

Trabajo 10

Clustering

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TEXT MINING

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Objetivo:

- Realizar un análisis semiautomático de grandes volúmenes de datos no estructurados (en forma de artículos de revistas publicadas) a través de la aplicación de minería de textos.
- Utilizar bibliotecas digitales estándar y motores de búsqueda de publicaciones en línea tales como Google Scholar, ResearchGate para extraer la información a procesar.

Descripcion:

Extraiga esta información al menos 30 publicaciones de los autores listados abajo y de al menos tres revistas diferentes. Para cada artículo, extraiga el título, resumen, lista de autores, palabras clave publicadas, volumen, número de edición y año de publicación. Si es posible incluya además el tipo de artículo para futuros análisis de patrones.

Se recomienda usar información de estos *autores*: Mauricio Espinoza Mejía, Victor Saquicela Galarza, Guadalupe Aguado de Cea, Jim Hendler, Frank van Harmelen, Natasha Noy, Priscila Cedillo Orellana, Miguel Angel Zuniga, Dario Rodriguez, Yaskelly Yedra, Jeanette Riley, Kenneth Palacios Baus, Otto Parra González, Don Batory, Alexander Egyed, Marten van Sinderen, Lizandro Damian Solano-Quinde, Alex Nicolau, Bill Punch, Zhenjiang Hu, Juan Pablo Carvallo, Luis I. Minchala, Liping Guo, Angel de Castro, Javier Garrido, Amit Sheth.

Para esta práctica se usará únicamente el resumen de un artículo como única fuente de información. No se debe incluir las palabras clave del artículo por dos principales razones: en circunstancias normales, el resumen incluye las palabras clave enumeradas, y, por lo tanto, la inclusión de las palabras clave enumeradas para el análisis significaría repetir la misma información y potencialmente otorgarles un peso innecesario; y las palabras clave enumeradas pueden ser términos con los que los autores desearían que se asociará su artículo (a diferencia de lo que realmente figura en el artículo), lo que podría introducir un sesgo no cuantificable en el análisis del contenido. Cada uno de los artículos deben ser grabados en archivos de Excel.

Ejecutar procesos que permitan :

1. Representar la relación entre las palabras/términos y los documentos
2. Ejecutar pre-procesamiento que incluya al menos Transform Cases, Tokenization (usando la opción all nonletter characters), Filter Stopwords, y Filter Tokens (by Length) (por ejemplo menos de dos caracteres de longitud). Use algunos procesos adicionales en caso de considerarlo necesario.
3. Determinar el número de grupos para clasificar los artículos. En todo momento se debe incluir el autor, año y revista.

Tareas



1. Verifique los documentos que pertenecen a cada clúster y explique el valor sobre el número de cluster
2. Usando algún software de visualización o análisis (e.j. tabla dinámica de Excel) ejecute los siguientes reportes Listado de autores que trabajan en temas similares (pertenecen al mismo cluster) Cluster x Año x Autor NombreArticulos x Cluster x Autor Un histograma que muestre en el tiempo los tópicos sobre los que ha investigado un autor
3. Explique el significado de los reportes

DESARROLLO

1.- Extracción de perfiles de investigadores: Como motor de búsqueda se escogio Google Scholar, a pesar de existir múltiples alternativas tales como : Researchgate, DSPACE, entre otros. Se escogio Google Scholar debido a la información disponible en la plataforma, ya que la parte de análisis de texto se procederá con el ítems de Abstract, es importante que tal tenga información verificada y completa. Al ser 26 autores con 30 investigaciones de cada uno se debe buscar una plataforma que otorga homogeneidad en la extracción de texto. De los 26 autores se omiten 2 autores: Kenneth Palacios Baus y Javier Garrido debido a la falta de claridad en los perfiles encontrados. Para proceder a extraer la información de cada autor se inicializa un proceso **Read Excel**. El archivo tendrá la cabecera “Autores”:

1	Autores
2	https://scholar.google.com/ec/citations?hl=es&user=PFHdwNMAAAAJ
3	https://scholar.google.com/ec/citations?user=nYte-bkAAAAJ&hl=es&oi=sra
4	https://scholar.google.com/ec/citations?hl=es&user=eEqVvwAAAAJ
5	https://scholar.google.com/ec/citations?hl=es&user=JNPbTdIAAAAJ
6	https://scholar.google.com/ec/citations?hl=es&user=LCyDi8AAAAJ
7	https://scholar.google.com/ec/citations?hl=es&user=FE08ALAAAAAJ
8	https://scholar.google.com/ec/citations?user=sW72O6oAAAAJ&hl=es&oi=sra
9	https://scholar.google.com/ec/citations?hl=es&user=Lvz9YRYAAAAJ

Este archivo tendrá links que dirige a los perfiles de los autores en Google Académico, los links serán semejantes al planteado a continuación:

Mauricio Espinoza Mejía
 Universidad de Cuenca, Universidad de Zaragoza, UPM
 Dirección de correo verificada de ucuena.edu.ec
 Semantic Web multilingualism ontologies linked data

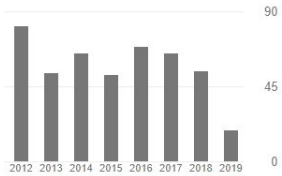
SEGUIR
 CREAR MI PROPIO PERFIL

TÍTULO	CITADO POR	AÑO
Querying the web: A multontology disambiguation method J Gracia, R Trillo, M Espinoza, E Mena Proceedings of the 6th international conference on Web engineering, 241-248	78	2006
Enriching an ontology with multilingual information M Espinoza, A Gómez-Pérez, E Mena The Semantic Web: Research and Applications, 333-347	76	2008
Ontology localization M Espinoza, E Montiel-Ponsoda, A Gómez-Pérez K-CAP '09 Proceedings of the fifth international conference on Knowledge ...	70 *	2009
Discovering the Semantics of User Keywords. R Trillo, J Gracia, M Espinoza, E Mena J. UCS 13 (12), 1908-1935	66	2007
Neon deliverable d5. 4.1. Neon methodology for building contextualized ontology networks MC Suárez-Figueroa, K Dellschaft, E Montiel-Ponsoda, ...	65 *	2008

Citado por

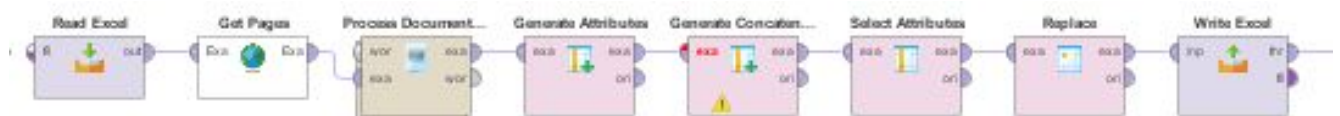
	Total	Desde 2014
Citas	704	324
Índice h	11	9
Índice i10	12	8

VER TODO



Coautores

Proceso General de Extracción de Links de Artículos



PROCESOS UTILIZADOS

Read Excel: Lectura de Archivo con links de los perfiles

Get Pages: Proceso que procede a tomar link por link para analizar su pagina individualmente. Este proceso necesita seleccionar un atributo o columna el cual analizar. En este caso se escoge la Columna Autores.

link attribute

Autores
 ▼

Process Documents from Data: Realiza procesamiento de texto, de cada url que toma del archivo base, se realiza un TF-IDF o frecuencia de ocurrencia del término en la colección de documentos.

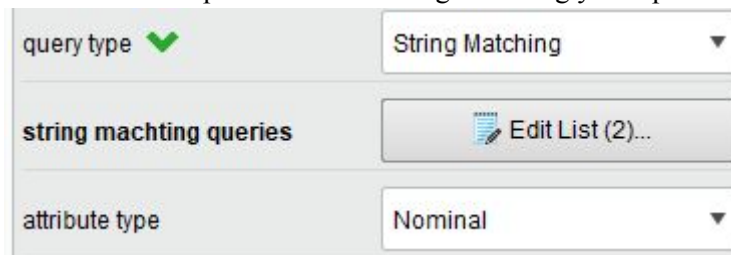


vector creation ✓ TF-IDF

Dentro del proceso Process Documents from Data, se coloca un proceso **Cut Document**, dicho proceso procederá a seleccionar una parte del Texto para analizarlo, esto se repetirá en todo el documento, extrayendo todas las secciones que indicamos.



Como parámetros se selecciona un tipo de oración: String Matching y un tipo de atributo Nominal.



query type ✓ String Matching

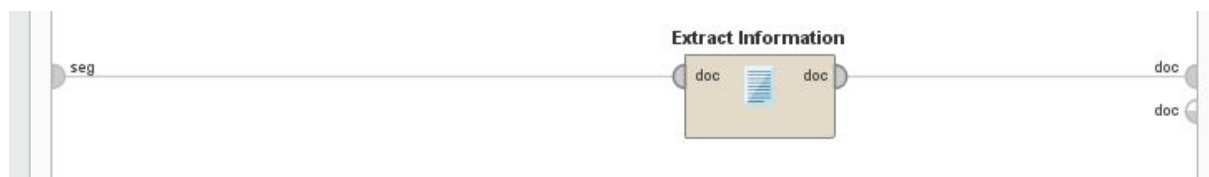
string machting queries Edit List (2)...

attribute type Nominal

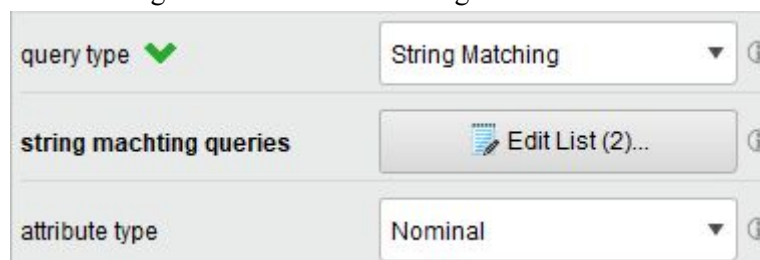
Se editan las listas de string matching, el cual atribuye la tabla o sección de cada artículo del investigador que se esté procesando. Se necesita realizar un corte de texto desde el la segunda celda, hasta el indicado en la tercera celda.

attribute name	query expression	
TABLA	<tr class="gsc_a_tr">	</tr>
INFOAUTOR	<div id="gsc_prf_i">	/div>

El proceso **Cut Document**, tiene dentro de si el proceso **Extract Information**, que procede a tomar del texto “cortado”, ciertos atributos.



