FACULTAD DE INGENIERÍA
UNIVERSIDAD DE CUENCA

Grado de Ingeniería en Ciencias de la Computación

UNIVERSIDAD DE CUENCA

Curso Académico 2025

REVISIONES SISTEMATICAS
Ejemplo Guiado: Mashups

Grupo de Investigación en Innovación Tecnológica GIIT

Departamento de Ciencias de la Computación

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GIIT

Introducción

- Todo trabajo de investigación debe comenzar estudiando el estado del arte de algún tema específico.

- Una **revisión de la literatura** es un medio para evaluar e interpretar la investigación disponible relativa a una área de interés.

Estudio Primario

- Un trabajo relativo a algún tema de investigación

Estudio Secundario

- Un trabajo que recopila y analiza los estudios primarios relativos a un determinado tema de investigación

Estudio Terciario

- Un trabajo que revisa los estudios secundarios relativos a la misma área de investigación

Revisión de la Literatura

Informal

- Buscar en la Web
- Buscar de forma manual
- Recomendaciones

Formal

- Metodología confiable, rigurosa, sistemática, repetible y extendida en la comunidad investigadora

Revisiones Sistemáticas y Mapeos Sistemáticos

Revisión Sistemática

Estudio **secundario** que utiliza una ***metodología rigurosa*** para identificar, analizar e interpretar de forma **no sesgada y repetible**, todas las evidencias relativas a una pregunta de investigación.

Mapeo Sistemático

Estudio **secundario** (*también utiliza una metodología rigurosa*) que analiza un amplio conjunto de estudios primarios para identificar ***qué*** y ***cuántas*** evidencias hay disponibles sobre un determinado tópico. También llamado estudio de alcance (*scoping study)*.

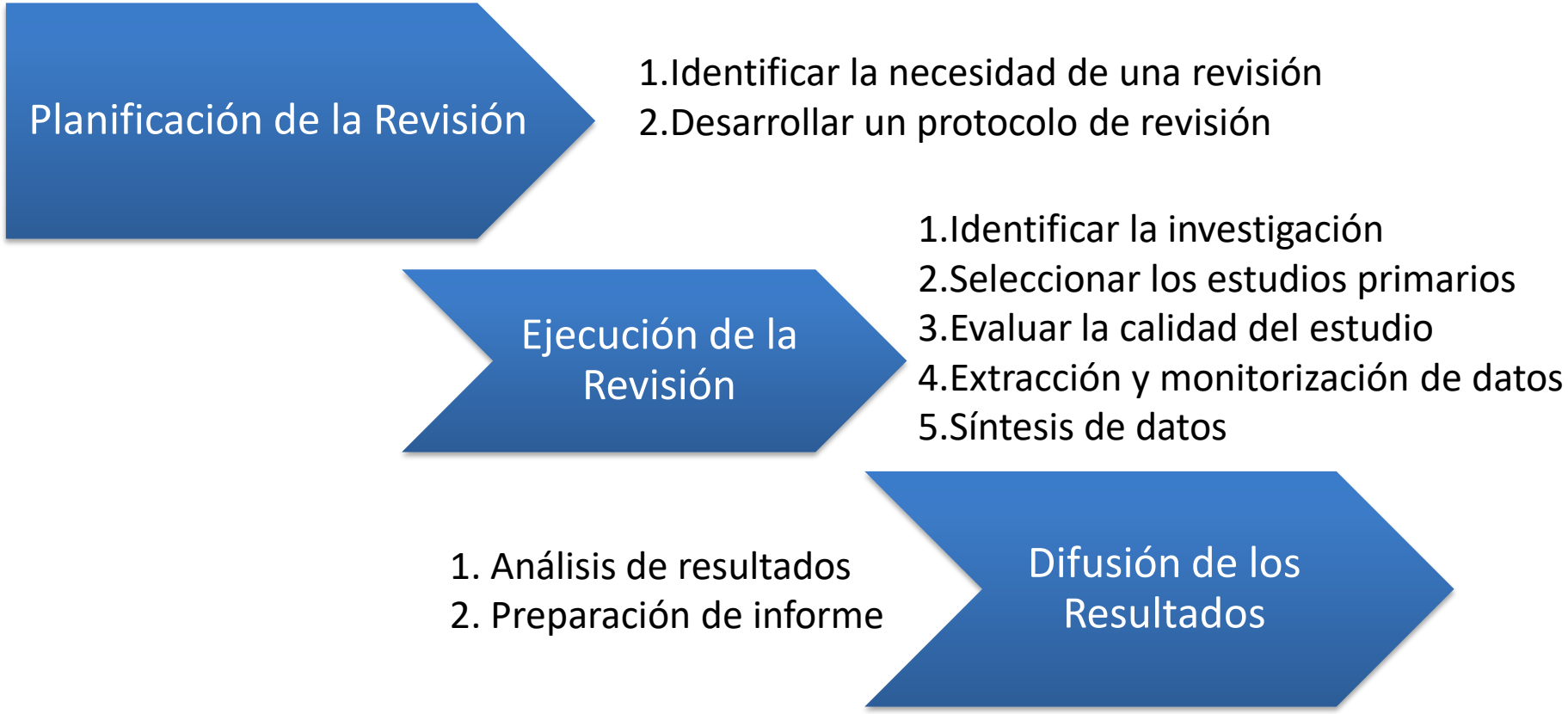
Systematic Literature Review

- El tópico que se quiere estudiar es reducido
- Estudiar la ***calidad*** de las evidencias
- Requiere un análisis detallado de los estudios
- Búsqueda en profundidad
- El objetivo es resumir el estado del arte

Systematic Mapping Study

- El tópico que se quiere estudiar es amplio
- Estudiar la ***cantidad*** de evidencias
- Requiere un análisis superficial de los estudios
- Búsqueda en anchura
- El objetivo es identificar *clusters* de evidencias y áreas donde fomentar la investigación

Etapas


Planificación de la Revisión
1.Identificar la necesidad de una revisión
2.Desarrollar un protocolo de revisión
Ejecución de la Revisión
1.Identificar la investigación
2.Seleccionar los estudios primarios
3.Evaluar la calidad del estudio
4.Extracción y monitorización de datos
5.Síntesis de datos
Difusión de los Resultados
1. Análisis de resultados
2. Preparación de informe

Planificación de la Revisión

1.1 Identificar la necesidad de una revisión

Quality of Web Mashups

A Systematic Mapping Study

- As far as we know, **no evidence-based studies** (e.g., systematic mapping studies, systematic literature reviews) have been reported on how product quality issues are being addressed for mashups.
- The **goal** of our study is, therefore, to address ***which/how*** *product quality issues are being addressed in Web mashup development* and *how the product quality-aware approaches have been defined and validated*.

Planificación de la Revisión

1.2. Desarrollar el protocolo de revisión

Pregunta(s) de investigación que se intenta responder

- a) RQ1: *Which/how product quality issues are being addressed in Web mashup development?*
- b) RQ2: *How have the product quality-aware approaches been defined and validated?*

Planificación de la Revisión

1.2. Desarrollar el protocolo de revisión

Estrategias de búsqueda

Digital Libraries:

- IEEEXplore
- ACM

Journals and Conferences:

- Journal of Web Engineering (JWE).
- ACM Transactions on the Web (ACMTWEB).
- Foundations of Popfly: Rapid Mashup Development (Book).
- World Wide Web conference (WWW).
- International Conference on Web Engineering (ICWE).
- International Conference on Information Integration and Web-Based
- …

Planificación de la Revisión

1.2. Desarrollar el protocolo de revisión

Cadena de Búsqueda

The search string defined for retrieving studies is as follows:

"(web OR internet OR www) AND (mash*) AND quality".

The asterisk symbol '*' signifies any character whose purpose it is to include any word variation of each search term (e.g., the search term 'mash*' includes the following words: *mashup* OR *mashing* OR *mash-Up* OR *mash* OR . . .)

The period covered was the last 7 years (2006 - 2012).

Planificación de la Revisión

1.2. Desarrollar el protocolo de revisión

Criterios de inclusión y exclusión

- The studies that **met** the both following conditions were **included**:
  - Studies presenting a method and/or technique to assist designers in the quality evaluation of Web mashups from the product perspective.
  - Full papers.
- The studies that **met** at least one of the following conditions were **excluded**:
  - Introductory papers for special issues, books and workshops.
  - Duplicate reports of the same study in different sources.
  - Short papers with less than five pages.
  - Papers not written in English.

Planificación de la Revisión

1.2. Desarrollar el protocolo de revisión

Criterios y procedimientos para evaluar la calidad

- It is considered critical to **assess the "quality" of the primary studies**. A three point Likert-scale questionnaire was used to provide a quality assessment of the selected studies.

  a) *Does the study present a method and/or technique for assessing the quality of mashups from the product quality perspective? (agree, disagree);*

  b) *Has the study been published in a relevant journal or conference? (e.g. CORE ranking, JCR list); and*

  c) *Has the study been cited by other authors? (Google Scholar).*

Planificación de la Revisión

1.2. Desarrollar el protocolo de revisión

Estrategias de Extracción de Datos

Research questions	***Criteria***	***Options***
RQ1: Which/how the quality of Web mashups has been addressed?	C1: Product quality characteristics addressed in the studies	a) Functional suitability
		b) Performance efficiency
		c) Compatibility
		d) Usability
		e) Reliability
		f) Security
		g) Maintainability
		h) Portability
	C2: Stages based on the mashup development process	a) Component Selection
		b) Mashup composition
		c) Mashup usage
	C3: Artifacts involved	a) Conceptual models
		b) Source code
		c) Final user interfaces
		d) Components
RQ2: How have the product quality-aware approaches been defined and validated?	C4: Type of approach	a) New
		b) Extension
	C5: Type of validation	a) Survey
		b) Case Study
		c) Experiment
		d) No validation
	C6: Approach usage	a) Industry
		b) Academy

Planificación de la Revisión

1.2. Desarrollar el protocolo de revisión

Métodos de Síntesis

- We applied both quantitative and qualitative synthesis methods.
- The quantitative synthesis was based on:
  - ***Counting the primary studies*** that are classified in each answer from our criteria.
  - ***Defining bubble plots*** in order to report the frequencies of combining the results from different research sub-questions. A bubble plot is basically two x–y scatter plots with bubbles in category intersections. This is useful to provide a map and giving a quick overview of a research field.
  - ***Counting the number of papers*** found in each bibliographic source per year.
- The qualitative synthesis is based on including several representative studies for each criterion by considering the results from the quality assessment.

