



University of California
San Francisco

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>

- 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 Profiles UI Changes



People & Collaborators

Contact, publication, and social network information about Harvard faculty and fellows.



The Virtual Home for Clinical & Translational Science at the University of California, San Francisco

Connecting You to Resources

University of California San Francisco
About UCSF
Search UCSF
UCSF Medical Center



search, discover, network



New Features: Learn more >

Search
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UCSF Profiles

Keyword

Last Name

Institution

--Select--

[More Search Options](#)

Menu

- [About This Site](#)
- [New Person Search](#)
- [Edit My Profile](#)
- [Login To Profiles](#)
- [How Profiles Works](#)
- [About UCSF Profiles](#)

History

- [Charles Safran](#)
- [Medical Record Linkage](#)
- [Hospital Information System](#)
- [See all \(3\) pages](#)

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[vCard](#) [Download vCard](#)

Other Positions

Title Assistant Professor

Translational Science Institute

If this is your profile, you can edit your research profile.

Narrative

S. Claiborne Johnston completed medical school at the University of California, Berkeley, where he completed his M.D. at Case Western Reserve University. He completed his postdoctoral fellowship at the University of California, Berkeley, and his postdoctoral fellowship at the University of California, Berkeley, and his postdoctoral fellowship at the University of California, Berkeley.

Bruce's Networks

Related Concepts

Derived automatically from this person's publications.

- [Receptors, G-Protein-Coupled](#)
- [Alternative Splicing](#)
- [Embryonic Stem Cells](#)
- [Pluripotent Stem Cells](#)
- [Signal Transduction](#)

[See all \(456\) concept\(s\)](#)

Co-Authors

People in Profiles who have published with this person.

-  [Lo, Bernard](#)
-  [Nissenson, Robert](#)
-  [Pico, Alex](#)
-  [Hsiao, Edward](#)
-  [Huebsch, Nathaniel](#)

[See all \(77\) people](#)

External Co-Authors

People at other institutions who have published with this person.

-  [Redfern, Charles](#)

 [See all \(1\) people](#)

Bruce Conklin, MD



Education and Training

Institution	Degree	Year
University of California, Berkeley, CA	A.B. Public Health	1982
Case Western Reserve U., Cleveland, OH	M.D. Medicine	1988

Overview

Therapeutic Approaches to Genetic Disease

Genome Engineering

Sign in to see private stats on your profile page — or add photo, interests, videos, mentoring, etc.

[Education and Training](#) | [Overview](#) | [Interests](#) | [Websites](#) | [In The News](#) | [Faculty Mentoring](#)

[NIH Awarded Grants](#) | [Publications](#)