Los parámetros de **Extract Information** tiene listas de string matching, el cual procede a cortar los links de los artículos de investigación a la vez del investigador.



query type ✓ String Matching ⓘ

string machting queries Edit List (2)... ⓘ

attribute type Nominal ⓘ

Dado configuraciones de rapidminer, el resultado de este proceso nos presenta un resultado con las primeras celdas del archivo de salida, vacías, a excepción del último artículo. Esto nos indica que desde la primera fila con el atributo AUTOR vacío hasta la fila con el atributo con el nombre de autor correcto. Los atributos se cortan segun las restricciones de la misma manera que el proceso Cut.

attribute name	query expression
LINK	data-href="/"
AUTOR	<div id="gsc_prf_in">

Nota: A Pesar de tener este inconveniente mencionado, se puede rellenar manualmente los artículos, ya que los resultados se presenta incremental y consecutivamente, dicho esto, no habrá mal utilización de información.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	AUTOR	Enlace/LINK															
2		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:d1gKvwhDpl0C															
3		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:9yKSN-GCB0IC															
4		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:3fE2CSlIr8IC															
5		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:2osOgNQ5qMEC															
6		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:EYDruWGBe4C															
7		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:IJCSPb-OGe4C															
8		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:ufrVoPGSRksC															
9		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:qJMaKFHDy7sC															
10		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:KUBvn5osdkgC															
11		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:PoWvkSoyLR8C															
12		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:uJlCzbcjapAC															
13		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:eQOLe2rZwMC															
14		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:uSHHmVD_u08C															
15		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:BwyfMAYsbu0C															
16		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:SpbeaW3-B0C															
17		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:uJlCzbcjapAC															
18		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:0kYAp5RtNEC															
19		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:zYLM79cAggC															
20		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:LkGwnXOMwfcC															
21		https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:4MWp96Nk5FoC															
22	Mauricio Espinoza Mejía																

Rellenar manualmente

AUTOR	Enlace/LINK
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:d1gKvwhDpl0C
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:9yKSN-GCB0IC
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:3fE2CSlIr8IC
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:2osOgNQ5qMEC
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:EYDruWGBe4C
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:IJCSPb-OGe4C
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:ufrVoPGSRksC
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:qJMaKFHDy7sC
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:KUBvn5osdkgC
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:PoWvkSoyLR8C
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:uJlCzbcjapAC
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:eQOLe2rZwMC
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:uSHHmVD_u08C
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:BwyfMAYsbu0C
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:SpbeaW3-B0C
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:uJlCzbcjapAC
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:0kYAp5RtNEC
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:zYLM79cAggC
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:LkGwnXOMwfcC
Mauricio Espinoza Mejía	https://scholar.google.com.ec/citations?view_op=view_citation&hl=es&oe=ASCI&user=PFHdwNMAAAAJ&citation_for_view=PFHdwNMAAAAJ:4MWp96Nk5FoC

Generate Attributes: Este proceso crea un nuevo atributo para cada fila analizada, en esta caso será la base del nuevo enlace.

attribute name	function expressions
Enlace	"https://scholar.google.com.ec"

Generate Concatenation: Este proceso realiza la unión del atributo Enlace producido en el paso anterior con el link encontrado en dos pasos antes. Este proceso concatena con una separación, en este caso será el símbolo “/”

Generate Concatenation

first attribute: Enlace

second attribute: LINK

separator: /

☒ trim values

Select Attributes: Este proceso procede a seleccionar únicamente la columna generada en el paso anterior.

Select Attributes

attribute filter type: subset

AUTOR

Enlace/LINK

Replace: Dado que en los pasos anteriores se extrajo los links que nos ayudarán a encontrar nuestros articulo, este link tiene un extra o “trash”, el cual en este caso será los elementos “amp;” el cual se eliminará ya que hace inservible a los links.

Replace

attribute filter type: all

☐ invert selection

☒ include special attributes

replace what: amp;

replace by:

Write Excel: Procede a escribir lo generado en los pasos anteriores, para mantener los archivos en lugar de generarlo cada vez utilizando memoria y tiempo.

Parameters

Write Excel

excel file

:a23\salidaArticulos.xlsx

file format

xlsx

sheet name

RapidMiner Data

date format

yy-MM-dd HH:mm:ss

number format

#.0

Paso 2 - Extracción información de cada investigación.

Del proceso anterior, se obtuvo 451 links, es decir se procesaron 451 investigaciones, esta es una gran cantidad de peticiones al servidor de Google. Estas constantes peticiones a Google son malinterpretadas como un ataque DDOS, y más aún en un entorno de laboratorio de universidad donde más personas realizan peticiones a los servidores de Google, dado este inconveniente que retrasó el desarrollo de esta práctica, se procedió a utilizar una VPN, la cual se cambiaría en determinados lapsos de tiempo, para que no se vieran restringidas el análisis a todas las investigaciones. El programa a utilizar para generar una VPN es PSIPHON3, aceptado en una plataforma Windows 10.



Realizada la VPN se procede a subdividir al archivo de links en archivos con 20 registros cada uno, para que cada procesamiento se varíe la IP del computador desde el cual se esta trabajando. Obteniéndose un total de 23 archivos.

Archivos de Entrada:

MODELO GENERAL EXTRACCION DE INFORMACION



PROCESOS UTILIZADOS

Read Excel (x23): Lee el archivo antes mencionado, sin embargo este archivo únicamente tiene 20 links a investigaciones. Esta acción se debe variar con los 23 archivos, variando la IP entre cada lectura. El atributo que se seleccionara es

Get Pages: Dada la lectura en el paso anterior, se selecciona el atributo Enlace/LINK para leer únicamente el URL que nos conecta a la investigación.





Process Documents from Data: Al igual que en la Parte 1 se procede a seleccionar un vector tipo TF-IDF o frecuencia de ocurrencia del término en la colección de documentos.

En el proceso de Process Documents from Data, se tienen los procesos Extract Information y Extract Content.



Extract Information se configura con un tipo de oración “String Matching” y tipo de atributo Nominal.

query type  String Matching


string machting queries  Edit List (6)...


attribute type Nominal



Extract Information se utiliza para obtener los valores de Volumen, Titulo, Ano, Edición, Resumen y Revista.


attribute name	query expression
AÑO	Fecha de publicación</div><d</div>
VOLUMEN	Volumen</div><div class="gsc</div>
EDICION	Número</div><div class="gsc</div>
TITULO	<div id="gsc_vcd_title"></div>
RESUMEN	<div class="gsc_vcd_field">De</div>
REVISTA	Revista</div><div class="gsc</div>


El proceso Extract Content se utiliza para que dados los resultados obtenidos en el proceso de Extract Information se elimine etiquetas HTML.


 **Extract Content**


☒ extract content 


minimum text block length  5 

☒ override content type information 

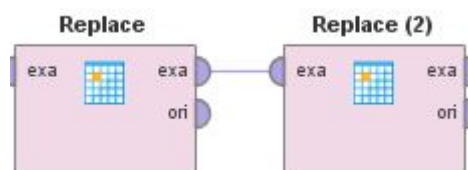
☒ neglect span tags 


☒ neglect p tags 



☒ neglect b tags 



☒ neglect i tags 

Replace (x2): Se ejecutan dos procesos de este tipo para que en el primer caso se seleccione los atributos Resumen y Atributos, para eliminar cada símbolo, carácter que no contribuyen con el análisis del texto y en la posterior Clusterización.



 **Replace**

attribute filter type  subset 

attributes  Select Attributes... 

Selección de subsets para reemplazar.

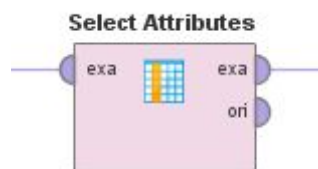
Selección Atributos.

Limpieza de caracteres especiales.

Configuración de proceso Replace

Limpieza de caracteres especiales que no sean números en el atributo Año.

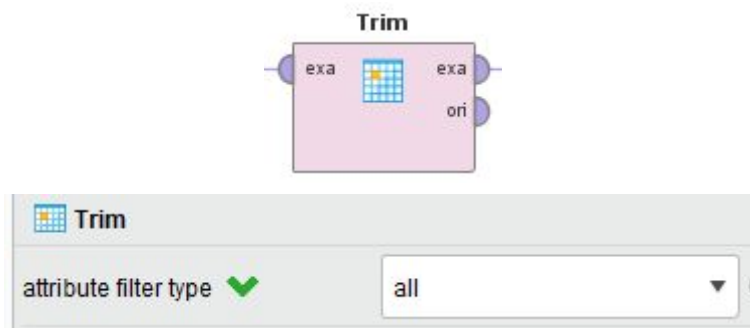
Select Attributes: Este proceso me permite obviar cualquier otro resultado que no quiera en mis archivos de análisis.



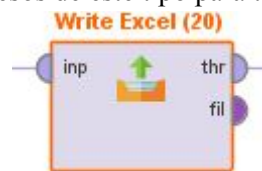
Atributos seleccionados para posterior procesamiento de texto.

AUTORES
AÑO
CONTENIDO
EDICION
RESUMEN
REVISTA
TITULO
TITULO1
VOLUMEN

Trim: Este proceso permite eliminar espacios al inicio, en este caso se configura para que todos los atributos sean tratados por este proceso.



Write Excel (x23): Guarda los resultados de los procesos anteriores de extracción de información de cada investigación. Se realizan 23 procesos de este tipo para todos los archivos leídos.



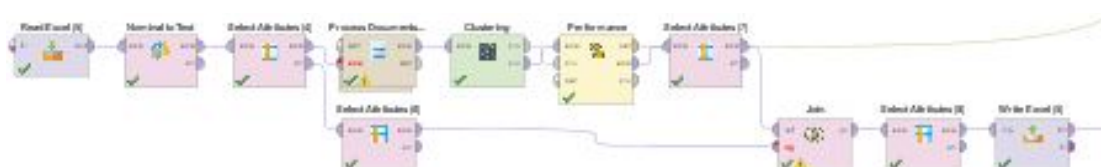
Proceso

- salida1
- salida2
- salida3
- salida4
- salida5
- salida6
- salida7
- salida8
- salida9
- salida10
- salida11
- salida12
- salida13
- salida14
- salida15

Archivos de salida de procesos de Extracción.

PASO 3:

Modelo General Paso 3



DESARROLLO

Read Excel: Dados los 23 archivos generados en el paso 2, manualmente se procede a unir en un solo excel, además de eliminar los registros con abstract en idiomas distintos al

Inglés, debido a los ruidos que genera al momento de clusterizar, dando valores erróneos. Este archivo final, será seleccionado para el tratamiento de los abstracts.

Nominal to Text:



Select Attributes (x4): Estos procesos permiten realizar varias selecciones para el procesamiento de la información, por ejemplo el primer proceso de este tipo se ocupa para que únicamente se seleccione el Resumen o Abstract. Al igual los 3 más.



Process Documents from Data: Leído y seleccionado los atributos a analizar se necesita procesar estos datos, por lo cual se crea este proceso y dentro de este, varios subprocesos que permiten clusterizar correctamente.



Modelo General de los Subprocesos de Process Documents from Data



Tokenize: Eliminó todos los caracteres que no sean letras



Tokenize (2) (Tokenize)	
node	non letters

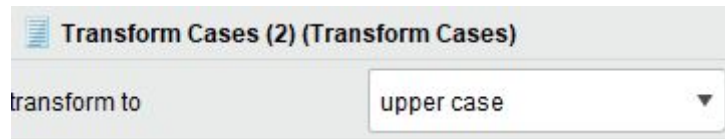
Configuración de proceso Tokenize

Filter Tokens by length: Eliminó palabras token segun una medida (4 mínimo -25 máximo)



Filter Tokens (by Length)	
min chars	4
max chars	25

Transform cases: para la correcta tokenization se procede a que todos los caracteres sean mayúsculas para que no haya una falla de análisis de clusters por mala identificación de minúsculas y mayúsculas de las palabras.