Ejecución de la Revisión

2.1. Identificación de la Investigación

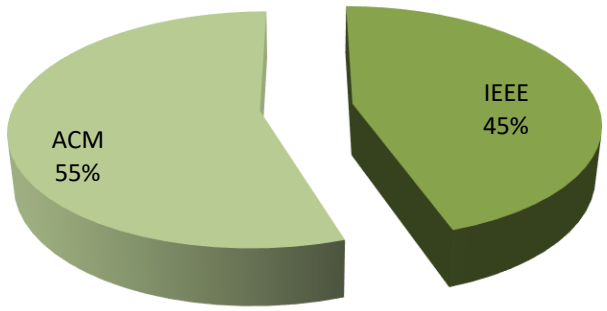
Ejm: The search to identify primary studies in the IEEE Xplore and ACM digital libraries was conducted on the 29th of December 2012.

2.2. Seleccionar los Estudios Primarios

The application of the review protocol yielded the following results:

The bibliographic database search:

- 80 potentially relevant publications
  - 46 from the IEEE Xplore
  - 34 from the ACM DL.
- After applying the inclusion and exclusion criteria
  - 13 from IEEE Xplore
  - 16 from ACM digital library.



Ejecución de la Revisión

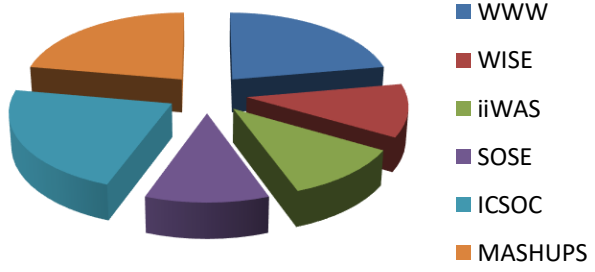
2.2. Seleccionar los Estudios Primarios

- The manual bibliographic review of the other sources identified another 107 potentially relevant publications. After applying the inclusion and exclusion criteria, the following publications were finally selected: 9 papers
  - (2 from WWW, 0 from ICWE, 1 from WISE, 1 from iiWAS, 1 from SOSE, 2 from ICSOC, and 2 from MASHUPS).

Documentar todos los hallazgos

CONFERENCE	*PAPERS*
WWW	2
WISE	1
iiWAS	1
SOSE	1
ICSOC	2
MASHUPS	2
TOTAL	*9*

MANUAL SEARCH



Ejecución de la Revisión

2.3. Evaluar la calidad del estudio primario

a) *Does the study present a method and/or technique for assessing the quality of mashups from the product quality perspective? (agree, disagree);*
b) *Has the study been published in a relevant journal or conference? (e.g. CORE ranking, JCR list); and*
c) *Has the study been cited by other authors? (Google Scholar).*

The score for each closed-question will be the arithmetic mean of all the individual scores from each reviewer. The sum of the three closed-question score of each study provides a final score which was not used to exclude papers from the systematic mapping study but was rather used to detect representative studies.

Ejecución de la Revisión

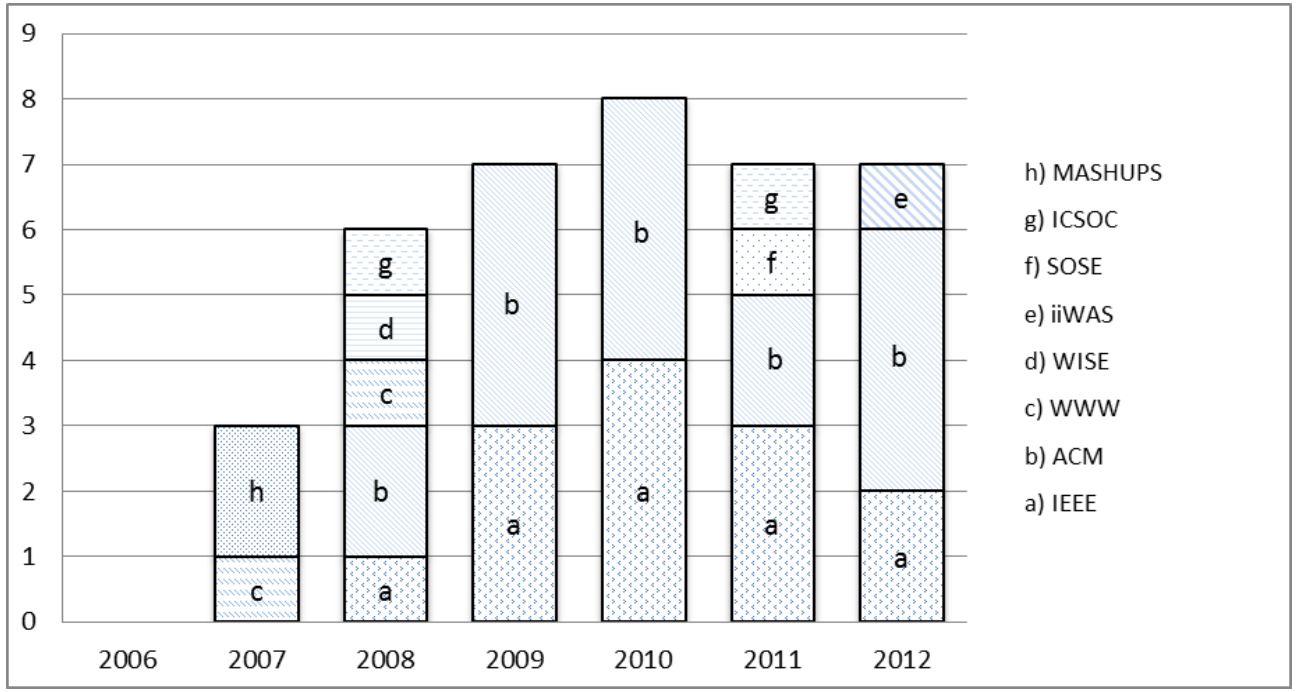
2.4. Extracción y monitorización de datos

Criteria	Possible answers	# Studies	% Percentage
C1: Product quality characteristics addressed in the studies	Functional suitability	16	42.11
	Performance efficiency	24	63.16
	Compatibility	4	10.53
	Usability	9	23.68
	Reliability	16	42.11
	Security	18	47.37
	Maintainability	8	21.05
	Portability	4	10.53
C2: Stages based on the mashup development process	Component selection	14	36.84
	Mashup composition	21	55.26
	Mashup usage	16	42.11
C3: Artifacts involved	Conceptual models	8	21.05
	Source code	13	34.21
	Final user interfaces	9	23.68
	Components	15	39.47
C4: Type of approach	New	29	76.32
	Extension	9	23.68
C5: Type of validation	Survey	1	2.63
	Case Study	18	47.37
	Experiment	9	23.68
	No validation	11	28.95
C6: Approach usage	Industry	15	39.47
	Academy	33	86.84

