Waterloo's Online Faculty Information System (OFIS)

Where Are We in 2010?

Daniel Allen,
Computer Science Computing Facility

- OFIS is an *Online Faculty Information System*
- It is a faculty-member centric database that brings together information from disparate campus sources
- Its purpose is to gather data that is common to many reports faculty members are asked to regularly produce
- Making these reports easier to generate, and easier to update

Project Team

- Started in Engineering 4 years ago
  - Peter Douglas (past assoc dean computing)
  - Beth Jewkes (past assoc dean computing)
  - Olga Vechtomova (current assoc dean computing)
  - Paul McKone (original web dev and db)
  - Vu Huynh (current web dev)
  - Marlon Griffith (current db)
  - … numerous others

Project Reach

- Used in:
  - Most departments of Engineering
  - Computer Science on experimental basis
  - Office of Research for ‘Find an Expert’ pages
- Initial discussions with other faculties

In the Beginning

- Undergraduate Course Critiques Database
  - Engineering faculty-wide
  - Quick, dirty, cheap
  - Sortable, searchable
  - Well received

And there was also

- Engineering Merit Report
- Yearly, requires 3 years activity
  - Lots of repeated data:
    - Publications
    - Awards
    - Research Activities
    - Student Supervision
    - Courses Taught and evaluations averaged

Combined to form OFIS (v.1)

- Filling Merit Report with data from Course Critiques Database
  - And a lot of manual text-entry
- The project grew:
  - additional reports, data sources

Version 2

- Many automated Data Sources
  - WatIAM, HR
  - Office of Research
  - Quest
  - Engineering Dean's Office
- Still manual entry by faculty members:
    - Publications, bibliography, research interests…

Version 2

- Reports produced:
  - Engineering Merit Report
  - Ontario Council on Grad Studies (OCGS)
  - Canadian Engineering Accreditation Board (CEAB)
  - Faculty member CV
  - “Find an Expert” web systems
    - Both Engineering and Office of Research

CS Involvement

- CS involvement begin in Spring of 2009
  - 1/3 of a full-time staff person's time in CS
  - consultations with faculty (through Director for Infrastructure) on approach
- CS Research Book: Fall 2010
  - and automatically, CS will be ready for:
- OCGS and CEAB (Software Engineering)

CS Research Book

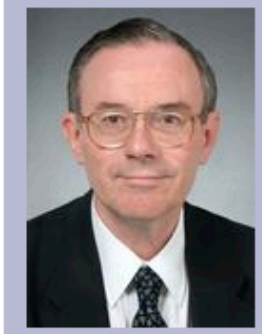
- Good overlap with existing OFIS data fields
- Printed book for visitors published every few years
- Website profiles
  - OFIS integration allows faculty to edit for themselves, whenever they like

CS Research Book: web

University of Waterloo

David R. Cheriton
School of Computer Science
Faculty of Mathematics

- About CS
  - Contact
  - Location Map
  - People
  - Administrative Organization
  - History
  - News
  - Events
  - Faculty Profiles & Features
- Research
- Grad Studies
- Current Undergraduates
- Prospective Students
- Services/Facilities
- People
- Site Map



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Research Interests

Professor Taylor's research concerns two major areas: distributed systems and fault tolerance. In the distributed-systems area, he has studied several issues, including replication and the debugging and monitoring of distributed applications. The work on replication produced several new replication-control protocols that appear to have very good performance relative to previous protocols. Recent work has concentrated on debugging and monitoring of distributed applications. A major theme of this work is that the fundamental "happened before" partial-order relationship should be used as a basis for understanding distributed executions rather than the real time of event occurrence.

Much of the work has concerned problems of scale. One scaling concern is how to present information

CS Research Book: print

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Awards

Paul G. Sorenson Distinguished Graduate Lecture, University of Saskatchewan (1992)

Industrial and Sabbatical Experience

In 1983-1984, Professor Taylor spent a sabbatical at the Computing Laboratory, University of Newcastle-upon-Tyne. During that sabbatical, he studied the use of forward error recovery in the context of atomic actions, which normally use backward-error-recovery techniques. In 1990-1991, he spent a sabbatical at the Centre for Advanced Studies, IBM Toronto Laboratory. During that sabbatical, he studied debugging of distributed applications and produced a prototype of a partial-order event-display tool, later incorporated into an IBM product. In 1999-2000, he spent a sabbatical at the IBM T. J. Watson Research Center, Hawthorne, New York. During that sabbatical, he examined issues in distributed-systems management. A major project concerned techniques for exploratory examination of large quantities of monitoring data, as found in an event-data warehouse. In 2008-2009, he spent a combined sabbatical and administrative leave at the Centre for Advanced Studies, IBM Toronto Laboratory. During that time, he developed a novel technique for reducing the space required for vector-clock representation of partial orders

Representative Publications

(LaTeX is so cool!)

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Live Demo

- Admin
- Welcome
- Logout
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- Teaching
- Research Support
- Contributions
- BibTeX Import
- CS Research Book
- Assignment
- Supervisory Experience
- Service
- IP Disclosure
- Professional Designations

Welcome **drallen** to Online Faculty Information System (**ofis**).
Navigate between sections using the left-hand menu.
To logout of the system, select LOGOUT.