Filter Stopwords: Filtro palabras que fueron seleccionadas por 3eros, ya que son identificadas como prefijos, sufijos o palabras que no alimentan a mi modelo de clusterización.



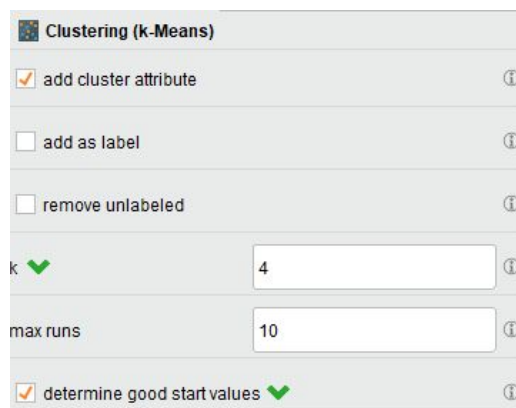
Stem (Porter): Este proceso permite analizar el lenguaje natural, ya que permite reducir las palabras a su base o raíz. Esto permite que palabras similares se reducen a formas relacionadas. Ejemplo: pesca, pescado, pescador y pescador se reduce a la palabra base, "pescado".



Clustering: Este proceso realiza el algoritmo k-means donde se determina un conjunto de k clústeres y asigna cada registro al cluster más cercano. Así se busca agrupar a los registros segun la cercanía de los punto a su centroide, tomando la cercanía como una medida numérica siendo medida en la distancia entre estos.



Configuración proceso Clustering: Dado que es importante correr distintos números de clusters (k), se procedieron a realizar distintas corridas con distintos k, estos resultados se analizan en la seccion de **Análisis de Resultados**. Así, concluyo que el número de clusters preciso para este problema con estos recursos es de 4.



Performance: Este proceso permite normalizar los datos para que todos contengan un valor semejante pero no igual.



main criterion  Avg. within centroid distan... ▼


☐ main criterion only

☒ normalize

☒ maximize

Join: Dado la selección de atributos mencionados en el proceso Select Attributes, es necesario unir el id con el código, esto permite la fácil identificación de los clusters.



join type  inner ▼

left key attributes	right key attributes
id ▼	CODE ▼

Write Excel: Los resultados de la clusterización se guardan en un archivo para realizar tablas dinámicas y gráficas que expliquen el fenómeno que se esta tratando.



ANÁLISIS DE RESULTADOS

Análisis de las medidas de distancia (entre centroides y entre centroides-puntos) con k=2

k=2					
	Medida	Total			
	Avg. within centroid distance	0,049		Cluster	Total Clasificación
cluster_0	Avg. within centroid	0,047		cluster_0	351

	distance				
cluster_1	Avg. within centroid distance	0,079		cluster_1	28
	Daves Bouldin	0,001		Total	379

Análisis de las medidas de distancia (entre centroides y entre centroides-puntos) con k=3

k=3					
	Medida	Total			
	Avg. within centroid distance	0,051		Cluster	Total Clasificación
cluster_0	Avg. within centroid distance	0,061		cluster_0	306
cluster_1	Avg. within centroid distance	0,041		cluster_1	44
cluster_2	Avg. within centroid distance	0,079		cluster_2	29
	Daves Bouldin	0,002		Total	379

Análisis de las medidas de distancia (entre centroides y entre centroides-puntos) con k=4

k=4					
	Medida	Total		Cluster	Total Clasificación
	Avg. within centroid distance	0,051		cluster_0	97
cluster_0	Avg. within centroid distance	0,061		cluster_1	229
cluster_1	Avg. within centroid distance	0,041		cluster_2	29
cluster_2	Avg. within centroid distance	0,079		cluster_3	24
cluster_3	Avg. within centroid distance	0,08		Total	379
	Daves Bouldin	0,002			

Análisis de las medidas de distancia (entre centroides y entre centroides-puntos) con k=5

k=5					
	Medida	Total			

	Avg. within centroid distance	0,051		Cluster	Total Clasificación
cluster_0	Avg. within centroid distance	0,078		cluster_0	29
cluster_1	Avg. within centroid distance	0,065		cluster_1	40
cluster_2	Avg. within centroid distance	0,044		cluster_2	277
cluster_3	Avg. within centroid distance	0,071		cluster_3	32
cluster_4	Avg. within centroid distance	0,237		cluster_4	1
	Daves Bouldin	0,001		Total	379

Análisis de las medidas de distancia (entre centroides y entre centroides-puntos) con k=6

k=6					
	Medida	Total			
	Avg. within centroid distance	0,052		Cluster	Total Clasificación
cluster_0	Avg. within centroid distance	0,072		cluster_0	31
cluster_1	Avg. within centroid distance	0,069		cluster_1	37
cluster_2	Avg. within centroid distance	0,066		cluster_2	15
cluster_3	Avg. within centroid distance	0,042		cluster_3	256
cluster_4	Avg. within centroid distance	0,07		cluster_4	36
cluster_5	Avg. within centroid distance	0,133		cluster_5	4
	Daves Bouldin	0,001		Total	379

El análisis de estos resultados, parte desde las distancias entre punto-centroide, distancias entre centroides, medidas daves boudin y finalmente la el número de clasificados por cluster.

Analisis distancia punto-centroide: Este análisis debe concluir en que las distancias deben ser mínimas, ya que esto asegura que el cluster es el indicado. Dicho esto se puede decir que con $k = \{3,4,5\}$ puede ser el k indicado para la clusterización, ya que las distancias son mínimas entre clusters, a comparación de los otros k.

Análisis distancia centroides: Este análisis debe concluir la distancia máxima encontrada, ya que esto nos dice que los clusters se encuentran lo suficientemente lejanos uno del otro. Dado esto, concluyo que con $k=\{3,4,5,6\}$ se puede hallar el k ideal, las distancias de estos k son iguales, pero mayor a $k=2$.

Análisis Davies–Bouldin: Este análisis debe concluir en el índice de similitud entre elementos, dado esto se concluye que $k=\{3,4\}$ se halla mayor índice de similitud.

Análisis Número de Clasificaciones: Este análisis concluye a que con un k dado, la distribución en las clasificaciones debe ser correcta, sin concentrar en algún cluster la mayoría. En este caso dado se ve que hay mucha polarización, sin embargo con $k=4$ se ve una mejor distribución de elementos.

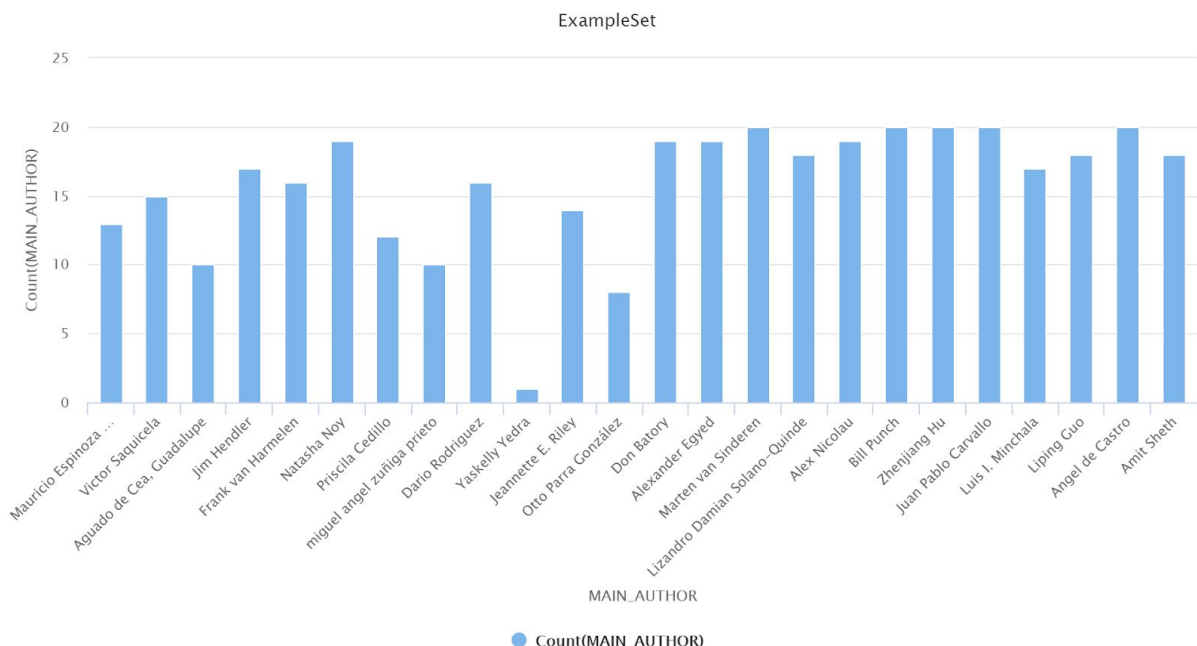
Elección Final

Dado los análisis anteriores, se crea la siguiente tabla, la cual nos permite identificar que el mejor k para este caso particular es 4.

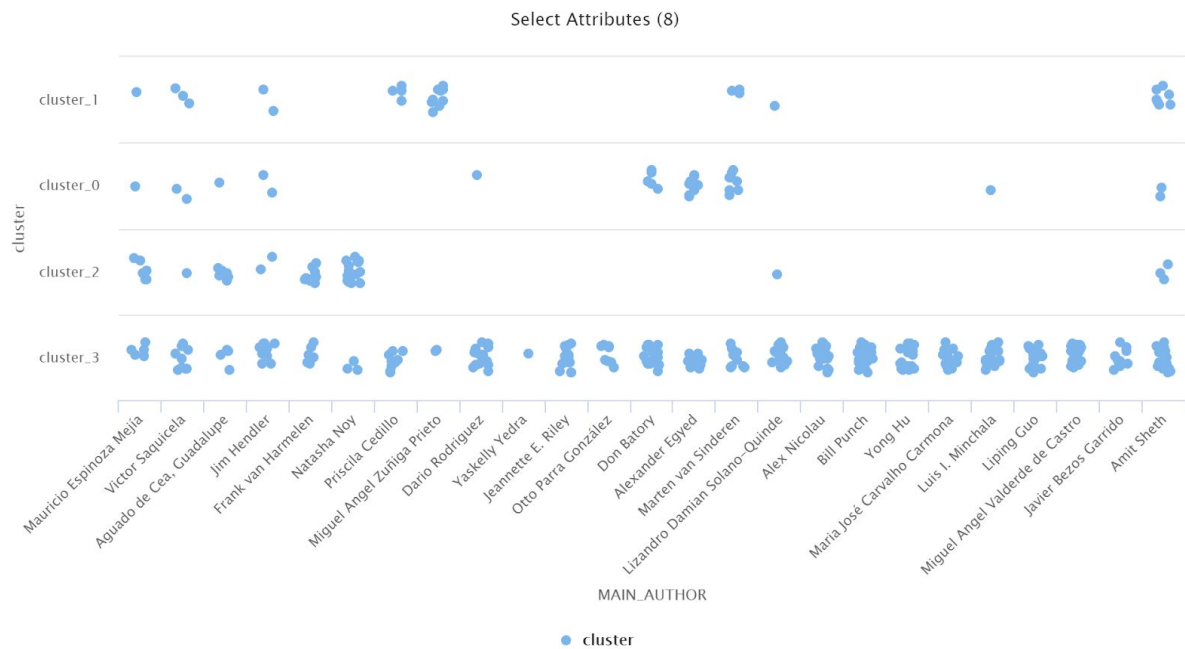
k	Distancia P-C	Distancia Centroides	Davies–Bouldin	Total Clasificación
2	x	x	x	x
3	v	v	v	x
4	v	v	v	v
5	v	v	x	x
6	x	v	x	x