Excel

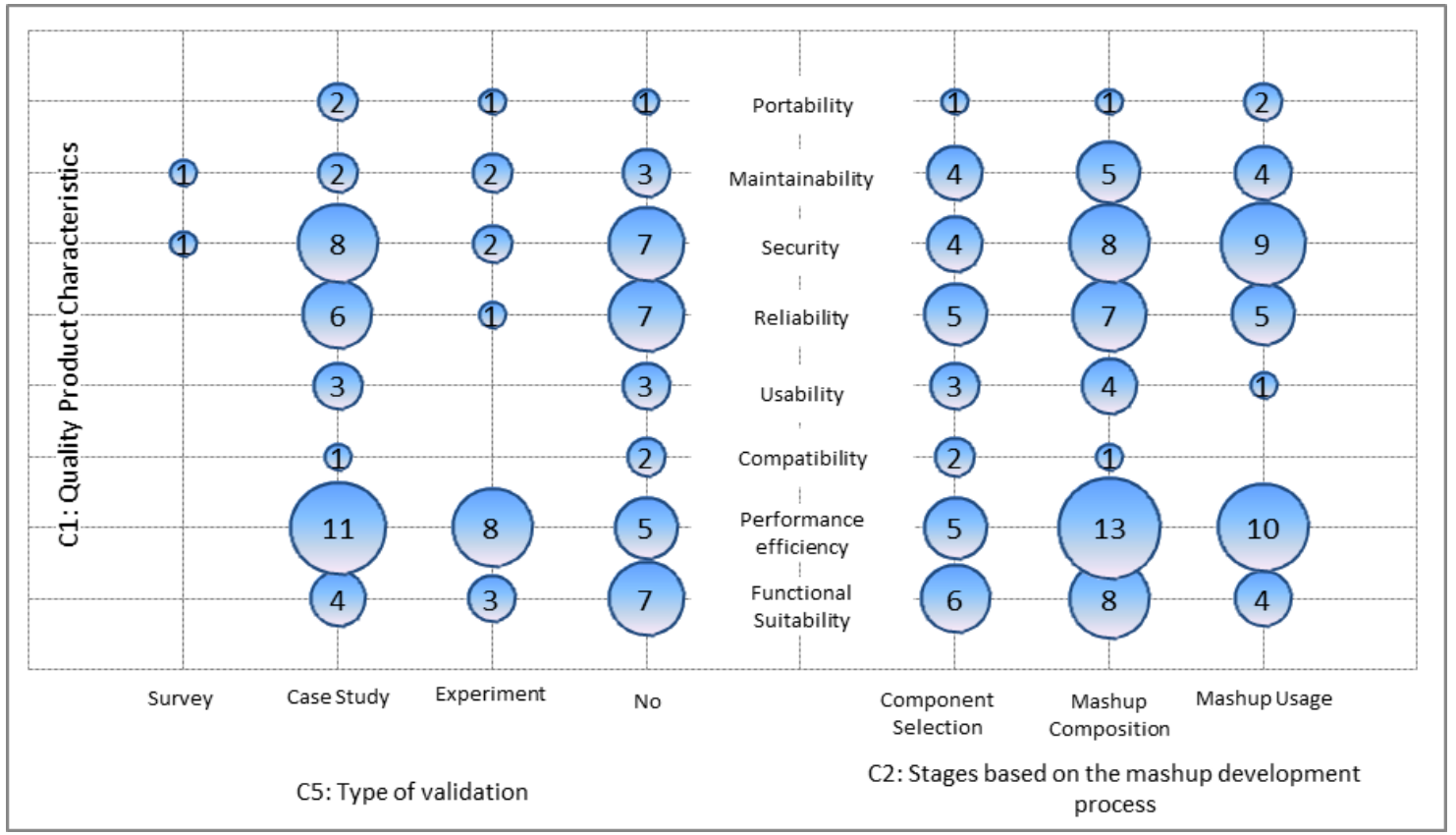
Ejecución de la Revisión

2.5. Síntesis de Datos



Ejecución de la Revisión

2.5. Síntesis de Datos



Ver más información y resultados

Difusión de los Resultados

Análisis de resultados y preparación del informe

Dos formatos:

- Informe técnico o capítulo de una tesis doctoral

- Artículo en revista o congreso

FACULTAD DE INGENIERÍA
UNIVERSIDAD DE CUENCA

Máster en Ingeniería y Tecnología de Sistemas Software

Curso Académico 2015-2016

Gestores Bibliográficos Mendeley

Grupo de Ingeniería del Software y Sistemas de Información (ISSI)

Departamento de Sistemas Informáticos y Computación

Contenidos

- Gestores Bibliográficos
- Mendeley
  - Características destacadas
  - Instalación
  - Funcionamiento
  - Plugins
  - Bibliografía desde Ms Word
- Exportar a otros formatos
- Ejercicios

Jabref

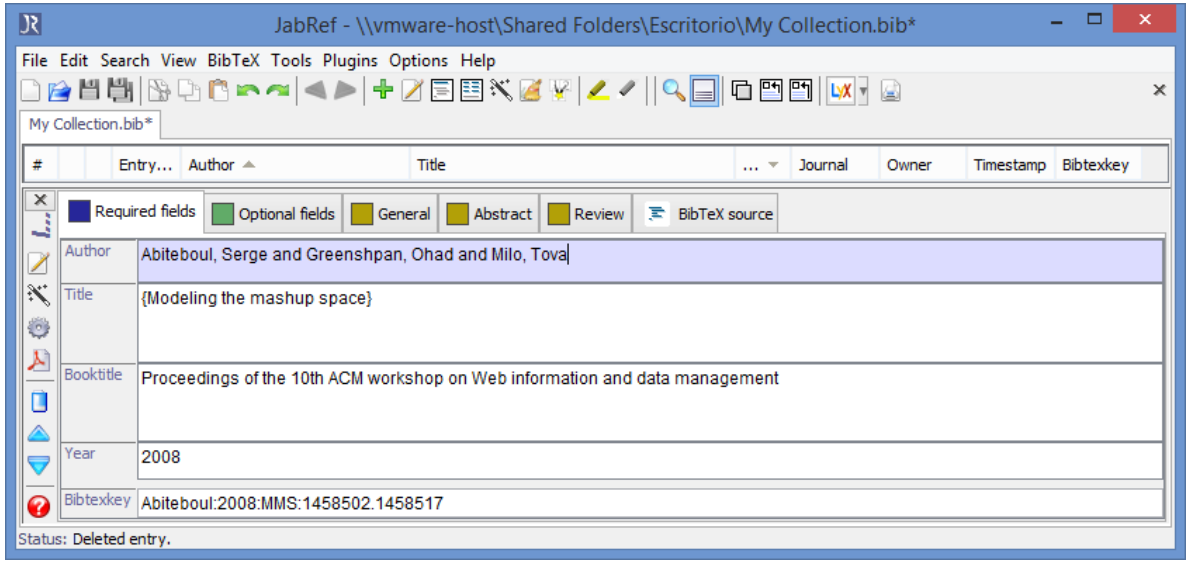
zotero

Gestores Bibliográficos y Revisiones Sistemáticas

- Una vez definida la cadena de búsqueda y recuperados los artículos que serán incluidos en nuestra revisión sistemática, necesitamos gestionarlos de alguna manera.
- Existen varios gestores bibliográficos que nos ayudan a clasificar y mantener los artículos en una forma ordenada y fácilmente accesible.
- Estos gestores bibliográficos nos apoyan en los siguientes pasos del proceso de la revisión.
- La ventaja de ellos es que existen maneras de exportar sus contenidos a aplicaciones y de esta manera "semi-automatizar" el proceso.

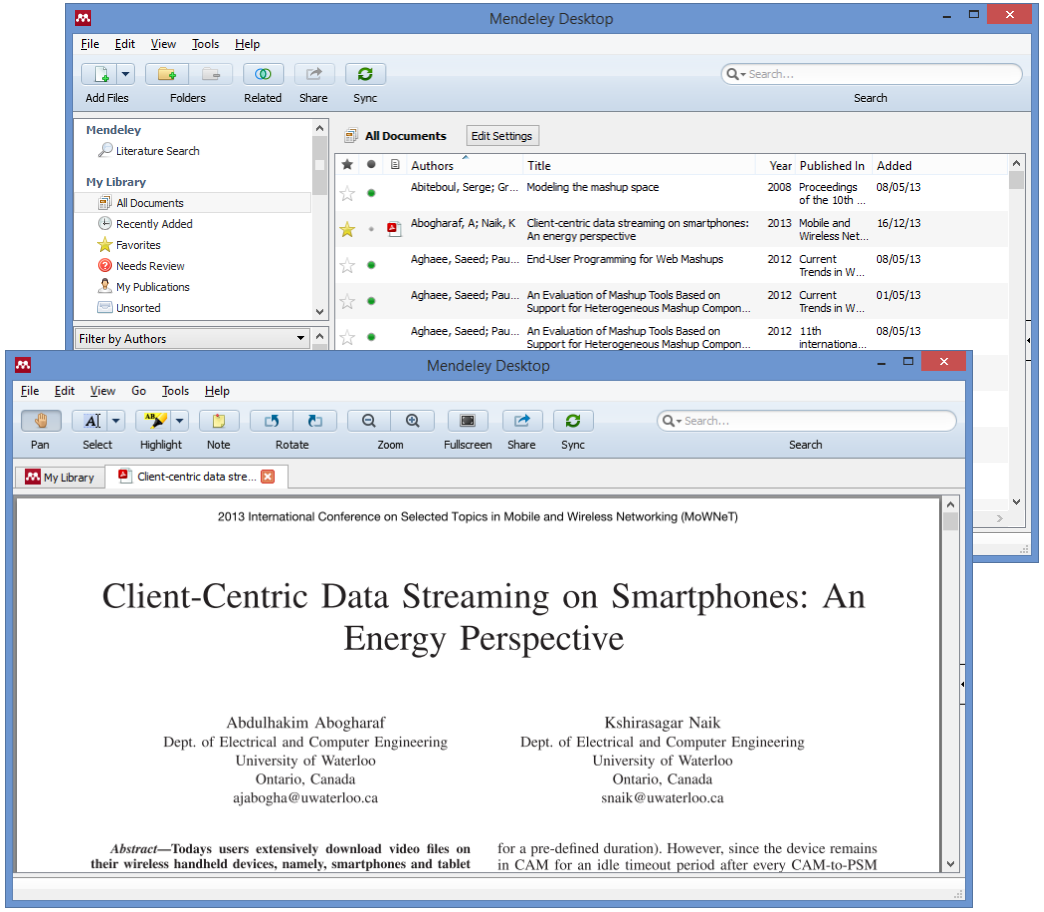
JabRef

- Es la herramienta ideal para generar referencia bibliográficas desde documentos \LaTeX.
- Interface muy simple e intuitiva.
- Descargar en : http://jabref.sourceforge.net/



Mendeley

- Un gestor de bibliografías
- Un lector de PDF
- Un sistema para almacenar y organizar documentos
- Un buscador de información científica
- Una red social académica en la que compartir citas bibliográficas y publicaciones