What is OFIS?

OFIS is a faculty-member database that gathers information from several institutional sources so faculty members can more easily generate academic reports that use this data. In order to make full use of OFIS, faculty members need to add information about their activities not contained in other institutional databases.

OFIS Data Sources:

- Human Resources (basic appointment data)
- Office of Graduate Studies (record of graduate student supervision)
- Office of Research (record of funding applications and decisions)
- Quest (record of teaching activities)
- Faculty members themselves (contributions, bio, affiliations, etc)

N. B. You can edit or delete data that you add yourself, but cannot change/save data that comes from other data sources.

Whats New?

- Streamlined Contribution Input: You can now cut and paste your publications as a single bibliographic entry as an alternative to entering bibliographic components separately. (November, 2009)
- Affiliations: We have added a separate section where you can input your research group and professional affiliations and memberships (November, 2009)
- Research Web Pages: by adding just a few items about your research interests, affiliations and publications, OFIS generates a research web page for you at: http://ofis.uwaterloo.ca/eng_research/expert_page.php

What's coming?

Producing CS Research Book

- Minor OFIS database additions
- Importing existing Research Book data
- CS Research Book homepage
  - ‘Preview’ or ‘Publish’ generates markup file
- Markup file generates:
  - Faculty profile webpage
  - LaTeX file → PDF → printed book

OFIS Internals

- FreeBSD
- Apache 2
- MySQL
- PHP

Database

- 120 MySQL tables
- Using constraints where possible
- Fairly automatic process for imports
  - WatIAM, HR, Office of Research, Quest, Engineering Dean's Office

Code

- Organically grown framework
- Design goal
  - **M**odular
  - **U**niform
  - **S**upportable
  - **E**xtensible

Modular Code

- V2 is heavily refactored
- Modules to avoid repeated code
  - (DRY is work-in-progress)
- php scripts, html templates, css files and javascript code

Uniform Code

- Naming conventions across database, php, javascript and css
- Standards for returns from functions

Supportable Code

- Graceful degradation ensured that if javascript fails, the php would still work
- Uses AJAX if JS is turned on
- degrades to page-reload if JS disabled
- “Hijax” approach by Jeremy Keith
  - domscripting.com

Extensible Code

- Easy to add new functionality if basing on modular, uniform code
- Adding new sections is quick
- Display layer for the CS research book only took a few days

Security

- Redirect always from http to https
- Validation: form data cleaned to handle sql injection attacks

Looking foward

Version 2

Inputs

Automated

Office of Research
- Records of funding applications and decisions

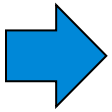
Grad Studies Office
- Grad student supervision

Human Resources
- Basic contact information
- Appointments

Quest /Faculty
- Teaching history
- Teaching evaluations

Faculty Members
- ***research, teaching interests***
- ***biography***
- ***affiliations***
- ***research contributions***

OFIS DB



Outputs

CS Research Directory

"Find an Expert" Systems
- One used by Office of Research
- One in Engineering Research Office

Canadian Engineering Accred. Board
- Required every 6 years
- Engineering accreditation (+1 CS unit)

Ontario Council on Grad Studies Report
- Required every 7 years
- Produces CV in standard format

Engineering Merit Report

CV Report

Version 2 Successes

- Producing wide variety of reports useful for teaching and admin
- Understanding business rules
- UI improvements:
  - Batch entry by spreadsheet
  - Batch entry by BibTeX

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Version 2 Challenges

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- Importing data challenges
- Transient data errors
- User Interface
- Bibliography is manual process

Import Challenges

- Understanding campus business rules
  - Much detective work by Prof. Jewkes and Prof. Douglas
  - Grateful for ongoing help from staff in IST, Office of Research, Institutional Analysis & Planning, Registrar's Office

Transient Data Errors

- Is 8-month old missing data an error?
  - Yes and no
  - Yes, if you need it for a report
  - No, if our data source updates once a year
- Requires feedback loops we don't have yet
  - Who is the authoritative source?

Authoritative Sources

- Faculty users unhappy about data errors
  - Data that isn't under OFIS control
  - Observation: central sources are aggregators not originators of most data
    - Originators are often Faculty or Department
    - Our challenge: integrating with faculties
- Opportunity: fixing errors immediately
  - Faculty members- OFIS becomes authoritative

Feedback Loops

- Errors identified by staff or faculty
  - Central sources want corrections from Faculty/ Department, not OFIS
- We need to involve Faculty/Department
  - Opportunity: how many places repeat same data?
  - Beth Jewkes' *Progress Through Ranks* project
  - With Engineering Dean's Office

User Interface

- Work in progress
- Bibliography is a manual process
  - There are many publication databases
  - Can we get two-way transfers with any of them?
    - RefBase
    - Google Scholar via bibTeX
    - Community of Science, others

User Interface

- Overall goal is usefulness
- *Without* requiring unnecessary extra administrative work
  - For faculty members
  - For staff members

Wrapup

- OFIS project through 4 years
  - Has benefitted from great intercampus collaboration
- Facing the challenges for the next version
  - Importing cleanly
  - Resolving transient data questions
  - Improving User Interface by reducing amounts of manual entry and correction

Questions?

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