RESULTADOS CLUSTERIZACIÓN

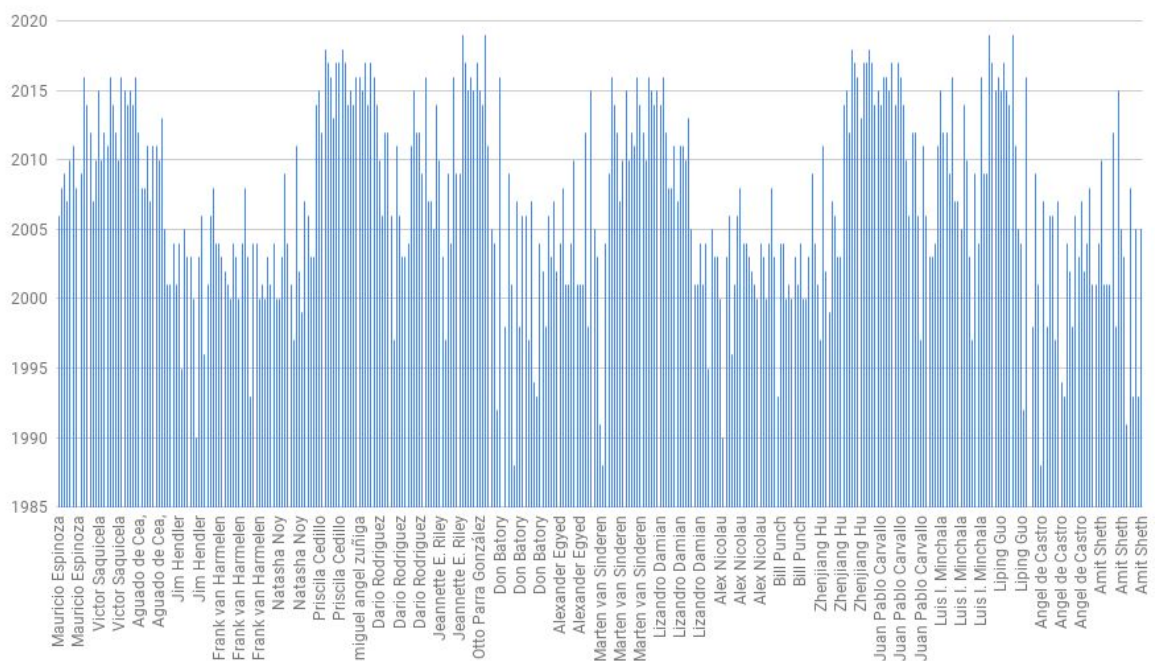
Gráfica Barras Cantidad de Investigaciones en las que aparece un Investigador:



Gráfica Scatter Investigador vs Cluster



Histograma años de investigación de un Investigador



Histograma Año Publicacion vs Cluster vs Publicaciones
Caso de Estudio: Investigador Mauricio Espinoza Mejia

Histograma Publicaciones vs Años vs Cluster

Mauricio Espinoza Mejía

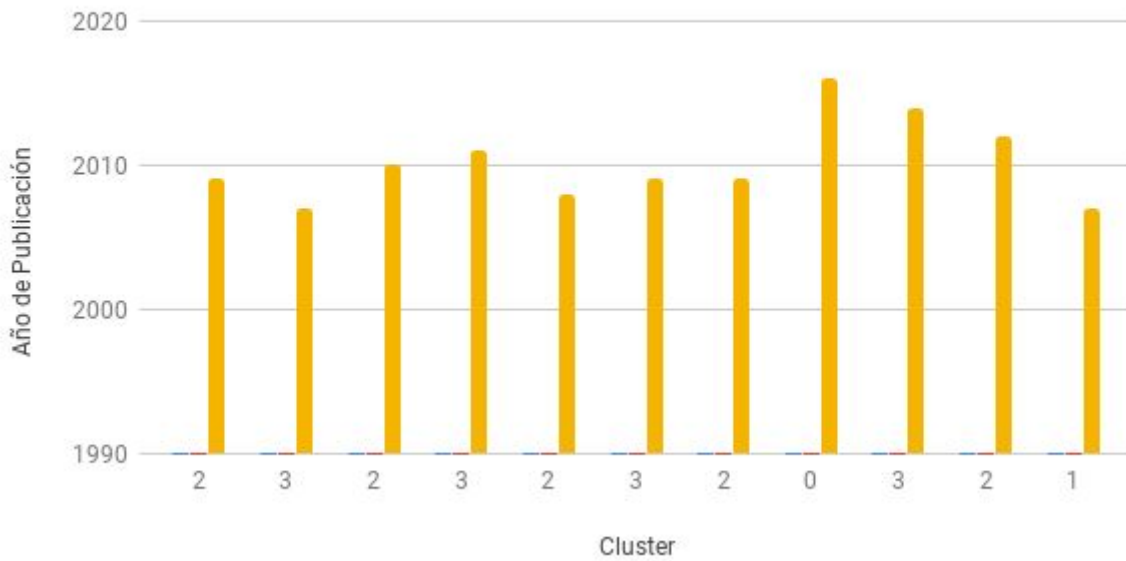
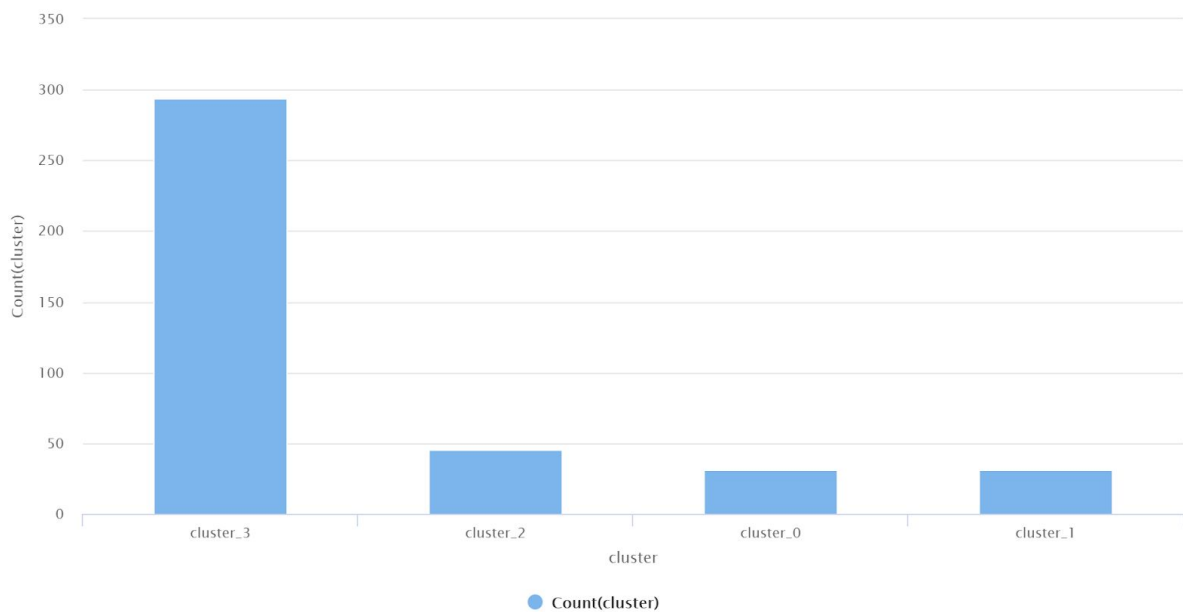
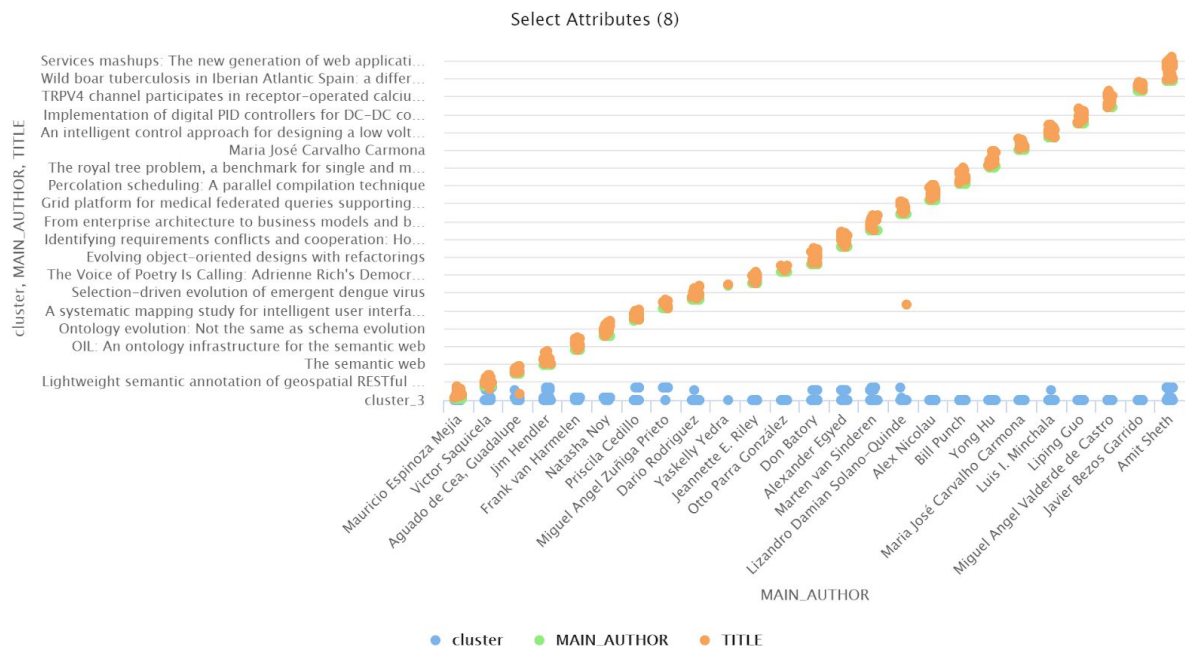


Gráfico de Barras Autores vs Clusters

Select Attributes (8)



Gráfica de Autores vs Publicaciones vs Clusters



Medidas Daves Boudin - Distancia entre Centroide- Distancia Punto-Centroide
Con 4 centroides

	Medida	Total
	Avg. within centroid distance	0,051
cluster_0	Avg. within centroid distance	0,061
cluster_1	Avg. within centroid distance	0,041
cluster_2	Avg. within centroid distance	0,079
cluster_3	Avg. within centroid distance	0,080
	Daves Bouldin	0,002

Evidencia RapidMiner:

Avg. within centroid distance

Avg. within centroid distance: 0.051

Avg. within centroid distance_cluster_0

Avg. within centroid distance_cluster_0: 0.061

Avg. within centroid distance_cluster_1

Avg. within centroid distance_cluster_1: 0.041

Avg. within centroid distance_cluster_2

Avg. within centroid distance_cluster_2: 0.079

Avg. within centroid distance_cluster_3

Avg. within centroid distance_cluster_3: 0.080

Davies Bouldin

Davies Bouldin: 0.002

Resultado Clusters y el número de clasificaciones:

Cluster	Total Clasificación
cluster_0	97
cluster_1	229
cluster_2	29
cluster_3	24
Total	379

TABLA DINÁMICA
CLUSTER vs AUTOR

Explicación: Esta tabla busca representar el autor de cada uno de los clusters.