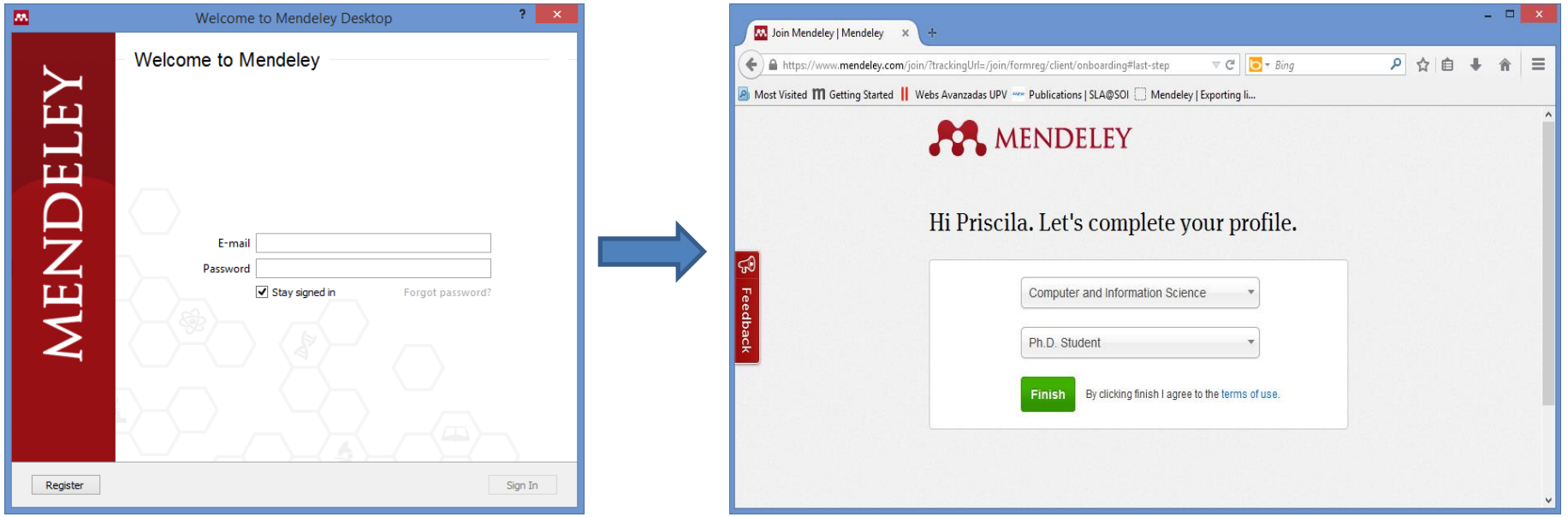
Características Destacadas

- Funciona con Windows, Mac y Linux
- Tiene aplicaciones para iPhone y iPad
- Guarda y organiza datos de referencias bibliográficas en la red y en el ordenador personal o en el Iphone o Ipad.
- Sincroniza los datos de las referencias bibliográficas para generar citas y bibliografías mientras se escribe un artículo científico.
- Facilita la búsqueda y recuperación de artículos o documentos relevantes para trabajos científicos.
- Permite crear bibliografías en el estilo científico deseado
- Exporta e importa de varios formatos.
- Genera citas y listas de referencia de forma automática

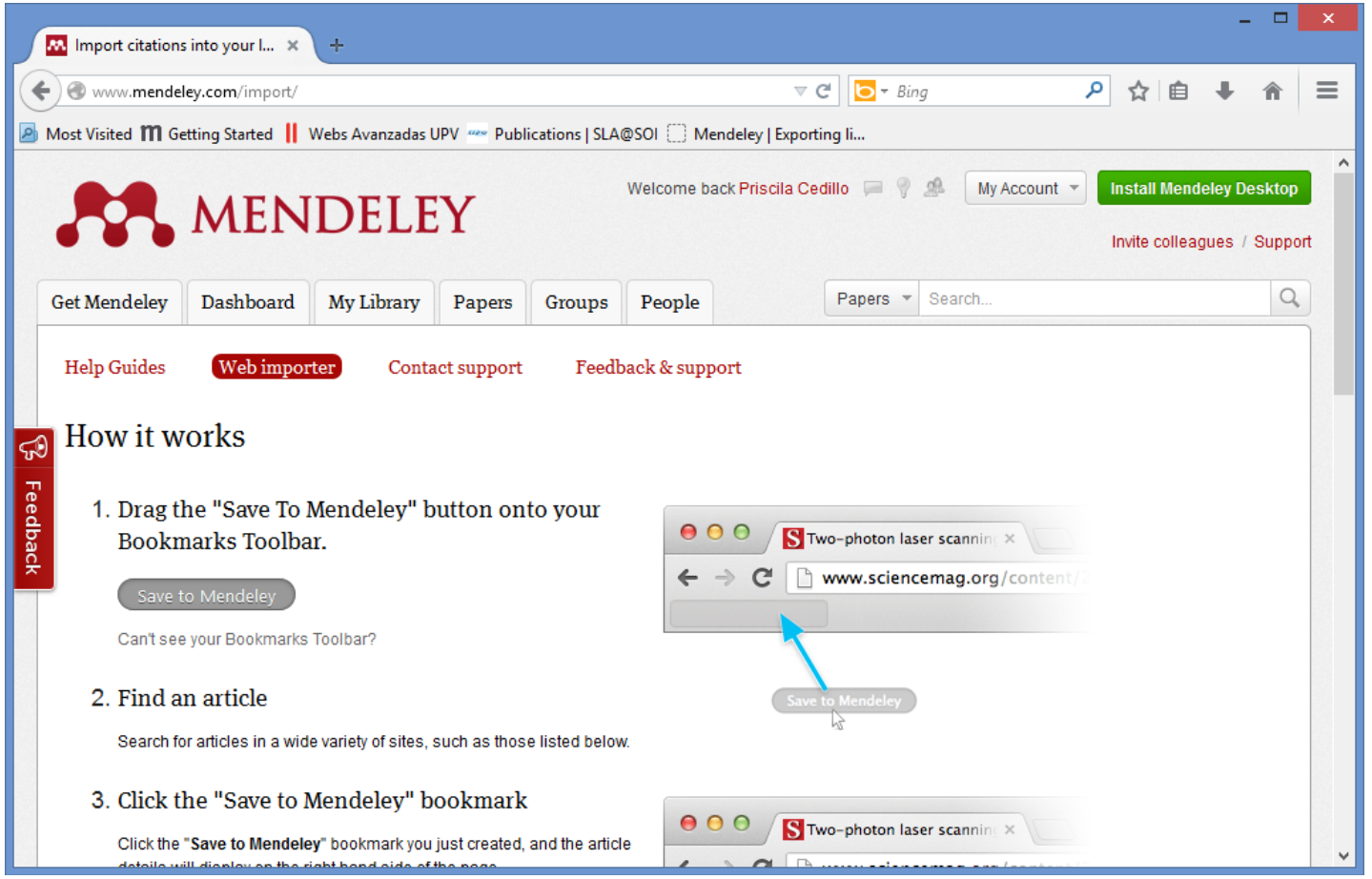
Mendeley Desktop

- Dirección de descarga:

  http://www.mendeley.com/download-mendeley-desktop



Plugins



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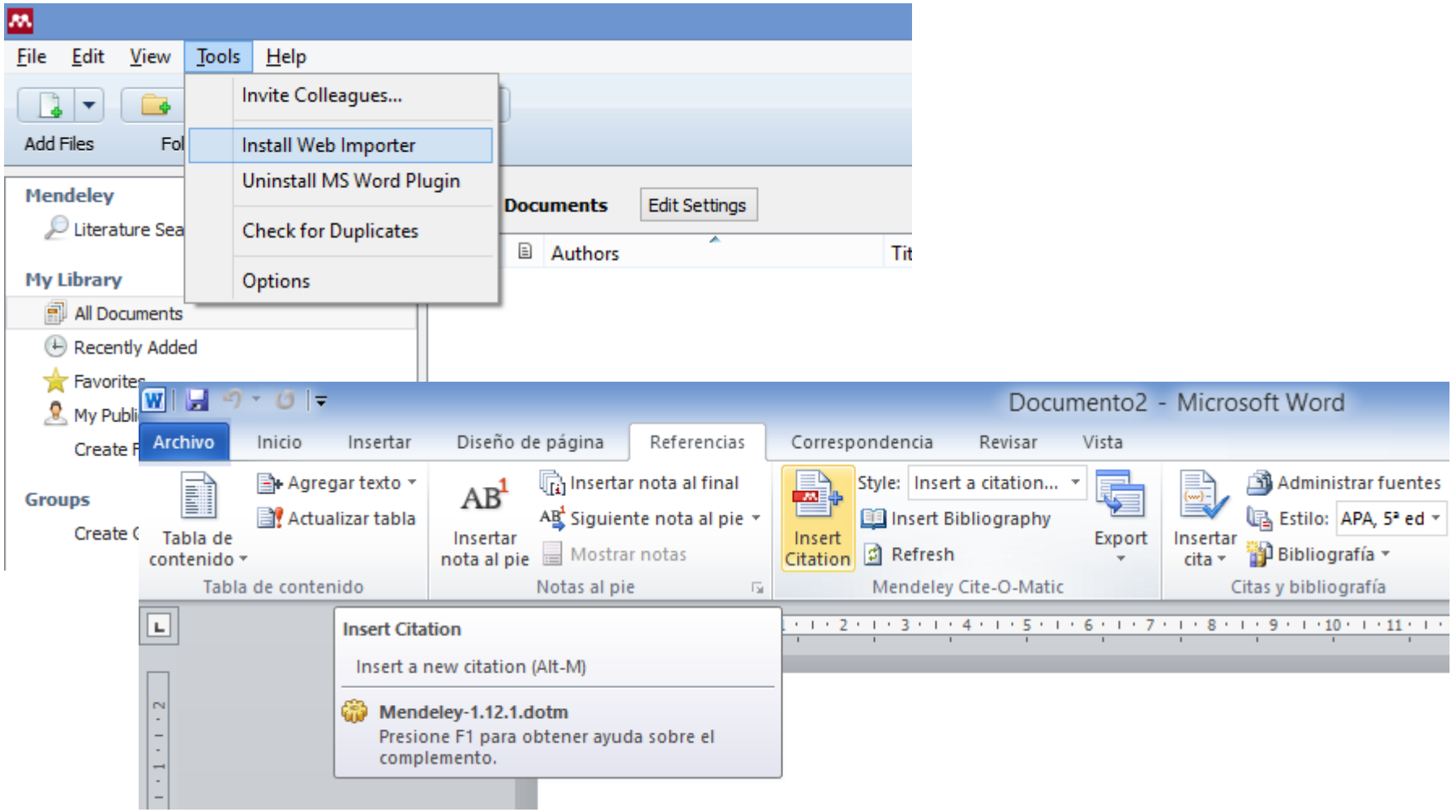
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Tools
Help
Invite Colleagues...
Install Web Importer
Uninstall MS Word Plugin
Check for Duplicates
Options
Add Files
Mendeley
Literature Sea
My Library
All Documents
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Favorites
Groups
Documents
Edit Settings
Authors
Documento2 - Microsoft Word
Archivo
Inicio
Insertar
Diseño de página
Referencias
Correspondencia
Revisar
Vista
Tabla de contenido
Agregar texto
Actualizar tabla
Insertar nota al pie
Insertar nota al final
Siguiente nota al pie
Mostrar notas
Notas al pie
Insert Citation
Style:
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Insert Bibliography
Refresh
Export
Mendeley Cite-O-Matic
Insertar cita
Administrar fuentes
Estilo:
APA, 5ª ed
Bibliografía
Citas y bibliografía
Insert Citation
Insert a new citation (Alt-M)
Mendeley-1.12.1.dotm
Presione F1 para obtener ayuda sobre el complemento.

