCSF research community during an 8-month beta phase, winning support of key campus faculty and academic leaders. We officially launched in September 2010 becoming the first institution beyond Harvard to host the Profiles software.

In a nutshell, UCSF Profiles is a web application that allows people to search for UCSF researchers by expertise and experience, and view the relationship of the researcher to other investigators and subject areas. To do this, UCSF Profiles extracts and disambiguates information from public databases, creates individual profile pages, and automatically computes relationships between people (such as co-authors) and research areas using a variety of algorithms. UCSF Profiles is a mashup of data from a wide variety of public and campus data sources. Researchers can further enhance their profile page by manually annotating their own record with photos, information about mentorship, interests, and much more.

Expertise in user engagement and digital marketing helped build a strategy for use, customizations and extensions to enable UCSF Profiles’ success and adoption. In the words of users and partners, UCSF Profiles has achieved much more than ever envisioned: from a prior Dean of the School of Nursing who called it ‘miraculous’ and a ‘gateway to collaboration’, to a faculty researcher, who described the wealth of information now accessible to him as “eye opening”, to an administrator commenting on the benefits to his department with “thanks for all you do”, and to our software collaborator who acknowledges that “UCSF has played a major role in the success of Profiles at institutions around the world”.

In addition, new faculty and employees now use UCSF Profiles to acclimate to their new workplace; development officers who must create briefs for potential funders have found UCSF Profiles to be an invaluable resource for their research; University Relations/Public Affairs and staff reporters have not only used UCSF Profiles to research their stories, but we have forged a mutually beneficial relationship with the team behind ucsf.edu through which names in news articles now link directly to that individual's UCSF Profiles page; and national news outlets such as the New York Times, NPR, and National Geographic are linking directly to high-quality UCSF Profile pages.

Finally, we are using UCSF Profiles to push the boundaries and create new modes of group collaboration. We have partnered with UCSF’s campus IT Services to integrate UCSF Profiles with the institution’s enterprise social networking tool, SalesForce Chatter, to enable live activity streaming, “following” and group creation. And in addition, UCSF Profiles is an integral component of UCSF Open Proposals, our new model for collaboration in proposal creation and team development, in which applications are posted online and made available for review by a community of peers. Proposers have the opportunity to find potential partners and make improvements to original proposals, enabling transparent and collaborative proposal development, promoting multi-disciplinary team building, and reducing the likelihood of redundant proposals.

**Enabling efficiency at UCSF and nationally**

**Share the data**

UCSF is a highly decentralized campus where many faculty members have multiple appointments, and thus multiple web pages are managed by a myriad of administrative and IT staff. With the introduction of UCSF Profiles APIs, and in support of campus Operational Excellence goals, we have been able to substantially reduce the heavy administrative burden of collecting and summarizing publication data across UCSF’s many departmental web sites. The days of collecting CVs and manually typing in publications for faculty web pages are numbered.

UCSF Profiles data is publicly available using JSON and XML APIs, Linked Open Data / RDF, as well as a Drupal module. This data currently powers more than 20 campus websites and applications, feeding into over 10,000 unique campus web pages. APIs are documented on a developer-oriented website, and the developer community stays connected via a
Chatter group. Developer evangelism from the UCSF Profiles team has helped UCSF developers leverage the data in a variety of ways. For example, the Center for AIDS Research (CFAR) uses syndicated UCSF Profiles data to add details to over 260 faculty web pages; the directory tool on the UCSF Mobile App for iOS and Android uses UCSF Profiles APIs to display headshots and show quick summaries of researcher interests; the Department of Medicine has integrated UCSF Profiles APIs into its web platform, so data is “baked in” to every standalone website they launch for Divisions within the Department; and Advance, UCSF’s faculty advancement and promotion web portal, allows researchers to automatically pull in new publications from UCSF Profiles when updating their official CV.

Use and re-use data
Once UCSF Profiles was deployed, we realized that we were sitting on a gold mine of data, potentially useful for research administration and communications tasks across the institution. For example, we learned that University administrators, Deans and others had reporting needs for lists of all faculty publications. While this was previously a tedious job to search article databases, collect CVs, de-duplicate and disambiguate authors, UCSF Profiles now provides staff and campus leadership with useful reports on faculty research.

Moving beyond reporting, we expanded our goals to include using this rich data to create “precision emails,” ensuring that campus groups can reach out to faculty based on research interests or other criteria, instead of a “spray and pray” approach that leaves faculty with large quantities of irrelevant email. We began beta testing this platform through a partnership with University of California TV (UCTV). The UCSF Profiles team incorporated 600+ existing UCTV videos on UCSF Profiles, and then used our new email targeting platform to share this news with the appropriate subset of campus researchers. Early results show a much higher open rate (40%+) for these emails relative to regular untargeted UCSF emails. We’re in the process of building partnerships with campus groups to reduce the number of emails sent to faculty—a major complaint—through improved targeting.