Cluster	Autor
cluster_0	Aguado de Cea, Guadalupe
	Alexander Egyed
	Amit Sheth
	Dario Rodriguez
	Don Batory
	Jim Hendler
	Luis I. Minchala
	Marten van Sinderen
	Mauricio Espinoza Mejía
	Victor Saquicela
cluster_1	Amit Sheth
	Jim Hendler
	Lizandro Damian Solano-Quinde
	Marten van Sinderen
	Mauricio Espinoza Mejía
	Miguel Angel Zuñiga Prieto
	Priscila Cedillo
	Victor Saquicela
cluster_2	Aguado de Cea, Guadalupe
	Amit Sheth
	Frank van Harmelen
	Jim Hendler
	Lizandro Damian Solano-Quinde
	Mauricio Espinoza Mejía
	Natasha Noy
	Victor Saquicela
cluster_3	Aguado de Cea, Guadalupe
	Alex Nicolau
	Alexander Egyed
	Amit Sheth
	Bill Punch
	Dario Rodriguez
	Don Batory
	Frank van Harmelen
	Javier Bezoz Garrido
	Jeannette E. Riley
	Jim Hendler

	Liping Guo
	Lizandro Damian Solano-Quinde
	Luis I. Minchala
	Maria José Carvalho Carmona
	Marten van Sinderen
	Mauricio Espinoza Mejía
	Miguel Angel Valderde de Castro
	Miguel Angel Zuñiga Prieto
	Natasha Noy
	Otto Parra González
	Priscila Cedillo
	Victor Saquicela
	Yaskelly Yedra
	Yong Hu

TABLA DINÁMICA
CLUSTER vs PUBLICACION

Explicacion: Esta tabla busca representar la publicacion dado uno de los clusters.

Cluster	Publicación
cluster_0	A comparative study of black-box models for cement quality prediction using input-output measurements of a closed circuit grinding
	A goal-oriented requirements modelling language for enterprise architecture
	A scenario-driven approach to traceability
	An ontologically well-founded profile for UML conceptual models
	An ontology-based approach for evaluating the domain appropriateness and comprehensibility appropriateness of modeling languages
	An overview of workflow management: From process modeling to workflow automation infrastructure
	Automated analysis of feature models: challenges ahead
	Automatically detecting and tracking inconsistencies in software design models
	Automating DAML-S web services composition using SHOP2
	Bridging models across the software lifecycle
	COSMO: A conceptual framework for service modelling and refinement
	Extending enterprise architecture modelling with business goals and requirements
	Feature models, grammars, and propositional formulas
	From enterprise architecture to business models and back
	Generating and evaluating choices for fixing inconsistencies in UML design models
	Hacia la Creación de un Repositorio Semántico de Modelos de Contexto Basados en i* y el método DHARMA
	Instant consistency checking for the UML
	Localizing ontologies in OWL

	Mapping the Business Model Canvas to ArchiMate
	Modeling concepts for VLSI CAD objects
	On the role of domain ontologies in the design of domain-specific visual modeling languages
	Reasoning about edits to feature models
	Reconciling software requirements and architectures with intermediate models
	Scalable consistency checking between diagrams-The VIEWINTEGRA approach
	Search for diphoton events with large missing transverse momentum in 7 TeV proton–proton collision data with the ATLAS detector
	Semantic web for the working ontologist: effective modeling in RDFS and OWL
	Specifying and enforcing intertask dependencies
	The design and implementation of hierarchical software systems with reusable components
	Towards the creation of a semantic repository of iStar-based context models
cluster_1	A Monitoring Infrastructure for the Quality Assessment of Cloud Services
	A Systematic Mapping Study of Specification Languages in Cloud Services Development
	Adding semantic annotations into (geospatial) restful services
	Adding semantics to web services standards
	An incremental and model driven approach for the dynamic reconfiguration of cloud application architectures
	Architecture description language for incremental integration of cloud services architectures
	Automation of the Incremental Integration of Microservices Architectures
	Automatización del proceso de despliegue de servicios en la nube
	Context-aware, ontology-based service discovery
	Discovering web services using semantic keywords
	Dynamic reconfiguration of cloud application architectures
	Framework for Dynamic Architecture Reconfiguration of Cloud Services.
	HTN planning for web service composition using SHOP2
	Incremental Integration of Microservices in Cloud Applications
	Lightweight semantic annotation of geospatial RESTful services
	METEOR-S web service annotation framework
	METEOR-S WSDI: A scalable P2P infrastructure of registries for semantic publication and discovery of web services
	Methodological support for service-oriented design with ISDL
	Monitoring services quality in the cloud
	Quality of service for workflows and web service processes
	Semantic annotation of RESTful services using external resources
	Semantic e-workflow composition
	Semi-automatic composition of web services using semantic descriptions
	Service level agreement in cloud computing
	Towards a Model-Driven Dynamic Architecture Reconfiguration Process for Cloud Services Integration.
	Towards a monitoring middleware for cloud services

	Towards a service platform for mobile context-aware applications.
	Towards Monitoring Cloud Services using Models@ run. time.
	Web service semantics-wsdl-s
cluster_2	A component-based framework for ontology evolution
	A framework for ontology evolution in collaborative environments
	A note on ontology localization
	A Semantic Web Primer
	Algorithm and tool for automated ontology merging and alignment
	An automatic method for the enrichment of dicom metadata using biomedical ontologies
	Anchor-PROMPT: Using Non-Local Context for Semantic Matching.
	Bibster-a semantics-based bibliographic peer-to-peer system
	Bibster–a semantics-based bibliographic peer-to-peer system
	Biomedical ontologies: a functional perspective
	BioPortal: enhanced functionality via new Web services from the National Center for Biomedical Ontology to access and use ontologies in software applications
	BioPortal: ontologies and integrated data resources at the click of a mouse
	C-owl: Contextualizing ontologies
	Enriching an ontology with multilingual information
	Enriching ontologies with multilingual information
	Handbook of knowledge representation
	Interchanging lexical resources on the semantic web
	LabelTranslator-a tool to automatically localize an ontology
	Modelling multilinguality in ontologies
	Multilingual and localization support for ontologies
	Natural language-based approach for helping in the reuse of ontology design patterns
	OBSERVER: An approach for query processing in global information systems based on interoperation across pre-existing ontologies
	OIL in a nutshell
	OIL: An ontology infrastructure for the semantic web
	ONTOGENERATION: Reusing domain and linguistic ontologies for Spanish text generation
	Ontology development 101: A guide to creating your first ontology
	Ontology evolution: Not the same as schema evolution
	Ontology localization
	OntoQA: Metric-based ontology quality analysis
	OWL web ontology language reference
	Plataforma para la búsqueda por contenido visual y semántico de imágenes médicas
	Promptdiff: A fixed-point algorithm for comparing ontology versions
	Protégé-2000: an open-source ontology-development and knowledge-acquisition environment.
	Representing translations on the semantic web
	Semantic integration: a survey of ontology-based approaches

	SMART: Automated support for ontology merging and alignment
	Spinning the Semantic Web: bringing the World Wide Web to its full potential
	The PROMPT suite: interactive tools for ontology merging and mapping
	The Protégé OWL plugin: An open development environment for semantic web applications
	The semantic web: The roles of XML and RDF
	The SSN ontology of the W3C semantic sensor network incubator group
	The state of the art in ontology design: A survey and comparative review
	Towards the semantic web: ontology-driven knowledge management
	Web ontology language: Owl
cluster_3	“questing toward what might otherwise be:” Adrienne Rich’s Later Work
	A case study implementing features using AspectJ
	A configurable simulation environment for the efficient simulation of large-scale spiking neural networks on graphics processors
	A constant voltage MPPT method for a solar powered boost converter with DC motor load
	A framework for web science
	A Genetic Algorithm Approach to Dynamic Job Shop Scheduling Problem.
	A magnetically separable photocatalyst based on nest-like γ-Fe ₂ O ₃ /ZnO double-shelled hollow structures with enhanced photocatalytic activity
	A microwave-assisted rapid route to synthesize ZnO/ZnS core–shell nanostructures via controllable surface sulfidation of ZnO nanorods
	A mixture model for clustering ensembles
	A model predictive control approach for integrating a master generation unit in a microgrid
	A Model-driven Method and a Tool for Developing Gesture-based Information Systems Interface
	A model-driven method for gesture-based interface requirements specification.
	A portrait of the Semantic Web in action
	A review of humor in educational settings: Four decades of research
	A Review of Optimal Control Techniques Applied to the Energy Management and Control of Microgrids
	A scenario-driven approach to trace dependency analysis
	A stakeholder win–win approach to software engineering education
	A Standard GA Approach to Native Protein Conformation Prediction.
	A systematic literature review on devices and systems for ambient assisted living: Solutions and trends from different user perspectives
	A systematic mapping study for intelligent user interfaces-iii
	Ab initio determination of solid-state nanostructure
	Achieving extensibility through product-lines and domain-specific languages: A case study
	Acute activation of Maxi-K channels (hSlo) by estradiol binding to the β subunit
	Adapting cache line size to application behavior
	Adaptive bitonic sorting: An optimal parallel algorithm for shared-memory machines