Cadenas de Búsqueda

- **ACM STRING:**

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- **IEEE STRING**

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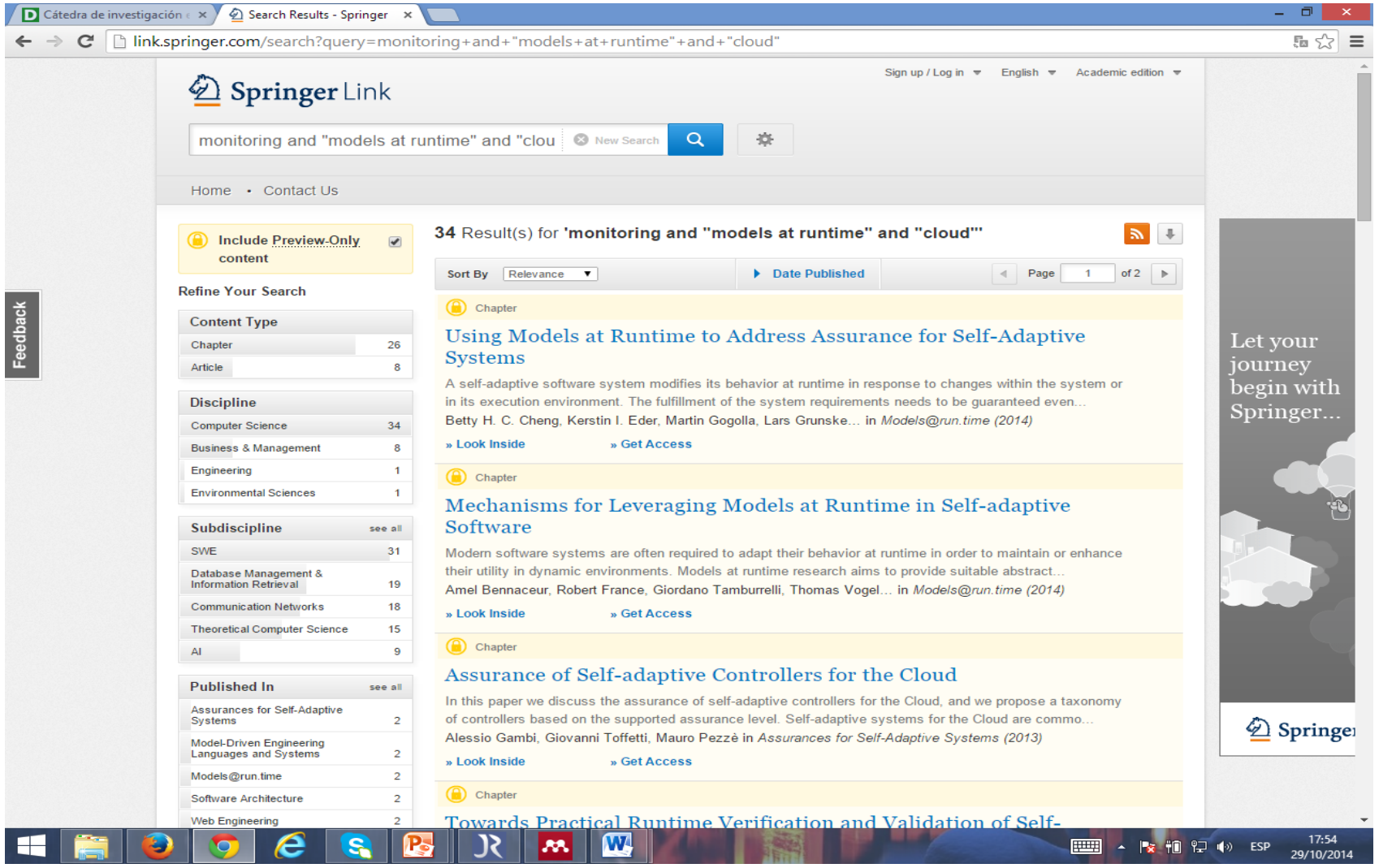
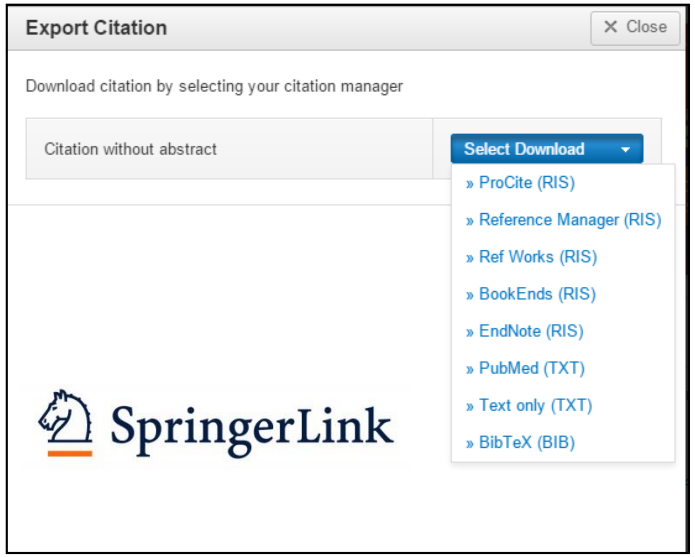
Ejercicio propuesto: Formar las cadenas de búsquedas para realizar la revisión sistemática del ejemplo presentado en la sección anterior (MASHUPS)