“A Platform Beats an Application Every Time.” - Tim O’Reilly
The underlying Profiles software is a standalone web application, but we’ve transformed it from a monolithic application into a platform. This allows us to bring extended data and functionality to our researchers’ online environments, and makes it easier to share independently-developed software innovations with others. Thanks to our work, developers can now add their own content to Profiles using HTML and JavaScript, in much the same way that developers write Facebook apps or WordPress plugins.

We did this by mixing together OpenSocial (a web application standard pioneered by Google) with the VIVO ontology (a data representation standard recommended for biomedical researchers by the NIH). We call this combination of standards Open Research Networking Gadgets, or ORNG (http://www.orng.info/), which we implemented using Apache Shindig, an RDF to JSON conversion library developed by Epimorphics, custom glue code, and a set of naming standards.

Our work on the ORNG standard is designed not only to enhance our particular research networking system, but to improve research networking systems at biomedical campuses nationwide. To that end, we created ORNG implementations for both major research networking software packages—Profiles and VIVO—both of which have now adopted ORNG into their core products. By ensuring that both competing products can run ORNG plugins, we’ve expanded the potential user and developer community to more than 100+ institutions.

As the founder of ORNG, CTSI at UCSF has launched an open source “app store” containing “gadgets” that enhance an individual’s UCSF Profiles page, including the addition of mentorship information, and the ability to re-use content from commercial sites such as YouTube, Twitter and SlideShare.

ORNG is now beginning to take off around the country. For example, developers at Wake Forest University built an ORNG app linking grant data from NIH Reporter with researcher profiles to identify targeted grant opportunities; Knode Inc., a biomedical industry startup, worked with UCSF to harvest open data, and make it available to institutions (UCSF recently launched Knode’s first ORNG gadget on our site); Indiana University recently had students prototype an ORNG-based relevancy engine for their installation of VIVO; and The OpenSocial Foundation is supporting our efforts to increase adoption of their standard within the research arena. We’re also grateful for the involvement of Harvard, the VIVO Network, Baylor University, and the University of Iowa in their support of the ORNG standard.
How are we doing?
Two and a half years after launch, UCSF Profiles receives more than 65,000 visits per month, with substantial amounts of traffic coming from outside the institution, including from other UCs and internationally. Direct user feedback reveals evidence of success. Increasing numbers of visitors that return and data that show how long users spend on the site affirm its value.

We found success by utilizing a range of strategies both to promote use (e.g. exploring profiles on the system), as well as adoption (e.g. customizing one's own profile). Usage is predominantly driven by search engine traffic, which in turn was catalyzed by search engine optimization. We’ve spent time and effort focused on the goal to make an investigator’s UCSF Profiles page show up within the top search results stemming from a name search on Google.

In addition, strategic partnerships with campus offices created linkages that accelerated the use of the tool by those from within the institution. Adoption rates are largely consistent across all levels, from junior to senior faculty. And using various feedback mechanisms from micro-surveys embedded in the product to interviews and discussions with users, we have learned how the tool enables collaboration & matchmaking.

Externally, the partnership with our colleagues at Harvard has only strengthened in the past few years, manifesting in joint panel presentations on our collaborative work at national meeting such as the American Medical Informatics Association (AMIA) and UCSF-driven development of large software code releases.

Technology
- IIS/.NET + MS SQL Server
- Tomcat/Java
- Public interfaces via XML, JSON, RDF Linked Data, and Drupal module
- OpenSocial (HTML + JavaScript) plugin support

Timeframe for Implementation
6/08 – 5/09: Made decision to adopt Harvard “Profiles.” Worked with Harvard to define best open source model
1/09 – 12/09: Development and launch of beta product in December 2009
1/10 – 7/10: Beta period; faculty presentations
9/10: DEPLOYMENT! Formal launch at UCSF Clinical & Translational Science Institute (CTSI) Annual Retreat
9/10: Center for AIDS Research goes live syndicating data from UCSF Profiles
1/11: Monthly visits to UCSF Profiles = 11,000
3/11: UCSF Profiles is officially an OpenSocial platform; first OpenSocial gadget for mentorship launched
10/11: Open Research Networking Gadgets (ORNG) is launched (http://orng.info)

1/12: Monthly visits to UCSF Profiles = 31,000

2/12: First non-UCSF developed OpenSocial gadget launched by Wake Forest

3/12: UCSF Profiles first data integration with Advance (UCSF’s faculty advancement and promotion tool)

11/12: First consolidated reports on school-wide publications sent to Deans of UCSF’s School of Nursing & Dentistry

1/13: Monthly visits to UCSF Profiles = 64,000

2/13: UCSF Profiles showcased on the OpenSocial Foundation’s web site

4/13: First industry-developed OpenSocial gadget for research networking launched within UCSF Profiles