	Adaptive clustering ensembles
	Agents and the semantic web
	Albendazole therapy for neurocysticercosis
	All-trans retinoic acid modulates fas expression and enhances chemosensitivity of human medulloblastoma cells.
	An empirical comparative evaluation of gestUI to include gesture-based interaction in user interfaces
	An intelligent control approach for designing a low voltage DC breaker
	An open source scada system to implement advanced computer integrated manufacturing
	Análisis de rendimiento y profiling del modelo WRF en un clúster HPC
	Apolipoprotein E4 genotype increases the risk of postoperative cognitive dysfunction in patients undergoing coronary artery bypass graft surgery
	Architecture and specification style in formal descriptions of distributed systems
	Assembling carbon-coated γ -Fe ₂ O ₃ hollow nanohorns on the CNT backbone for superior lithium storage capability
	Assessment of diagnostic tools for eradication of bovine tuberculosis in cattle co-infected with Mycobacterium bovis and M. avium subsp. paratuberculosis
	Assessment of factors that influence weaning from long-term mechanical ventilation after cardiac surgery
	Atelectasis during anesthesia: pathophysiology and treatment
	Automated abstraction of class diagrams
	Automatic parallelization of GPU applications using OpenCL
	Automatic program parallelization
	Automating requirements traceability: Beyond the record & replay paradigm
	Becoming an agent of change: Eavan Boland's 'Outside History' and 'In a Time Of Violence'
	Bovine tuberculosis (Mycobacterium bovis) in wildlife in Spain
	Breaking boundaries: Ecofeminism in the classroom
	Carbon-Coated CdS Petalous Nanostructures with Enhanced Photostability and Photocatalytic Activity
	Cardiopulmonary bypass alters the pharmacokinetics of propranolol in patients undergoing cardiac surgery
	Cell volume regulation and swelling-activated chloride channels
	Cervical human papillomavirus screening among older women
	Changing Focus on Interoperability in Information Systems: From System, Syntax, Structure to Semantics
	Characteristics of Successful Local Blended Programs in the Context of the Sloan-C Pillars.
	Characterizing artifacts in RR stress test time series
	Clustering ensembles: Models of consensus and weak partitions
	Coarse grain computation-communication overlap for efficient application-level checkpointing for GPUs
	Coarse-grain parallel genetic algorithms: Categorization and new approach
	Coating colloidal carbon spheres with CdS nanoparticles: microwave-assisted synthesis and enhanced photocatalytic activity

	Combined search for the Standard Model Higgs boson using up to 4.9 fb ⁻¹ of pp collision data at s= 7TeV with the ATLAS detector at the LHC
	Combining multiple weak clusterings
	Combining statistical and semantic approaches to the translation of ontologies and taxonomies
	Comparative evaluation of linear PID and fuzzy control for a boost converter
	Comparative evaluation of sliding mode fuzzy controller and PID controller for a boost converter
	Comparison of four different culture media for isolation and growth of type II and type I/III Mycobacterium avium subsp. paratuberculosis strains isolated from cattle and goats
	Comparison of the performance and energy consumption index of model-based controllers
	Composition validation and subjectivity in GenVoca generators
	Computed tomography assessment of lung structure in patients undergoing cardiac surgery with cardiopulmonary bypass
	Construction of hierarchical Ni ₂ Co ₂ P hollow nanobricks with oriented nanosheets for efficient overall water splitting
	Contemporary feminist writers: Envisioning a just world
	Coordinated parallelizing compiler optimizations and high-level synthesis
	Creating semantic web contents with protege-2000
	Current ante-mortem techniques for diagnosis of bovine tuberculosis
	D5. 4.3. Revision and Extension of the NeOn Methodology for Building Contextualized Ontology Networks
	DE LA BRECHA SOCIAL A LA BRECHA TECNOLÓGICA Y COGNITIVA
	Definición de Mecanismos Personalizados de Monitorización de Servicios Cloud
	Design and implementation of a smart meter with demand response capabilities
	Design of an integrated decision support system for library holistic evaluation
	Design projects in a programmable logic controller (PLC) course in electrical engineering technology
	Detecting similar areas of knowledge using semantic and data mining technologies
	Differential effects of tamoxifen and I ⁻ on three distinguishable chloride currents activated in T84 intestinal cells
	Digital controller design for buck and boost converters using root locus techniques
	Dimensionality reduction using genetic algorithms
	Discovering the Semantics of User Keywords.
	Distinct mechanisms for the impact of distraction and interruption on working memory in aging
	Eavan Boland's "The Lost Land": Altering the Cartography of the Irish Poem
	Effect of paratuberculosis on the diagnosis of bovine tuberculosis in a cattle herd with a mixed infection using interferon-gamma detection assay
	Effects of nano-TiO ₂ on photosynthetic characteristics of Ulmus elongata seedlings

	Effects of Single Low Dose of Dexamethasone before Noncardiac and Nonneurologic Surgery and General Anesthesia on Postoperative Cognitive Dysfunction—A Phase III Double Blind …
	Efficient self-propelling of small-scale condensed microdrops by closely packed ZnO nanoneedles
	Efficient utilization of scratch-pad memory in embedded processor applications
	Electronic pillow for abating snoring/environmental noises, hands-free communications, and non-invasive monitoring and recording
	Enhancing clone-and-own with systematic reuse for developing software variants
	Enriching electronic program guides using semantic technologies and external resources
	Ensembles of partitions via data resampling
	Environmental estrogenic pollutants induce acute vascular relaxation by inhibiting L-type Ca ²⁺ channels in smooth muscle cells
	Eradication of bovine tuberculosis at a herd-level in Madrid, Spain: study of within-herd transmission dynamics over a 12 year period
	Evaluating the usability of mashups applications
	Evaluation of DSP-based PID and fuzzy controllers for DC–DC converters
	Evaluation of the sensitivity and specificity of bovine tuberculosis diagnostic tests in naturally infected cattle herds using a Bayesian approach
	Evaluation of two cocktails containing ESAT-6, CFP-10 and Rv-3615c in the intradermal test and the interferon- γ assay for diagnosis of bovine tuberculosis
	Evidence of goats acting as domestic reservoirs of bovine tuberculosis
	Evolving object-oriented designs with refactorings
	Experimental infection with Mycobacterium caprae in goats and evaluation of immunological status in tuberculosis and paratuberculosis co-infected animals
	Exponential stability of impulsive stochastic functional differential equations
	EXPRESSION: A language for architecture exploration through compiler/simulator retargetability
	Extending and validating gestUI using technical action research
	Facile Formation of Mesoporous BiVO ₄ /Ag/AgCl Heterostructured Microspheres with Enhanced Visible-Light Photoactivity
	Facile one-pot synthesis of uniform TiO ₂ /Ag hybrid hollow spheres with enhanced photocatalytic activity
	Facile one-step microwave-assisted route towards Ni nanospheres/reduced graphene oxide hybrids for non-enzymatic glucose sensing
	Facile synthesis of Z-scheme Ag ₂ CO ₃ /Ag/AgBr ternary heterostructured nanorods with improved photostability and photoactivity
	Faster genetic programming based on local gradient search of numeric leaf values
	Fault diagnosis in power lines using Hilbert transform and fuzzy classifier
	Fault identification and classification of spur gearbox with feed forward back propagation artificial neural network
	Fault-tolerant control of a master generation unit in an islanded microgrid
	Fault-tolerant control with linear quadratic and model predictive control techniques against actuator faults in a quadrotor UAV

	Fault-tolerant controller design for a master generation unit in an isolated hybrid wind-diesel power system
	Feature oriented refactoring of legacy applications
	Feature-oriented programming and the AHEAD tool suite
	Feature-oriented software product lines
	Federated database systems for managing distributed, heterogeneous, and autonomous databases
	Finding one's place in the 'Family of Things': Terry Tempest Williams and a Geography of Self
	Fixing inconsistencies in UML design models
	Formation and restraint of toxic emissions in hydrogen-gasoline mixture fueled engines
	Formation of Mesoporous Heterostructured BiVO ₄ /Bi ₂ S ₃ Hollow Discoids with Enhanced Photoactivity
	Four cobalt (II) coordination polymers with diverse topologies derived from flexible bis (benzimidazole) and aromatic dicarboxylic acids: syntheses, crystal structures and
	From SHIQ and RDF to OWL: The making of a web ontology language
	Functional map of biological and biomimetic materials with hierarchical surface structures
	Further Research on Feature Selection and Classification Using Genetic Algorithms.
	Gain-of-function mutation in the KCNMB1 potassium channel subunit is associated with low prevalence of diastolic hypertension
	GENESIS: An extensible database management system
	Genetic algorithms for object recognition in a complex scene
	Genetic diversity of Mycobacterium avium isolates recovered from clinical samples and from the environment: molecular characterization for diagnostic purposes
	Geographical linked data: a Spanish use case
	GeoLinked data and INSPIRE through an application case
	gestUI tool: A Tool to Include Gesture-based Interaction in User Interfaces Through Model-Driven
	GestUI: A Model-driven Method and Tool for Including Gesture-based Interaction in User Interfaces
	GPU Acceleration of the Horizontal Diffusion method in the Weather Research and Forecasting (WRF) Model
	Grid platform for medical federated queries supporting semantic and visual annotations
	Growth promotion of the freshwater microalga Chlorella vulgaris by the nitrogen-fixing, plant growth-promoting bacterium Bacillus pumilus from arid zone soils
	Guided self-propelled leaping of droplets on a micro-anisotropic superhydrophobic surface
	Guidelines for multilingual linked data
	High spoligotype diversity within a Mycobacterium bovis population: clues to understanding the demography of the pathogen in Europe
	How effective are multiple populations in genetic programming

	HTN planning: Complexity and expressivity
	Human CIC-3 is not the swelling-activated chloride channel involved in cell volume regulation
	Human TRPV4 channel splice variants revealed a key role of ankyrin domains in multimerization and trafficking
	Humans as source of Mycobacterium tuberculosis infection in cattle, Spain
	Hyperkalemia accompanies hemorrhagic shock and correlates with mortality
	Identifying requirements conflicts and cooperation: How quality attributes and automated traceability can help
	Implementation of blended learning for the improvement of student learning
	Implementation of digital PID controllers for DC-DC converters using digital signal processors
	Implementing layered designs with mixin layers
	Including multi-stroke gesture-based interaction in user interfaces using a model-driven method
	Inferring binary trust relationships in web-based social networks
	Information accountability
	Infraestructura basada en Globus Toolkit para dar soporte a repositorios distribuidos de imágenes médicas
	Inhaled nitric oxide leading to pulmonary edema in stable severe heart failure
	Integrated power management for video streaming to mobile handheld devices
	Integration of digital repositories through federated queries using semantic technologies
	Intelligent pillbox: Automatic and programmable Assistive Technology device
	Interference of paratuberculosis with the diagnosis of tuberculosis in a goat flock with a natural mixed infection
	Interlinking geospatial information in the web of data
	IP3 sensitizes TRPV4 channel to the mechano- and osmotransducing messenger 5'-phosphatidylinositol(3,4,5)-trisphosphate; epoxyeicosatrienoic acid
	Isolation of Chlamydia pneumoniae from a Carotid Endarterectomy Specimen
	JTS: Tools for implementing domain-specific languages
	Kinect v2 for mobile robot navigation: Evaluation and modeling
	L-Arginine reduces heart rate and improves hemodynamics in severe congestive heart failure
	lilgp 1.01 user's manual
	Literature review of data mining applications in academic libraries
	Low doses of inhaled nitric oxide in heart transplant recipients.
	Magnetic-field induced formation of 1D Fe ₃ O ₄ /C/CdS coaxial nanochains as highly efficient and reusable photocatalysts for water treatment
	Maxi K ⁺ channel mediates regulatory volume decrease response in a human bronchial epithelial cell line
	Measurements of the electron and muon inclusive cross-sections in proton-proton collisions at $\sqrt{s} = 7\text{TeV}$ with the ATLAS detector
	Measuring the parallelism available for very long instruction word architectures
	Method and Product For Determining Salient Features For Use In Information Searching