Formatos de Importación

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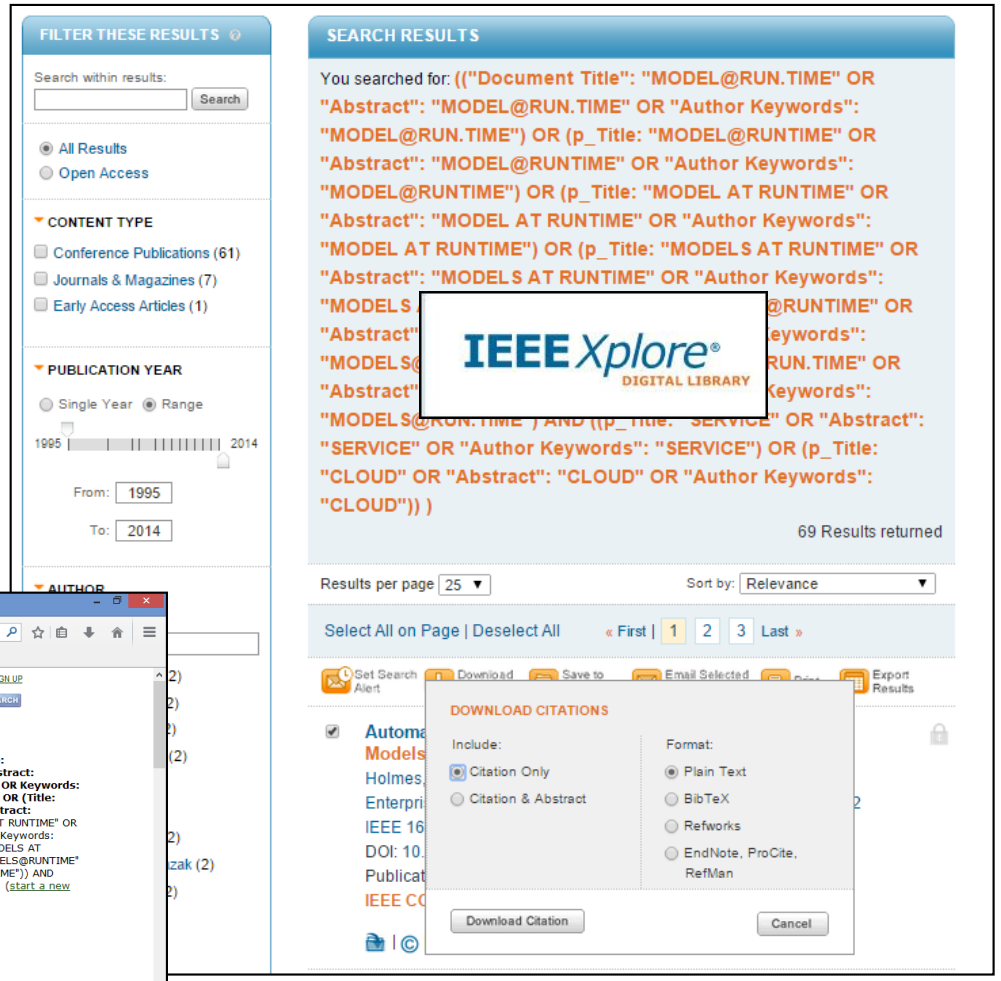
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Search within results:
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All Results
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CONTENT TYPE
Conference Publications (61)
Journals & Magazines (7)
Early Access Articles (1)
PUBLICATION YEAR
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SEARCH RESULTS
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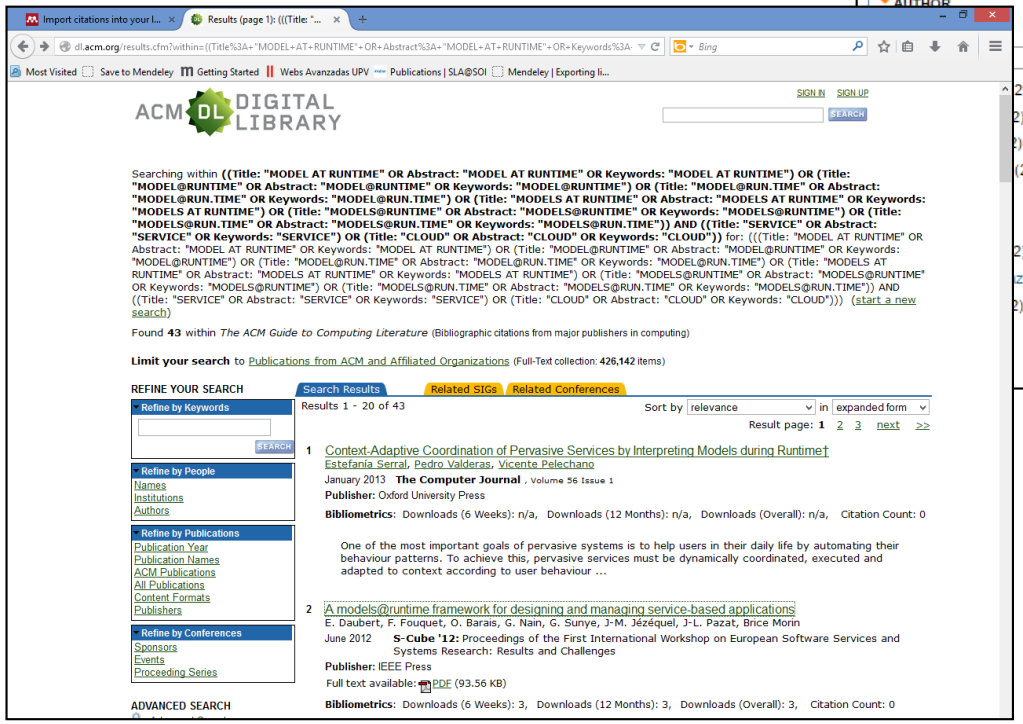
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Found 43 within The ACM Guide to Computing Literature (Bibliographic citations from major publishers in computing)
Limit your search to Publications from ACM and Affiliated Organizations (Full-Text collection: 426,142 items)
REFINE YOUR SEARCH
Search Results
Related SIGs
Related Conferences
Refine by Keywords
Refine by People
Names
Institutions
Authors
Refine by Publications
Publication Year
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ACM Publications
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ADVANCED SEARCH
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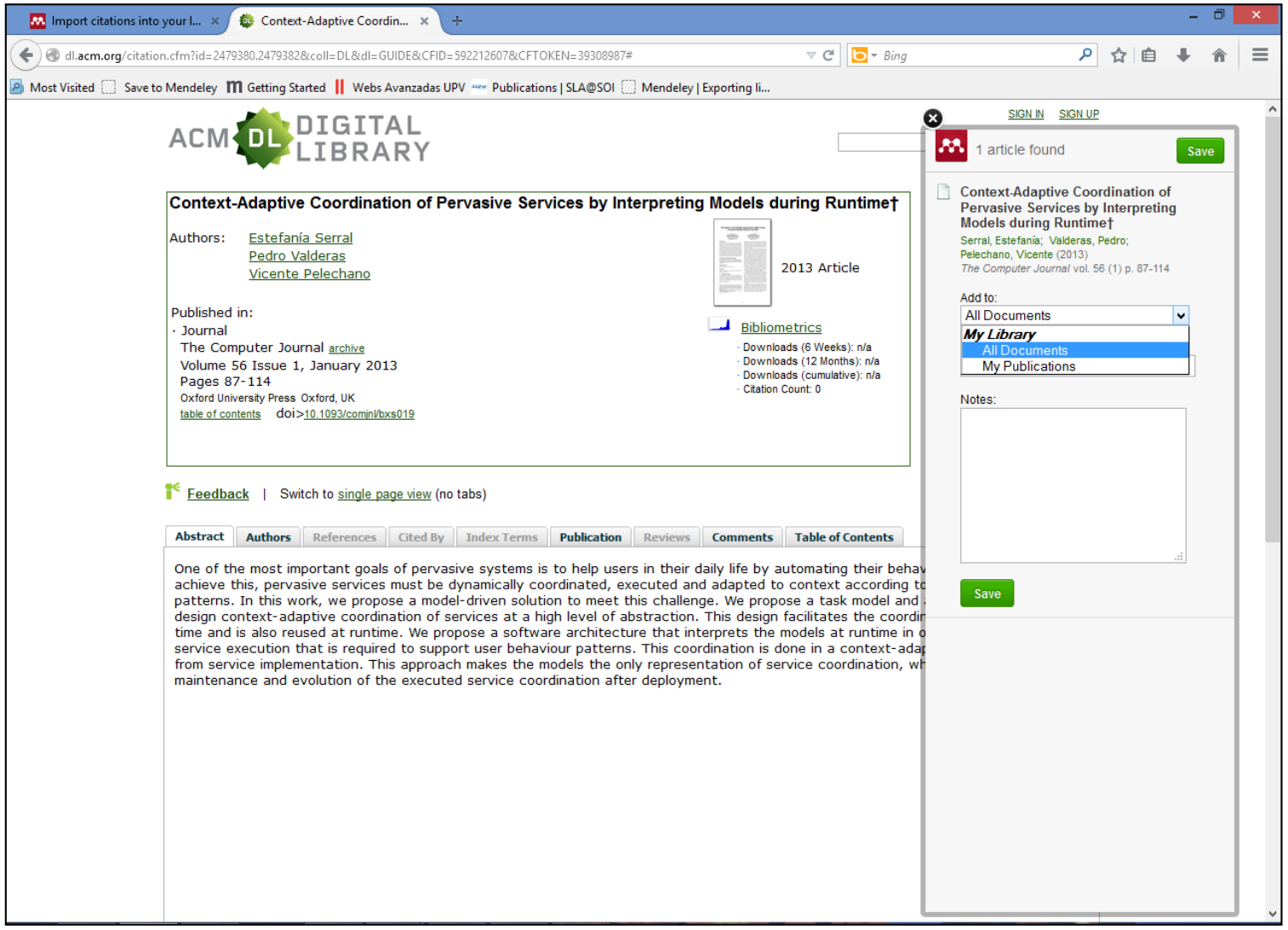
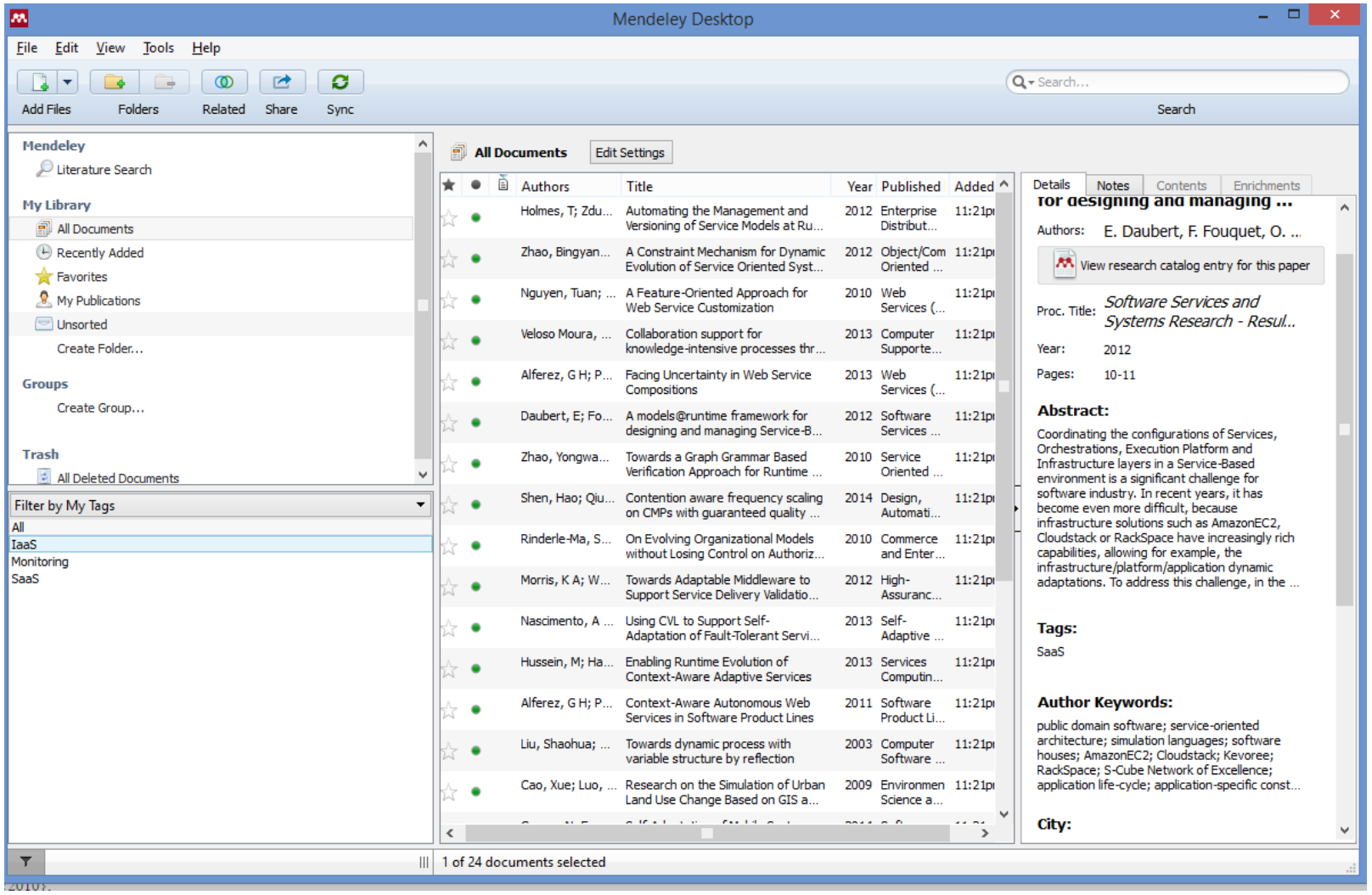
1 Context-Adaptive Coordination of Pervasive Services by Interpreting Models during Runtime†
Estefanía Serral, Pedro Valderas, Vicente Pelechano
January 2013 The Computer Journal , Volume 56 Issue 1
Publisher: Oxford University Press
Bibliometrics: Downloads (6 Weeks): n/a, Downloads (12 Months): n/a, Downloads (Overall): n/a, Citation Count: 0
One of the most important goals of pervasive systems is to help users in their daily life by automating their behaviour patterns. To achieve this, pervasive services must be dynamically coordinated, executed and adapted to context according to user behaviour ...
2 A models@runtime framework for designing and managing service-based applications
E. Daubert, F. Fouquet, O. Barais, G. Nain, G. Sunye, J-M. Jézéquel, J-L. Pazat, Brice Morin
June 2012 S-Cube '12: Proceedings of the First International Workshop on European Software Services and Systems Research: Results and Challenges
Publisher: IEEE Press
Full text available: PDF (93.56 KB)
Bibliometrics: Downloads (6 Weeks): 3, Downloads (12 Months): 3, Downloads (Overall): 3, Citation Count: 0

