Exposing and Exploring Academic Expertise with Virtu

Luanne Freund

Kristof Kessler

Michael Huggett

Edie Rasmussen

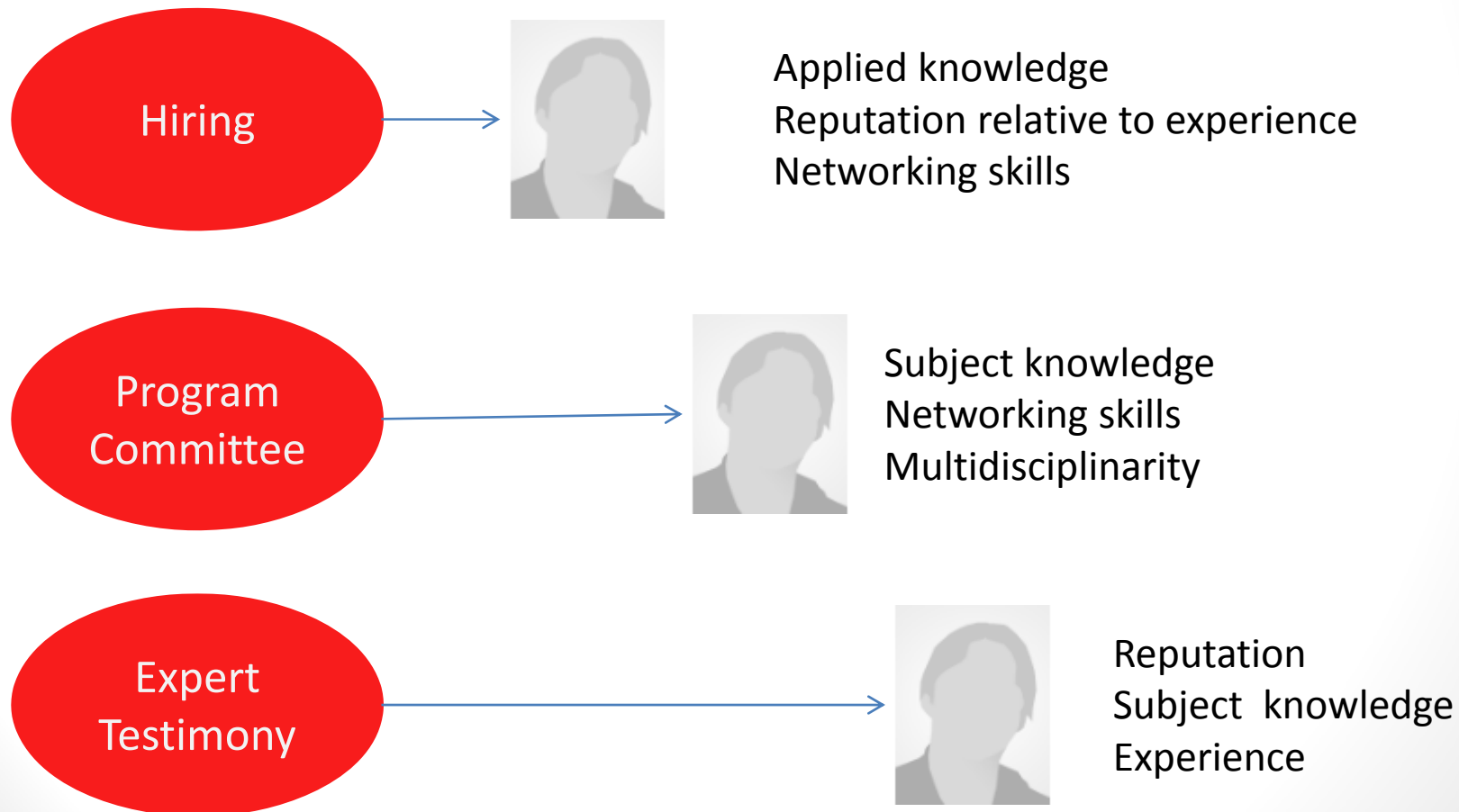University of British Columbia, Canada

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HCIR 2012, October 4-5, Cambridge, MA

Interaction Design Concept

- Integrated with Mendeley rather than stand-alone system
- Simple to use (ease-of-use over control)
- Support for direct, dynamic and interactive exploration
- Support a wide range of search strategies:
  - Known Item – find a specific person
  - Subject – find people in a specific discipline
  - Keyword – find people with a specific keyword in profiles
  - Prototype – find people similar to a specific person
  - Social – find people connected to a specific person
  - Exploratory - start broad, filter and browse

Task-based approach to expertise

What kinds of expertise?