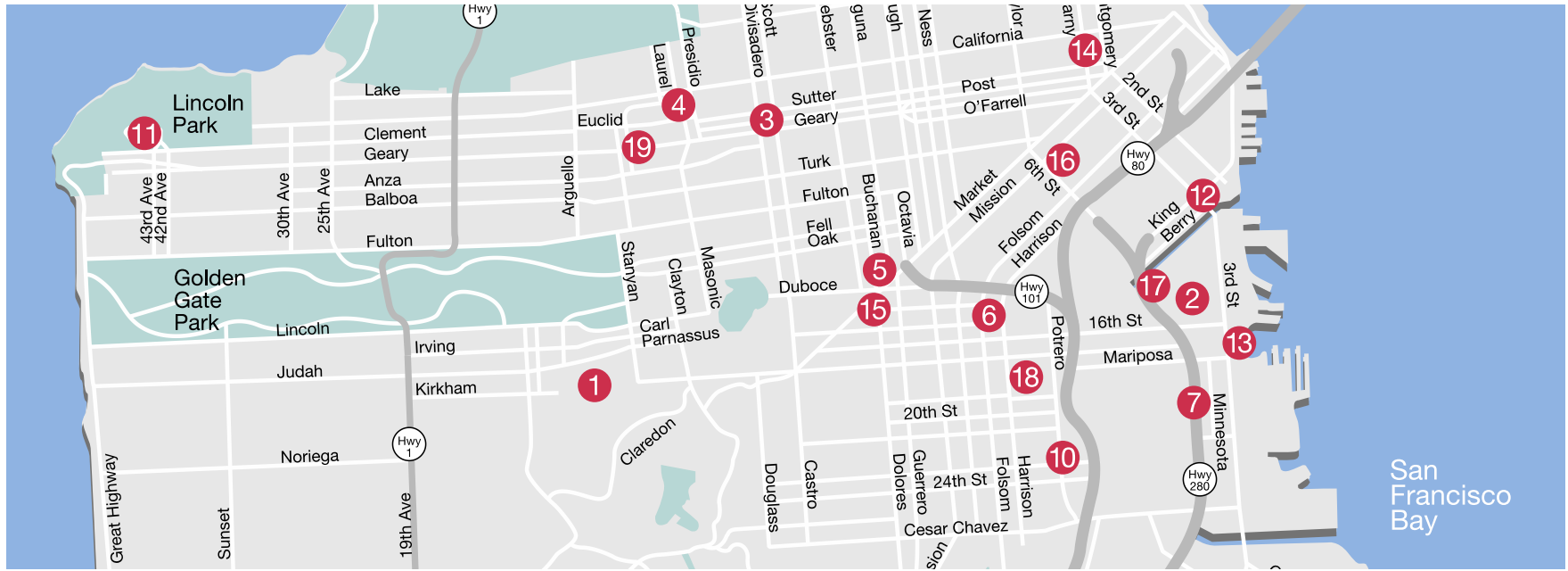
UCSF Cores Search

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.

[Search Input Field]

Guided Search

REFINE BY:

- Core Location
- Resource Category
- Service or Equipment
- Specific Resource

[Dropdown Menu with "Services/Equipment" selected]

[Guided Search Tips] [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.

Goals for Cores Search 2.0

- Increase usage
- Easier to use
- Search engine friendly
- Mobile friendly

Is eagle-i our solution?

eagle-i

Search for resources across the eagle-i Network

Go

Try our new
iPS Cell Search

Top Categories | Explore All

ABOUT GET INVOLVED NEWS + EVENTS FAQ CONTACT US HELP

Making open science happen,
one resource at a time.

Search Now

eagle-i interface? :-)

The screenshot shows a search results page with the following elements:

- Narrow Your Results** section on the left with filter categories:
 - Collection Filters**: All Collections
 - Quick Filters**: Core Facilities (1009)
 - Resource Type Filters**:
 - Biological Specimen (4169)
 - Database (97)
 - + Human Study (265)
 - + Instrument (5625)
- Core Laboratory** filter selected, with a **Clear all filters** link.
- Search results showing **1 - 10 of 1009 results** with pagination controls (1, 2, 3, 4, 5) and a **Show 10 Results per Page** dropdown set to **Highest Relevance**.
- Two search results are visible:
 - Monoclonal Antibody Core Laboratory**: Resource Description: ...tion of new ...isting cell lines (a...)
 - Immunofluorescence Core Laboratory**: Resource Description: ...-for-service cytogenetics laboratory available to genetics researchers to assist ...ment and execution of cytogenetics experiments for research purposes. Through rigorous standardization...
Type: Core Laboratory - Organization
Location: Oregon Health and Science University
- Immuno Electron Microscopy Core**: Resource Description: Imaging center has an excellent physical facility for handling samples for light or electron microscopy. We have a unique Multi-suite dissection, sectioning, and embedding area. This area is equipped...
Type: Core Laboratory - Organization
Location: Oregon Health and Science University

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



Decision point



Credit: Andrew Martin, CC-0, <https://pixabay.com/en/batman-superman-lego-superhero-1293525/>

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

The screenshot displays the eagle-i network search interface. At the top, there is a search bar with the text "Search for resources across the eagle-i Network" and a "Go" button. To the right of the search bar, there is a promotional banner for "Try our new iPS Cell Search". Below the search bar, there is a navigation menu with links for "ABOUT", "GET INVOLVED", "NEWS + EVENTS", "FAQ", "CONTACT US", and "HELP". The main content area is divided into several sections. On the left, there is a "Narrow Your Results" section with "Collection Filters" (All Collections), "Quick Filters" (Core Facilities (1009), iPS Cells (1394), Mice (1433), Monoclonal Antibodies (2010)), and "Resource Type Filters" (Biological Specimen (4169), Database (97), Human Study (265), Instrument (5625)). The main search results area shows "1 - 10 of 1009 results" with pagination controls and sorting options (Show: 10 Results per Page, Sort by: Highest Relevance). The first result is "Core Laboratory" with a "Clear all filters" link. Below it, there are three detailed results: "Monoclonal Antibody Core Laboratory", "Research Cytogenetics Core Laboratory", and "Immuno Electron Microscopy Core". Each result includes a resource description, type, and location.

eagle-i Search for resources across the eagle-i Network **Go** **Try our new iPS Cell Search**