Utilizando el Web Importer…



Categorizar por Etiquetas

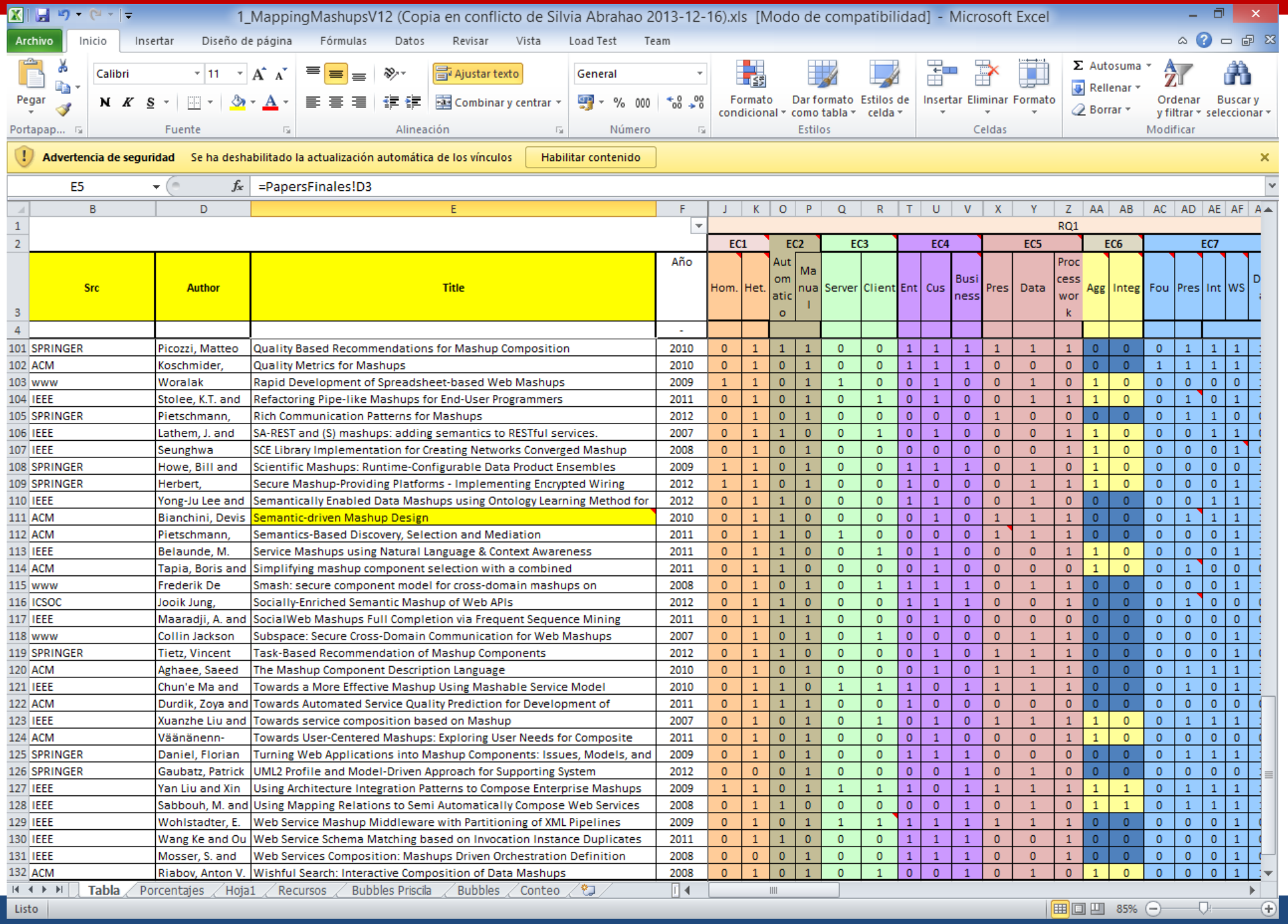


Exportar a Excel

- No existe una forma directa de exportar desde Mendeley a excel.
- Una manera en la que se puede hacer esto es a través de JabRef, por medio de la generación de un archivo .CVS.
  - Para ello exportamos desde Mendeley lo que queremos enviar a Excel, generando un archivo con extensión .bib
  - Lo abrimos desde JabRef y lo exportamos a CVS.
  - Luego podemos hacer la importación a Excel y quedarnos con las columnas de nuestro interés.

Tabulando los datos en Excel

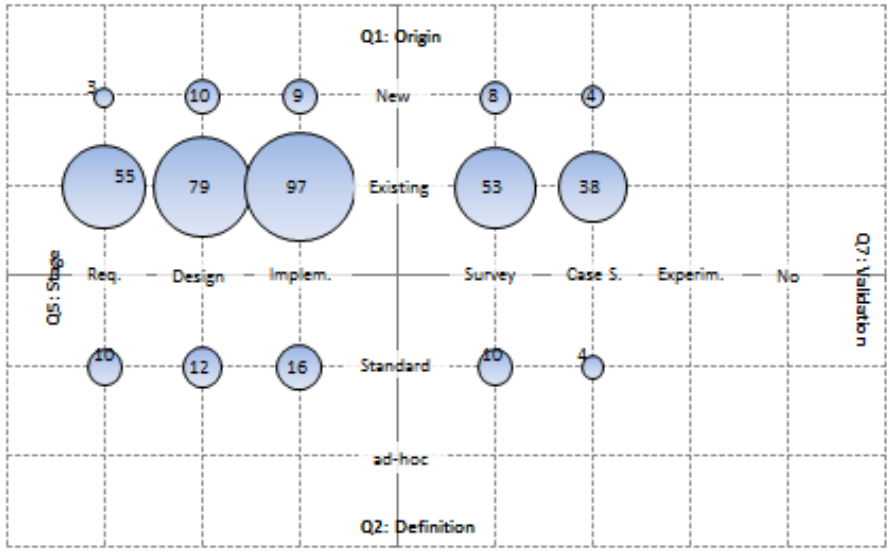
- Una vez que tenemos todos los artículos a ser leídos, realizamos una categorización, ya sea utilizando un gestor de bibliografía o un archivo de Excel.
- Si escogemos el hacerlo en Excel, creamos una matriz binaria, con las características que son de interés para la revisión sistemática.
- Una vez tengamos esa matriz procedemos al análisis de los datos y según lo que queramos presentar en la revisión, podemos hacer gráficos de tartas, barras, burbujas, etc.