	Microwave-assisted non-aqueous route to deposit well-dispersed ZnO nanocrystals on reduced graphene oxide sheets with improved photoactivity for the decolorization of dyes …
	Microwave-assisted synthesis of porous CdO–CdS core–shell nanoboxes with enhanced visible-light-driven photocatalytic reduction of Cr (VI)
	Microwave‐Assisted Synthesis of Porous Ag ₂ S–Ag Hybrid Nanotubes with High Visible‐Light Photocatalytic Activity
	Middleware support for quality of context in pervasive context-aware systems
	Minimizing the power consumption in Raspberry Pi to use as a remote WSN gateway
	Mixin layers: an object-oriented implementation technique for refinements and collaboration-based designs
	Mobile teleradiology system suitable for m-health services supporting content and semantic based image retrieval on a grid infrastructure
	Model-based fault-tolerant control to guarantee the performance of a hybrid wind-diesel power system in a microgrid configuration
	Module prototype for online failure prediction for the ibm Blue Gene/L
	Molecular epidemiology of multidrug-resistant Mycobacterium bovis isolates with the same spoligotyping profile as isolates from animals
	Molecular epidemiology of Types I/III strains of Mycobacterium avium subspecies paratuberculosis isolated from goats and cattle
	MOOCEP, un método para construir cursos masivos para adultos mayores: usando una creación MOOCEP
	MOOCEP: A Method for Building Massive Open Online Courses for Elderly People The Analysis Activity
	MOOCEP: Towards a method for building massive open online courses for elderly people
	Multi-GPU implementation of the Horizontal Diffusion method of the Weather Research and Forecast Model
	Mycobacterium caprae infection in livestock and wildlife, Spain
	Nonlinear robust H-Infinity PID controller for the multivariable system quadrotor
	Observation of a Centrality-Dependent Dijet Asymmetry in Lead-Lead Collisions at with the ATLAS Detector at the LHC
	On the notion of abstract platform in MDA development
	On-chip vs. off-chip memory: the data partitioning problem in embedded processor-based systems
	One‐Pot Magnetic Field Induced Formation of Fe ₃ O ₄ /C Composite Microrods with Enhanced Lithium Storage Capability
	Optimal energy management for stable operation of an islanded microgrid
	Optimal loop parallelization
	OWL web ontology language overview
	Parallel processing: A smart compiler and a dumb machine
	Parallelizing programs with recursive data structures
	Partitioned register files for VLIWs: A preliminary analysis of tradeoffs
	Percolation scheduling: A parallel compilation technique
	Perfect pipelining: A new loop parallelization technique
	Persistence and molecular evolution of Mycobacterium bovis population from cattle and wildlife in Doñana National Park revealed by genotype variation

	Phenotype at diagnosis predicts recurrence rates in Crohn's disease
	PID controller modifications to improve steady-state performance of digital controllers for buck and boost converters
	Polymorphisms in gyrA and gyrB genes among Mycobacterium avium subsp. paratuberculosis type I, II, and III isolates
	Potassium in hemorrhagic shock: a potential marker of tissue hypoxia
	Precision electroweak measurements on the Z resonance
	Predicting conserved water-mediated and polar ligand interactions in proteins using a K-nearest-neighbors genetic algorithm
	Predicting student performance: an application of data mining methods with an educational web-based system
	Profile-based dynamic voltage scheduling using program checkpoints
	Protein kinase C-mediated phosphorylation of the human multidrug resistance P-glycoprotein regulates cell volume-activated chloride channels.
	PWM-based adaptive sliding-mode control for boost DC-DC converters
	Quality of web mashups: a systematic mapping study
	Quality-of-context and its use for protecting privacy in context aware systems
	Querying the web: A multiontology disambiguation method
	Race, subjective and the interview process
	RCAN1 (DSCR1) increases neuronal susceptibility to oxidative stress: a potential pathogenic process in neurodegeneration
	Rdf-ization of dicom medical images towards linked health data cloud
	Readings in planning
	Reconciling software requirements and architectures: The cbasp approach
	Reliability of clinical guidelines in the detection of patients at risk following mild head injury: results of a prospective study
	Rippling: A heuristic for guiding inductive proofs
	RR Stress Test Time Series classification using Neural networks
	Safe composition of product lines
	Scalable software libraries
	Scaling step-wise refinement
	Search for neutral MSSM Higgs bosons at LEP
	Search for new phenomena in final states with large jet multiplicities and missing transverse momentum using $\sqrt{s} = 7$ TeV pp collisions with the ATLAS detector
	Search for squarks and gluinos using final states with jets and missing transverse momentum with the ATLAS detector in $\sqrt{s} = 7$ TeV proton-proton collisions
	Seed-mediated synthesis of NaYF ₄ : Yb, Er/NaGdF ₄ nanocrystals with improved upconversion fluorescence and MR relaxivity
	Selection-driven evolution of emergent dengue virus
	Semantic and schematic similarities between database objects: a context-based approach
	Semantic sensor web
	SemRank: ranking complex relationship search results on the semantic web

	Separation of drug transport and chloride channel functions of the human multidrug resistance P-glycoprotein
	Services mashups: The new generation of web applications
	Sesame: A generic architecture for storing and querying rdf and rdf schema
	Situations in conceptual modeling of context
	So far (schematically) yet so near (semantically)
	Software requirements negotiation: some lessons learned
	SPARK: A high-level synthesis framework for applying parallelizing compiler transformations
	SPARK: a parallelizing approach to the high-level synthesis of digital circuits
	Specification styles in distributed systems design and verification
	Students coming to voice: The transformative influences of feminist pedagogies
	Supporting context-aware mobile applications: an infrastructure approach
	Supporting software understanding with automated requirements traceability
	Supporting Sustained Faculty Engagement in Blended Learning
	Swelling-activated Ca ²⁺ entry via TRPV4 channel is defective in cystic fibrosis airway epithelia
	Synthesis of novel nickel sulfide submicrometer hollow spheres
	System and method for creating a semantic web and its applications in browsing, searching, profiling, personalization and advertising
	Tailoring User Interfaces to Include Gesture-Based Interaction with gestUI
	Tamoxifen blocks chloride channels. A possible mechanism for cataract formation.
	Techniques for the parallelization of unstructured grid applications on multi-GPU systems
	The asthma-associated ORMDL3 gene product regulates endoplasmic reticulum-mediated calcium signaling and cellular stress
	The DARPA agent markup language
	The Eco-Narrative and the Enthymeme: Form and Engagement in Environmental Writing
	The effects of positive end-expiratory pressure on respiratory system mechanics and hemodynamics in postoperative cardiac surgery patients
	The estrogen trinity: membrane, cytosolic, and nuclear effects
	The evolution of Protégé: an environment for knowledge-based systems development
	The knowledge model of Protege-2000: Combining interoperability and flexibility
	The lemon cookbook
	The royal tree problem, a benchmark for single and multi-population genetic programming
	The semantic web
	The semantic web and its languages
	The semantic web: Research and applications
	The Voice of Poetry Is Calling: Adrienne Rich's Democratic Impulse
	Thermal filament continuous thermodilution cardiac output delayed response limits its value during acute hemodynamic instability
	Towards an application framework for context-aware m-health applications
	Traceability fundamentals

	Trajectory tracking of a quadrotor using sliding mode control
	Transparent dynamic reconfiguration for CORBA
	TRPV4 channel is involved in the coupling of fluid viscosity changes to epithelial ciliary activity
	TRPV4 channel participates in receptor-operated calcium entry and ciliary beat frequency regulation in mouse airway epithelial cells
	Trust networks on the semantic web
	TSQL2 language specification
	Ultrasound-guided percutaneous dilational tracheostomy versus bronchoscopy-guided percutaneous dilational tracheostomy in critically ill patients (TRACHUS): a randomized …
	UMCP: A Sound and Complete Procedure for Hierarchical Task-network Planning.
	Understanding Adrienne Rich
	Uniform hamburger-like mesoporous carbon-incorporated ZnO nanoarchitectures: One-pot solvothermal synthesis, high adsorption and visible-light photocatalytic decolorization of dyes
	Unstructured grid applications on GPU: performance analysis and improvement
	Using genetic algorithms for data mining optimization in an educational web-based system
	Using the WinWin spiral model: a case study
	Volume-activated chloride channels in HeLa cells are blocked by verapamil and dideoxyforskolin
	Volume-regulated chloride channels associated with the human multidrug-resistance P-glycoprotein
	Web ontology language
	WebMedSA: a web-based framework for segmenting and annotating medical images using biomedical ontologies
	Wild boar tuberculosis in Iberian Atlantic Spain: a different picture from Mediterranean habitats

TABLA DINÁMICA
CLUSTER vs AUTOR vs PUBLICACION

Explicacion: Esta tabla busca representar el autor y publicacion dado uno de los clusters.

Cluster	Autor	Publicacion
cluster_0	Aguado de Cea, Guadalupe	Localizing ontologies in OWL
	Alexander Egyed	A scenario-driven approach to traceability
		Automatically detecting and tracking inconsistencies in software design models
		Bridging models across the software lifecycle
		Generating and evaluating choices for fixing inconsistencies in UML design models
		Instant consistency checking for the UML
		Reconciling software requirements and architectures with intermediate models

		Scalable consistency checking between diagrams-The VIEWINTEGRA approach
	Amit Sheth	An overview of workflow management: From process modeling to workflow automation infrastructure
		Specifying and enforcing intertask dependencies
	Dario Rodriguez	Search for diphoton events with large missing transverse momentum in 7 TeV proton-proton collision data with the ATLAS detector
	Don Batory	Automated analysis of feature models: challenges ahead
		Feature models, grammars, and propositional formulas
		Modeling concepts for VLSI CAD objects
		Reasoning about edits to feature models
		The design and implementation of hierarchical software systems with reusable components
	Jim Hendler	Automating DAML-S web services composition using SHOP2
		Semantic web for the working ontologist: effective modeling in RDFS and OWL
	Luis I. Minchala	A comparative study of black-box models for cement quality prediction using input-output measurements of a closed circuit grinding
	Marten van Sinderen	A goal-oriented requirements modelling language for enterprise architecture
		An ontologically well-founded profile for UML conceptual models
		An ontology-based approach for evaluating the domain appropriateness and comprehensibility appropriateness of modeling languages
		COSMO: A conceptual framework for service modelling and refinement
		Extending enterprise architecture modelling with business goals and requirements
		From enterprise architecture to business models and back
		Mapping the Business Model Canvas to ArchiMate
		On the role of domain ontologies in the design of domain-specific visual modeling languages
	Mauricio Espinoza Mejía	Hacia la Creación de un Repositorio Semántico de Modelos de Contexto Basados en i* y el método DHARMA
	Victor Saquicela	Hacia la creación de un repositorio semántico de modelos de contexto basados en i* y el método DHARMA
		Towards the creation of a semantic repository of iStar-based context models
cluster_1	Amit Sheth	Adding semantics to web services standards
		METEOR-S web service annotation framework
		METEOR-S WSDI: A scalable P2P infrastructure of registries for semantic publication and discovery of web services
		Quality of service for workflows and web service processes
		Semantic e-workflow composition
		Service level agreement in cloud computing