Top Categories | Explore All

ABOUT GET INVOLVED NEWS + EVENTS FAQ CONTACT US HELP

All Core Facilities All iPS Cells All Mice All Monoclonal Antibodies

Narrow Your Results

Collection Filters

All Collections

Quick Filters

Core Facilities (1009)

iPS Cells (1394)

Mice (1433)

Monoclonal Antibodies (2010)

Resource Type Filters

Biological Specimen (4169)

Database (97)

+ Human Study (265)

+ Instrument (5625)

Core Laboratory [Clear all filters](#)

1 - 10 of 1009 results 1 2 3 4 5 > >> Show: 10 Results per Page Sort by: Highest Relevance

Monoclonal Antibody Core Laboratory

Resource Description: "The VGTI Monoclonal Core offers two basic services: the generation of new monoclonal antibodies and the scaleup production and purification of antibody from existing cell lines (a stand -alone phase..."

Type: Core Laboratory - Organization

Location: Oregon Health and Science University

Research Cytogenetics Core Laboratory

Resource Description: "A fee-for-service cytogenetics laboratory available to genetics researchers to assist in development and execution of cytogenetics experiments for research purposes. Through rigorous standardization..."

Type: Core Laboratory - Organization

Location: Oregon Health and Science University

Immuno Electron Microscopy Core

Resource Description: Imaging center has an excellent physical facility for handling samples for light or electron microscopy. We have a unique Multi-suite dissection, sectioning, and embedding area. This area is equipped..."

Type: Core Laboratory - Organization

Location: Oregon Health and Science University

One big search box, like Google

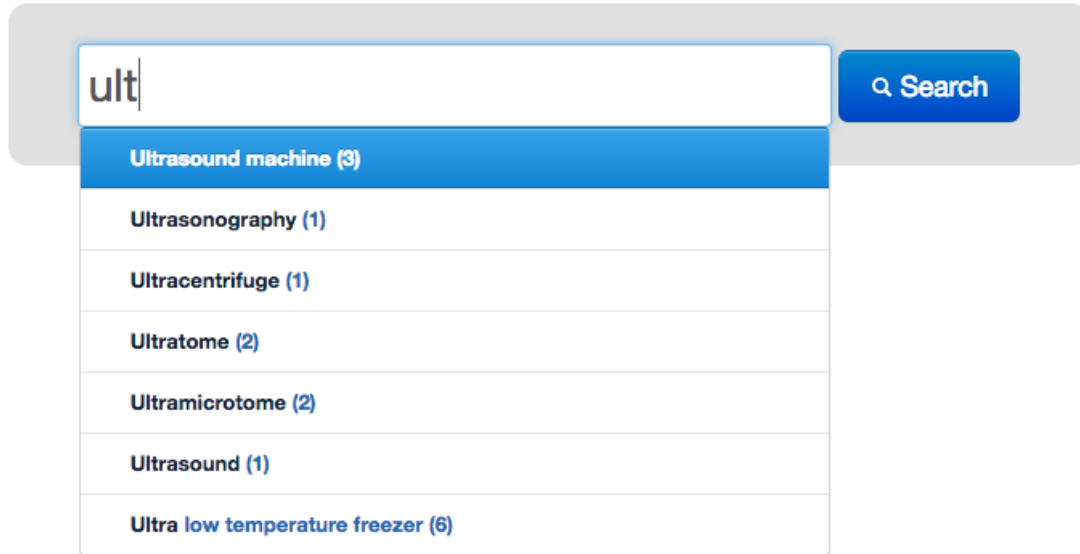
Find instruments and services at UCSF

872 resources · 246 categories · 83 providers

e.g. flow cytometer, SDI

Search

Typeahead search support



The image shows a search interface with a text input field containing the text 'ult'. To the right of the input field is a blue button with a magnifying glass icon and the text 'Search'. Below the input field is a dropdown menu with seven items, each representing a search suggestion with a count in parentheses:

- Ultrasound machine (3)
- Ultrasonography (1)
- Ultracentrifuge (1)
- Ultratome (2)
- Ultramicrotome (2)
- Ultrasound (1)
- Ultra low temperature freezer (6)

Clear search results

The screenshot shows the UCSF Cores Search interface. At the top, there is a navigation bar with the UCSF logo and links for 'University of California, San Francisco', 'About UCSF', 'Search UCSF', and 'UCSF Medical Center'. The main header features the title 'UCSF Cores Search' and the tagline 'Equipment and services for researchers'. A search bar contains the text 'e.g. flow cytometer, SDI' and a search icon. Below the header, there are tabs for 'Home' and 'About'. The search results are displayed in a light gray box with the title 'Fluorescence microscope at UCSF'. The results include a definition, synonyms, categories, and subcategories. A yellow box highlights 'See also: Deconvolution microscope'. Below this, there is a 'Filter by location:' section with buttons for 'All (9)', 'China Basin (1)', 'Mission Bay (5)', 'Mt. Zion (3)', 'Parnassus (5)', and 'SFGH (1)'. The 'Mission Bay' filter is selected, and the results for 'Gladstone Stem Cell Core' are shown, including contact information and a list of 'Fluorescent microscope'.