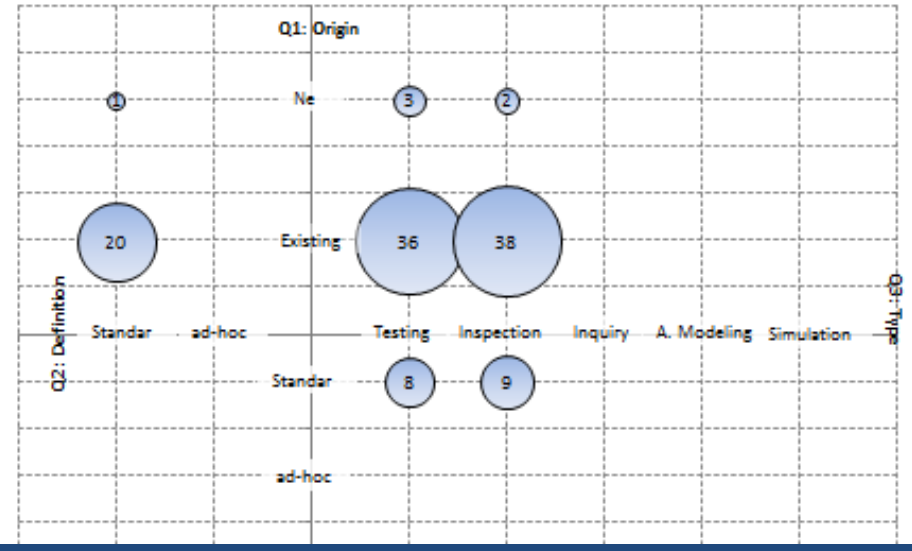


	Src	Author	Title	Año	EC1 Hom.	EC1 Het.	EC2 Automatico	EC2 Manual	EC3 Server	EC3 Client	EC4 Ent	EC4 Cus	EC4 Business	EC5 Pres	EC5 Data	EC5 Processwork	EC6 Agg	EC6 Integ	EC7 Fou	EC7 Pres	EC7 Int	EC7 WS
4				-																		
101	SPRINGER	Picozzi, Matteo	Quality Based Recommendations for Mashup Composition	2010	0	1	1	1	0	0	1	1	1	1	1	1	0	0	0	1	1	1
102	ACM	Koschmider,	Quality Metrics for Mashups	2010	0	1	0	1	0	0	1	1	1	0	0	0	0	0	1	1	1	1
103	www	Woralak	Rapid Development of Spreadsheet-based Web Mashups	2009	1	1	0	1	1	0	0	1	0	0	1	0	1	0	0	0	0	0
104	IEEE	Stolee, K.T. and	Refactoring Pipe-like Mashups for End-User Programmers	2011	0	1	0	1	0	1	0	1	0	0	1	1	1	0	0	1	0	1
105	SPRINGER	Pietschmann,	Rich Communication Patterns for Mashups	2012	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	1	0
106	IEEE	Lathem, J. and	SA-REST and (S) mashups: adding semantics to RESTful services.	2007	0	1	1	0	0	1	0	1	0	0	0	1	1	0	0	0	1	1
107	IEEE	Seunghwa	SCE Library Implementation for Creating Networks Converged Mashup	2008	0	1	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	1
108	SPRINGER	Howe, Bill and	Scientific Mashups: Runtime-Configurable Data Product Ensembles	2009	1	1	0	1	0	0	1	1	1	0	1	0	1	0	0	0	0	0
109	SPRINGER	Herbert,	Secure Mashup-Providing Platforms - Implementing Encrypted Wiring	2012	1	1	0	1	0	0	1	0	0	0	1	1	1	0	0	0	0	1
110	IEEE	Yong-Ju Lee and	Semantically Enabled Data Mashups using Ontology Learning Method for	2012	0	1	1	0	0	0	1	1	0	0	1	0	0	0	0	0	1	1
111	ACM	Bianchini, Devis	Semantic-driven Mashup Design	2010	0	1	1	0	0	0	0	1	0	1	1	1	0	0	0	1	1	1
112	ACM	Pietschmann,	Semantics-Based Discovery, Selection and Mediation	2011	0	1	1	0	1	0	0	0	0	1	1	1	0	0	0	0	0	1
113	IEEE	Belaunde, M.	Service Mashups using Natural Language & Context Awareness	2011	0	1	1	0	0	1	0	1	0	0	0	1	1	0	0	0	0	1
114	ACM	Tapia, Boris and	Simplifying mashup component selection with a combined	2011	0	1	1	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0
115	www	Frederik De	Smash: secure component model for cross-domain mashups on	2008	0	1	0	1	0	1	1	1	1	0	1	1	0	0	0	0	0	1
116	ICSOC	Jooik Jung,	Socially-Enriched Semantic Mashup of Web APIs	2012	0	1	1	0	0	0	1	1	1	0	0	1	0	0	0	1	0	0
117	IEEE	Maaradji, A. and	SocialWeb Mashups Full Completion via Frequent Sequence Mining	2011	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
118	www	Collin Jackson	Subspace: Secure Cross-Domain Communication for Web Mashups	2007	0	1	0	1	0	1	0	0	0	0	1	1	0	0	0	0	0	1
119	SPRINGER	Tietz, Vincent	Task-Based Recommendation of Mashup Components	2012	0	1	1	0	0	0	0	1	0	1	1	1	0	0	0	0	0	1
120	ACM	Aghaee, Saeed	The Mashup Component Description Language	2010	0	1	0	1	0	0	0	1	0	1	1	1	0	0	0	1	1	1
121	IEEE	Chun'e Ma and	Towards a More Effective Mashup Using Mashable Service Model	2010	0	1	1	0	1	1	1	0	1	1	1	1	0	0	0	1	0	1
122	ACM	Durdik, Zoya and	Towards Automated Service Quality Prediction for Development of	2011	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
123	IEEE	Xuanzhe Liu and	Towards service composition based on Mashup	2007	0	1	0	1	0	1	0	1	0	1	1	1	1	0	0	1	1	1
124	ACM	Väänänenn-	Towards User-Centered Mashups: Exploring User Needs for Composite	2011	0	1	0	1	0	0	0	1	0	0	0	1	1	0	0	0	0	0
125	SPRINGER	Daniel, Florian	Turning Web Applications into Mashup Components: Issues, Models, and	2009	0	1	0	1	0	0	1	1	1	0	0	0	0	0	0	1	1	1
126	SPRINGER	Gaubatz, Patrick	UML2 Profile and Model-Driven Approach for Supporting System	2012	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0
127	IEEE	Yan Liu and Xin	Using Architecture Integration Patterns to Compose Enterprise Mashups	2009	1	1	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1
128	IEEE	Sabbouh, M. and	Using Mapping Relations to Semi Automatically Compose Web Services	2008	0	1	1	0	0	0	0	0	1	0	1	0	1	1	0	1	1	1
129	IEEE	Wohlstadter, E.	Web Service Mashup Middleware with Partitioning of XML Pipelines	2009	0	1	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1
130	IEEE	Wang Ke and Ou	Web Service Schema Matching based on Invocation Instance Duplicates	2011	0	1	1	0	0	0	1	1	1	0	0	1	0	0	0	0	0	1
131	IEEE	Mosser, S. and	Web Services Composition: Mashups Driven Orchestration Definition	2008	0	0	0	1	0	0	1	1	1	0	0	1	0	0	0	0	0	1
132	ACM	Riabov, Anton V.	Wishful Search: Interactive Composition of Data Mashups	2008	0	1	0	1	0	1	0	0	1	0	1	0	1	0	0	0	0	1

Q	R	S	T	U
##	25	24	##	##
##	40	30	##	##
##	45	35	##	##
yes	####	###	##	##
no	####	###	##	##

Bubble C					
			x	y	tam
x	std	exis	-2	2	20
q2	adhoc	exis	-1	2	0
y	std	new	-2	5	1
q1	adhoc	new	-1	5	0
x	test	exis	1	2	36
q3	inspe	exis	2	2	38
	inqui	exis	3	2	##
	anal	exis	4	2	##
y	simu	exis	5	2	##
q1	test	new	1	5	3
	inspe	new	2	5	2
	inqui	new	3	5	##
	anal	new	4	5	##
	simu	new	5	5	##
x	std	test	1	-1	8
q2	adhoc	test	1	-3	0
	std	inspe	2	-1	9
	adhoc	inspe	2	-3	0
y	std	inqu	3	-1	##
q3	adhoc	inqu	3	-3	##
	std	anal	4	-1	##
	adhoc	anal	4	-3	##
	std	simu	5	-1	##
	adhoc	simu	5	-3	##
x	inspe	test	2	-1	15
q3	inqui	test	3	-1	##
	inqui	inspe	3	-2	##
	anal	test	4	-1	##
y	anal	inspe	4	-2	##
q3	anal	inqu	4	-3	##
	simu	test	5	-1	##
	simu	inspe	5	-2	##
	simu	inqu	5	-3	##
	simu	anal	5	-4	##





FACULTAD DE INGENIERÍA
UNIVERSIDAD DE CUENCA

Gracias por su atención