Hiring →
Applied knowledge
Reputation relative to experience
Networking skills

Program Committee →
Subject knowledge
Networking skills
Multidisciplinarity

Expert Testimony →
Reputation
Subject knowledge
Experience

Expertise Dimensions

	Evidence
Subject Knowledge	Number of academic publications (of types Book, Book Section, Conference Proceedings, Encyclopedia Article, Journal Article, Thesis)
Applied Knowledge	Number of publications in all non-academic publication types.
Experience	Years elapsed since date of first publication.
Reputation	- Number of readers in same main discipline as author - Publication outlets, ranked by readers - Number of professorial versus non-professorial readers of the user's publications
Connectedness	- Number of contacts - Number of co-authors per publication - Number of groups joined - Total number of members in groups joined
Multi-disciplinarity	- Number of disciplines - Number of Sub Disciplines - Percent of total readers from disciplines other than the author's

The Virtu system

- Based on Apache Solr
  - Database integration, built-in facets
- Mendeley data back-filled using REST and CURL to recover publication details, abstracts and images
- Data clean-up, author-publication link validation
- Results Ranking
  - Profile Rank: based on Knowledge level (publications and rank), Reputation (readers and journals), and Profile Completeness
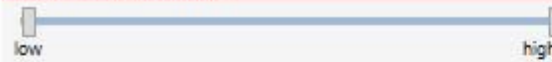
virtu

Reset Filters

Results 1 to 5 of 5

Area of Expertise △ ▽

- ☐ Business And Management
- ☐ Engineering And Design △
  - ☑ *Design*
  - ☐ *Electrical And Electronic Engineering*
  - ☐ *Engineering*
- ☐ Formal Sciences ▽
- ☐ Humanities ▽
- ☐ Medicine
- ☐ Natural Sciences ▽
- ☐ Psychology
- ☐ Sports And Recreation

Subject Knowledge

low | high

Applied Knowledge

low | high

Experience

low | high

Reputation

low | high

Connectedness

low | high

Multidisciplinarity

Jennifer Gabrys

Find similar profiles
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Publication Activity: Main Discipline:
2007 to 2011   Design

Sub Discipline(s):
Atmospheric Sciences, Employment and Social Security Law, Geography, History, Miscellaneous, Visual and Performing Arts

SUBJECT KNOWLEDGE
APPLIED KNOWLEDGE
EXPERIENCE
REPUTATION
CONNECTEDNESS
MULTIDISCIPLINARITY

Top Publications (3 out of 4):

2011: Climate change and the imagination (8 readers)

2011: Arts, sciences and climate change: practices and politics at... (4 readers)

2007: Automatic sensation: environmental sensors in the digital ci... (3 readers)

Professor Claudia Acklin

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Publication Activity: Main Discipline:
2006 to 2011   Design

Sub Discipline(s):
Civil Engineering, Communication Design, Environmental Biotechnology, Industrial Design, Marketing, Miscellaneous, Organizational Science

SUBJECT KNOWLEDGE
APPLIED KNOWLEDGE
EXPERIENCE
REPUTATION
CONNECTEDNESS
MULTIDISCIPLINARITY

Top Publications (3 out of 6):

2010: Design-Driven Innovation Process Model (25 readers)

2008: Swiss Design Network Symposium 2008 « focused » Design manag... (8 readers)

2011: Design Management Absorption Model – A Framework to Describe... (6 readers)

S Kelly

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Publication Activity: Main Discipline:
2005 to 2011   Design

Sub Discipline(s):
Analysis, Artificial Intelligence, Biochemistry, Bioinformatics, Cellular Biology, Ecology, Environmental Biotechnology, Genetics, Health and Wellness, Marine

SUBJECT KNOWLEDGE

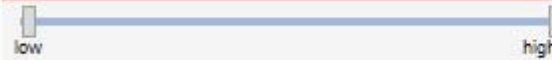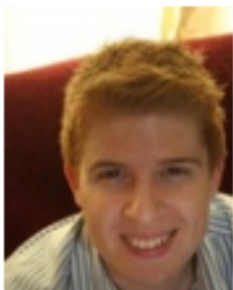# Virtu Profiles

Max Wilson, PhD in HCI and Information Seeking

SUBJECT KNOWLEDGE
APPLIED KNOWLEDGE
EXPERIENCE
REPUTATION
CONNECTEDNESS
MULTIDISCIPLINARITY

Publication Activity: Main Discipline:
2005 to 2009   **Computer and Information Science**

Sub Discipline(s):

Analytical Chemistry, Archaeology, Artificial Intelligence, Biomedical Physics, Circuits and Systems, Database Systems, Geography, History, Human-Computer Interaction, Information Retrieval, Information Science, Information Storage, Library and Information Science, Management Information Systems, Media Studies, Methodology of Social Sciences, Miscellaneous, Multimedia Systems and Applications, Neural Networks, Software Engineering

Top Publications (3 out of 9):

2006: mSpace: improving information access to multimedia domains w... (26 readers)

2009: Lightweight tagging expands information and activity managem... (22 readers)

2005: The evolving mSpace platform: leveraging the Semantic Web on... (19 readers)

HCIR Challenge Tasks

- Live Demo

- Diigubc.ca/virtu

Task descriptions are available from the HCIR 2012 site:

https://sites.google.com/site/hcirworkshop/hcir-2012/challenge

Issues & Future Work

- Incomplete profiles – data sparsity

- Normalize measures within disciplines?

- Support a broader range of task types

- User evaluations

- Additional features: autosuggest, saving results, more flexible query processing…

Acknowledgements

Questions? Feedback?