UCSF University of California, San Francisco | About UCSF | Search UCSF | UCSF Medical Center

UCSF Cores Search

Equipment and services for researchers

Powered by CTSI
In partnership with RRP

Home About Search

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](#)

See also: [Deconvolution microscope](#)

Filter by location:

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

- Fluorescent microscope

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

Mission Bay

Gladstone Stem Cell Core

Gladstone Institute of Cardiovascular Disease, Mission Bay

Contact: Josh Arnold, 415-734-2866, jarnold@gladstone.ucsf.edu

- Fluorescent microscope

Mission Bay

Nikon Imaging Center

Biochemistry and Biophysics, Mission Bay

Contact: Kurt Thorn, 415-326-4566, kurt.thorn@ucsf.edu

- Fluorescence microscopes

Mission Bay

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>
- 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

The screenshot shows a web browser window with the URL https://sparc-demo.musc.edu/service_requests/4243750/catalog?signed_up_but_not_approved=false. The page features the SPARC REQUEST logo with the tagline "Research Made Easy". On the left, there is a "Browse Services Catalog" section with a list of institutions: Virginia Commonwealth University, Utah Test, Medical University of South Carolina, University of Missouri, University of Nebraska, Oregon Health & Sciences University, UCLA Institution, University of Kentucky, CNMC Playground Institution, DEMO BioMed Research Institution, and Harvard Institution #1. A search bar in the center contains the text "Search by service name or CPT code ...". Below the search bar, a blue button labeled "University of Missouri" is selected, and a text box below it displays "This would be description of the university". On the right side, there is a "My Services" section with a list of buttons: "Continue", "Help/FAQs", "Feedback", and "Contact Us".

University of California San Francisco

About UCSF Search UCSF UCSF Medical Center

UCSF Clinical Research Services at CTSI

Powered by CTSI

Logged in as Eric Meeks (eric.meeks@ucsf.edu), [log out](#)

SPARC REQUEST

Research Made Easy

[About SPARC Request](#)

Non-UCSF User? [Create an Account.](#)

Browse Services Catalog:

- University of California, San Francisco
- UCSF Medical Center
- Clinical and Translational Science Institute

Search for a Service Name Here ...

Welcome to the SPARC Request Services Catalog

Search for services above or browse the catalog to your left.

**** Please Note: You may only select services applicable to ONE research study/project at a time.****

Website/Training: http://academicdepartments.musc.edu/sctr/sparc_request
Blog: <http://www.sparcrequestblog.com>

My Services

Continue

Ask A Question

Dashboard

7:54 AM 7/11/2016

CRS Scheduler

Even as we speak...

The screenshot displays the CRS Scheduler interface. At the top, it features logos for HARVARD CATALYST, THE HARVARD CLINICAL AND TRANSLATIONAL SCIENCE CENTER, and UCSF. A navigation bar includes links for Home, Resources, Studies, Subjects, Appointments, Management, Reporting, and Reporting (beta). The main content area is titled 'Appointment Calendar' and includes a 'Timeline' tab. Below this, there are controls for 'Display: Calendar View', 'Select Date: 06/01/2016', and a 'Filter By' dropdown. A 'Scheduled Appointments' section shows status filters: Available, Scheduled, Checked In, Checked Out, Canceled, and Unavailable. Below the filters are tabs for various lab locations: Mission Bay Lab, Mount Zion Lab, Parnassus, Parnassus Lab, PCRC, SFGH Lab, and All Sub-Locations. The calendar view is for June 2016, showing a grid of days with scheduled appointments. The appointments are color-coded by status and location.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			07:00am - 10:30am: POP12 07:00am - 10:15am: POP2 09:00am - 10:30am: ONE 10:00am - 01:15pm:	07:00am - 11:00am: POP1 10:00am - 11:00am: POP14 10:00am - 11:30am: POP17	09:00am - 10:30am: POP18 10:30am - 02:30pm: POP13	

- 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

Contacts

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