How to Win at Open Source By Being Fearless First Adopters

UCSF Clinical and Translational Science Institute (CTSI)

Presented at UC Computing Services Conference, July 11, 2016
Overview

- Four Examples of Adopting Open Source Software Systems
  - UCSF Profiles
  - Eagle-i and Plumage
  - SPARC
  - Clinical Research Services Scheduler

- Lessons Learned/Takeaways
UCSF Profiles

LinkedIn for Researchers [http://profiles.ucsf.edu](http://profiles.ucsf.edu)

- **Collaboration Activities**
  - First non-Harvard installation (QA, HR spreadsheets)
  - Significantly enhanced the user interface
  - Added Open Research Network Gadgets - Apache Tomcat with Java
- “Bent” rules with data and access to go live, but now a loved product
- Very complimentary teams. Almost no overlap in titles and skills
- Windows .net UI, Windows SQL server and RDF data storage in VIVO ontology
UCSF Cores Search

Cores provide scientific research equipment and services

Credit: Zess Microscope, licensed under CC-BY-SA 2.0, https://flic.kr/p/hF1N73
Finding a core is hard
Cores Search 1.0

Search UCSF Research Core Facilities & Services

Search by Keyword

Please do not use "OR", "AND" or quotes.

Guided Search

Refine by:
- Core Location
- Resource Category
- Service or Equipment
- Specific Resource

Search

Browse

View a list of all core facilities in the database

Help keep the database up-to-date

Let us know about new cores, corrections and ideas for improvements.

Request consultation

Request consultation: for further assistance with specific research methodology, statistics or ethics.

About this resource

The information in this database was collected from UCSF core managers. Every effort is made to keep it up-to-date.

What’s going on here?
Goals for Cores Search 2.0

- Increase usage
- Easier to use
- Search engine friendly
- Mobile friendly
Is eagle-i our solution?
eagle-i interface? :-(

What’s going on here?
eagle-i ontology? :-)

- 96-channel pipetting device
- Accelerated solvent extraction system
- Acquisition computer
- Affinity column
- Algometer
- **Amplifier**
- Anaesthetic vaporiser
- Analog-to-digital converter
- Anemometer
- Anesthesia machine
eagle-i ontology? :-)

**Algometer**

*Is a:* Instrument

*Synonyms:* Algesiometer; Algesichronometer; Prick-algesimeter; Pressure-algometer; Analgesia meter; Algonometer; Dolorimeter

*Definition:* An instrument used to measure pain threshold and pain tolerance.
Decision point

ontology  interface
Decision point
Custom front-end on top of eagle-i backend

- Could we keep the ontology and back-end — but build our own front end?
- We talked to the eagle-i team, and got their blessing
- UCSF was one of the first to reuse eagle-i data in a custom application
  - Data export and deployment problems, but they helped us through it
  - We gave back by helping them improve their documentation
Default eagle-i interface
One big search box, like Google
Typeahead search support
Clear search results
Definition and synonyms, via eagle-i ontology

**Fluorescence microscope at UCSF**

**Definition**
An optical microscope used to study properties of organic or inorganic substances using the phenomena of fluorescence and phosphorescence instead of, or in addition to, reflection and absorption.

**Synonyms**
Epifluorescence microscope, Fluorescent microscope

**Categories**
Instrument → Microscope → Optical microscope → Fluorescence microscope

**Subcategories**
Deconvolution microscope
Matching results at each UCSF core

Gladstone Stem Cell Core
Gladstone Institute of Cardiovascular Disease, Mission Bay
Contact: Josh Arnold, 415-734-2866, jamold@gladstone.ucsf.edu
- Fluorescent microscope

Nikon Imaging Center
Biochemistry and Biophysics, Mission Bay
Contact: Kurt Thorn, 415-326-4566, kurt.thorn@ucsf.edu
- Fluorescence microscopes

Small Molecule Discovery Center
QB3 Pharmaceutical Chemistry, Mission Bay
Contact: Michelle Arkin, 415-514-4313, michelle.arkin@ucsf.edu
- InCell Analyzer 1000 high content imager (GE Healthcare)
- InCell Analyzer 2000 high content imager (GE Healthcare)
Clean URLs, good for SEO

http://cores.ucsf.edu/fluorescence-microscope
Following up

- Our new site got about twice the traffic as our first
- We kept using eagle-i as our data backend and ontology
- We open sourced our eagle-i front end, and named it “Plumage”
SPARC
(Services, Pricing, and Applications for Research Center)

- [https://github.com/sparc-request/sparc-request](https://github.com/sparc-request/sparc-request)

- Developed by the Medical Universities of South Carolina (MUSC) Foundation for Research Development

- Created to meet increasingly stringent requirements by NIH to have better budgeting for separation between “clinical research” and “standard of care” clinical treatment

- Timely with CTSA reduction of budget. Services that were free now needed to charge appropriately

- MUSC was looking for an opportunity to contribute an Open Source product to the CTSA community

- Ruby on Rails. BSD 2-Clause based license
CRS Scheduler

Even as we speak...

- Clinical research services; multiple locations, shared resources
  - No good matches in the commercial market
- Goal is to implement, then assess where we can add value to the codebase
Thoughts to Take Away

Is the product right for you?

- Do you know the market and alternatives?
- Do you know what this system does and doesn't do?
- Do you know—and can you manage—user and institutional expectations?
- Do you have the required technical skills?
Are you and your team right for the partnership?

- Do you have a culture of collaboration?
- Can you avoid “not invented here” (NIH) syndrome and adopt a “proudly found elsewhere” (PFE) mentality?
- Are you willing to put in effort?
- Do you know how you complement the original team?
- Are you willing to share success?
Is the long term process right for you?

- Can you manage customizations, code merges and upgrades?
  - If you use Git, learn how to manage multiple remotes!

- Are you ready for long term ownership?
  - investment in code can tie you to legacy and slow upgrades (getting leap-frogged)
  - the cost/benefit of an upgrade can vary widely - develop a strategy for when and how to customize and upgrade
  - modular code and version control strategies should be thought out in advance to minimize ownership costs
Lastly, shamelessly exploit your situational advantages

- UC has prestige — don't be afraid to play the UC card (e.g. someone listed us a partner after 3 phone calls)
- Early open source teams are very eager to give (it is easier to give software than receive)
- It’s better to be number 2 than number 10
- Build and communicate your successes as an early adopter
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