4/13: First precision email using data from UCSF Profiles; 40% open rate

User & Partner Feedback

Researchers

“Overall, [UCSF Profiles] is a great web application that provides lots of information on faculty, that’s updated automatically, and that allows faculty to add to it...and that’s a wonderful thing.” -- Stuart Gansky, MS, DrPH

“With the full implementation of UCSF Profiles, I think we finally have a convenient and effective system for accessing the full spectrum of knowledge and expertise that exists among our faculty.” -- Dan Lowenstein, MD

“UCSF Profiles is a winner when it comes to finding people and potential collaborators, either for yourself or for your mentees. The power of Profiles is that I can even learn who has collaborated with these people, and talk to these collaborators about the experience. This becomes really powerful.” -- Laurence Huang, MD

“You have worked a great miracle and it will be your lasting legacy. Thank you!” -- Kathleen Dracup, Former Dean, UCSF School of Nursing

“I found a potential book contributor” -- Anonymous, via embedded online micro-survey

Administration and IT

“I had a faculty member who came to the library and looked for expert researchers at UCSF on a specific topic. I used UCSF Profiles, and within a second, I got a list of experts on the given topic.”-- Min-Lin Fang, UCSF Library

"When I came [here] six years ago, the maintenance of [faculty publication] lists was a nightmare and the faculty were constantly unhappy with the list. I honestly don’t remember receiving a single complaint from any of our faculty since I started using the Profiles API."-- Matt Forbush, IT Manager, Department of Otolaryngology

External Technology Partners

“By helping with the design and testing of the software, developing innovative new features, experimenting with novel ways of encouraging adoption, and presenting their work at scientific conferences, UCSF has played a major role in the success of Profiles at institutions around the world and demonstrated the benefits of open source code.”

-- Griffin Weber, CTO, Harvard Medical School; Inventor of Profiles Research Networking Software

“Using the integration technology implemented by UCSF and adopted by KNODE, the UCSF Profiles user interface seamlessly presents enhanced search results and researcher profile content. The UCSF relationship with KNODE is very
effective and leads to interesting ideas for new refinements and new ways to exchange data between different systems. Through working together, we have also been able to present a success story and roadmap for other institutions in the RNS community.” – Steve Baron, Vice President, Products, Knodle Inc.

See more testimonials.

Appendices

1. Center for AIDS Research (CFAR) syndicates UCSF Profiles data on faculty pages

   ![CFAR Profile Image]

   Center for AIDS Research (CFAR) syndicates UCSF Profiles data on faculty pages.

2. Co-branded UCTV & UCSF Profiles “precision email”

   ![UCTV and UCSF Profiles Image]

   Co-branded UCTV & UCSF Profiles “precision email”.

   ![UCTV and UCSF Profiles Image]

   View your UCTV videos are now displayed on your UCSF Profiles page.

   ![UCTV and UCSF Profiles Image]

   Hi Leslie,

   We are pleased to let you know that your UCTV videos are now being displayed on your UCSF Profiles page.

   ![UCTV and UCSF Profiles Image]

   Login now to further enhance your UCSF Profiles page and explore new UCSF Profiles features, or contact profiles@ucsf.edu with any questions.

   ![UCTV and UCSF Profiles Image]

   We look forward to continuing to support your work.

   The UCTV & UCSF Profiles Teams

   P.S. Your videos are also still available on the UCTV website, as well as on UCTV’s YouTube and Twitch channels.

   ![UCTV and UCSF Profiles Image]

   More info here.

Open Research Networking Gadgets (ORNG)

Access a Library of Open Source Gadgets

Sample gadgets available now
We've developed a library of open source gadgets you can install on your research networking system. Most of these gadgets will work in VIVO or Profiles without alteration. Others have backend processes that are specifically coded to the Profiles Beta DB, and a few are specific to UCSF data sources. However, all are open source and we hope that you will use these to make your particular research network sites more feature rich, making alterations as necessary and then contributing back to the ORNG open source community.

SlideShare presentations
Profile owners can add presentations to their profile with this gadget. Presentations are hosted in the cloud, via the free SlideShare service.
- Developer: UCSF
- Works on VIVO and Profiles
- View source code
- See an example

Faculty mentoring profiles
Profile owners can add data to their profile indicating their interest in mentoring fellow faculty. It includes mentor types, a mentor-focused narrative and contact information. This gadget could easily be altered to support student mentoring.
- Developer: UCSF
- Works on VIVO and Profiles
- View source code
- See an example

NIH grant search
Match profile owners to top grant opportunities from NIH RePORTER.
- Developer: Wake Forest
- View source code
- This gadget is under test so an example is not viewable.

KNODE Profile
Show a snapshot of the profile owner's KNODE profile including expertise tag cloud, full expert profile summary and expert content relevant to user.
- Developer KNODE Inc.