		Web service semantics-wsdl-s
	Jim Hendler	HTN planning for web service composition using SHOP2
		Semi-automatic composition of web services using semantic descriptions
	Lizandro Damian Solano-Quin de	A Systematic Mapping Study of Specification Languages in Cloud Services Development
	Marten van Sinderen	Context-aware, ontology-based service discovery
		Methodological support for service-oriented design with ISDL
		Towards a service platform for mobile context-aware applications.
	Mauricio Espinoza Mejía	Discovering web services using semantic keywords
	Miguel Angel Zuñiga Prieto	An incremental and model driven approach for the dynamic reconfiguration of cloud application architectures
		Architecture description language for incremental integration of cloud services architectures
		Automation of the Incremental Integration of Microservices Architectures
		Automatización del proceso de despliegue de servicios en la nube
		Dynamic reconfiguration of cloud application architectures
		Framework for Dynamic Architecture Reconfiguration of Cloud Services.
		Incremental Integration of Microservices in Cloud Applications
		Monitoring Services Quality in the Cloud
		Towards a Model-Driven Dynamic Architecture Reconfiguration Process for Cloud Services Integration.
	Priscila Cedillo	A Monitoring Infrastructure for the Quality Assessment of Cloud Services
		Monitoring services quality in the cloud
		Towards a monitoring middleware for cloud services
		Towards Monitoring Cloud Services using Models@ run. time.
	Victor Saquicela	Adding semantic annotations into (geospatial) restful services
		Lightweight semantic annotation of geospatial RESTful services
		Semantic annotation of RESTful services using external resources
cluster_2	Aguado de Cea, Guadalupe	Enriching ontologies with multilingual information
		Interchanging lexical resources on the semantic web
		Modelling multilinguality in ontologies
		Natural language-based approach for helping in the reuse of ontology design patterns

		ONTOGENERATION: Reusing domain and linguistic ontologies for Spanish text generation
		Representing translations on the semantic web
	Amit Sheth	OBSERVER: An approach for query processing in global information systems based on interoperation across pre-existing ontologies
		OntoQA: Metric-based ontology quality analysis
		The SSN ontology of the W3C semantic sensor network incubator group
	Frank van Harmelen	A Semantic Web Primer
		Bibster-a semantics-based bibliographic peer-to-peer system
		Bibster–a semantics-based bibliographic peer-to-peer system
		C-owl: Contextualizing ontologies
		Handbook of knowledge representation
		OIL in a nutshell
		OIL: An ontology infrastructure for the semantic web
		The semantic web: The roles of XML and RDF
		Towards the semantic web: ontology-driven knowledge management
		Web ontology language: Owl
	Jim Hendler	OWL web ontology language reference
		Spinning the Semantic Web: bringing the World Wide Web to its full potential
	Lizandro Damian Solano-Quinde	Plataforma para la búsqueda por contenido visual y semántico de imágenes médicas
	Mauricio Espinoza Mejía	A note on ontology localization
		Enriching an ontology with multilingual information
		LabelTranslator-a tool to automatically localize an ontology
		Multilingual and localization support for ontologies
		Ontology localization
	Natasha Noy	A component-based framework for ontology evolution
		A framework for ontology evolution in collaborative environments
		Algorithm and tool for automated ontology merging and alignment
		Anchor-PROMPT: Using Non-Local Context for Semantic Matching.
		Biomedical ontologies: a functional perspective
		BioPortal: enhanced functionality via new Web services from the National Center for Biomedical Ontology to access and use ontologies in software applications
		BioPortal: ontologies and integrated data resources at the click of a mouse

		Ontology development 101: A guide to creating your first ontology
		Ontology evolution: Not the same as schema evolution
		Promptdiff: A fixed-point algorithm for comparing ontology versions
		Protégé-2000: an open-source ontology-development and knowledge-acquisition environment.
		Semantic integration: a survey of ontology-based approaches
		SMART: Automated support for ontology merging and alignment
		The PROMPT suite: interactive tools for ontology merging and mapping
		The Protégé OWL plugin: An open development environment for semantic web applications
		The state of the art in ontology design: A survey and comparative review
	Victor Saquicela	An automatic method for the enrichment of dicom metadata using biomedical ontologies
cluster_3	Aguado de Cea, Guadalupe	Combining statistical and semantic approaches to the translation of ontologies and taxonomies
		Guidelines for multilingual linked data
		The lemon cookbook
		The semantic web: Research and applications
	Alex Nicolau	A configurable simulation environment for the efficient simulation of large-scale spiking neural networks on graphics processors
		Adapting cache line size to application behavior
		Adaptive bitonic sorting: An optimal parallel algorithm for shared-memory machines
		Automatic program parallelization
		Coordinated parallelizing compiler optimizations and high-level synthesis
		Efficient utilization of scratch-pad memory in embedded processor applications
		EXPRESSION: A language for architecture exploration through compiler/simulator retargetability
		Integrated power management for video streaming to mobile handheld devices
		Measuring the parallelism available for very long instruction word architectures
		On-chip vs. off-chip memory: the data partitioning problem in embedded processor-based systems
		Optimal loop parallelization
		Parallel processing: A smart compiler and a dumb machine
		Parallelizing programs with recursive data structures
		Partitioned register files for VLIWs: A preliminary analysis of tradeoffs
		Percolation scheduling: A parallel compilation technique
		Perfect pipelining: A new loop parallelization technique

		Profile-based dynamic voltage scheduling using program checkpoints
		SPARK: A high-level synthesis framework for applying parallelizing compiler transformations
		SPARK: a parallelizing approach to the high-level synthesis of digital circuits
	Alexander Egyed	A scenario-driven approach to trace dependency analysis
		A stakeholder win–win approach to software engineering education
		Automated abstraction of class diagrams
		Automating requirements traceability: Beyond the record & replay paradigm
		Enhancing clone-and-own with systematic reuse for developing software variants
		Fixing inconsistencies in UML design models
		Identifying requirements conflicts and cooperation: How quality attributes and automated traceability can help
		Reconciling software requirements and architectures: The cbsp approach
		Software requirements negotiation: some lessons learned
		Supporting software understanding with automated requirements traceability
		Traceability fundamentals
		Using the WinWin spiral model: a case study
	Amit Sheth	Changing Focus on Interoperability in Information Systems: From System, Syntax, Structure to Semantics
		Eradication of bovine tuberculosis at a herd-level in Madrid, Spain: study of within-herd transmission dynamics over a 12 year period
		Evaluation of two cocktails containing ESAT-6, CFP-10 and Rv-3615c in the intradermal test and the interferon- γ assay for diagnosis of bovine tuberculosis
		Evidence of goats acting as domestic reservoirs of bovine tuberculosis
		Experimental infection with Mycobacterium caprae in goats and evaluation of immunological status in tuberculosis and paratuberculosis co-infected animals
		Federated database systems for managing distributed, heterogeneous, and autonomous databases
		Genetic diversity of Mycobacterium avium isolates recovered from clinical samples and from the environment: molecular characterization for diagnostic purposes
		Humans as source of Mycobacterium tuberculosis infection in cattle, Spain
		Molecular epidemiology of multidrug-resistant Mycobacterium bovis isolates with the same spoligotyping profile as isolates from animals

		Polymorphisms in gyrA and gyrB genes among Mycobacterium avium subsp. paratuberculosis type I, II, and III isolates
		Semantic and schematic similarities between database objects: a context-based approach
		Semantic sensor web
		SemRank: ranking complex relationship search results on the semantic web
		Services mashups: The new generation of web applications
		So far (schematically) yet so near (semantically)
		System and method for creating a semantic web and its applications in browsing, searching, profiling, personalization and advertising
		Wild boar tuberculosis in Iberian Atlantic Spain: a different picture from Mediterranean habitats
	Bill Punch	A Genetic Algorithm Approach to Dynamic Job Shop Scheduling Problem.
		A mixture model for clustering ensembles
		A Standard GA Approach to Native Protein Conformation Prediction.
		Ab initio determination of solid-state nanostructure
		Adaptive clustering ensembles
		Clustering ensembles: Models of consensus and weak partitions
		Coarse-grain parallel genetic algorithms: Categorization and new approach
		Combining multiple weak clusterings
		Dimensionality reduction using genetic algorithms
		Ensembles of partitions via data resampling
		Faster genetic programming based on local gradient search of numeric leaf values
		Further Research on Feature Selection and Classification Using Genetic Algorithms.
		Genetic algorithms for object recognition in a complex scene
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		Method and Product For Determining Salient Features For Use In Information Searching
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		Predicting student performance: an application of data mining methods with an educational web-based system
		The royal tree problem, a benchmark for single and multi-population genetic programming
		Using genetic algorithms for data mining optimization in an educational web-based system
	Dario Rodriguez	A review of humor in educational settings: Four decades of research
		Albendazole therapy for neurocysticercosis

		Combined search for the Standard Model Higgs boson using up to 4.9 fb ⁻¹ of pp collision data at s= 7TeV with the ATLAS detector at the LHC
		Growth promotion of the freshwater microalga <i>Chlorella vulgaris</i> by the nitrogen-fixing, plant growth-promoting bacterium <i>Bacillus pumilus</i> from arid zone soils
		Isolation of <i>Chlamydia pneumoniae</i> from a Carotid Endarterectomy Specimen
		Kinect v2 for mobile robot navigation: Evaluation and modeling
		Measurements of the electron and muon inclusive cross-sections in proton-proton collisions at s= 7TeV with the ATLAS detector
		Phenotype at diagnosis predicts recurrence rates in Crohn's disease
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		Reliability of clinical guidelines in the detection of patients at risk following mild head injury: results of a prospective study
		Search for neutral MSSM Higgs bosons at LEP
		Search for new phenomena in final states with large jet multiplicities and missing transverse momentum using $\sqrt{s} = 7$ TeV pp collisions with the ATLAS detector
		Search for squarks and gluinos using final states with jets and missing transverse momentum with the ATLAS detector in $\sqrt{s} = 7$ TeV proton-proton collisions
		Selection-driven evolution of emergent dengue virus
	Don Batory	A case study implementing features using AspectJ
		Achieving extensibility through product-lines and domain-specific languages: A case study
		Composition validation and subjectivity in GenVoca generators
		Evolving object-oriented designs with refactorings
		Feature oriented refactoring of legacy applications
		Feature-oriented programming and the AHEAD tool suite
		Feature-oriented software product lines
		GENESIS: An extensible database management system
		Implementing layered designs with mixin layers
		JTS: Tools for implementing domain-specific languages
		Mixin layers: an object-oriented implementation technique for refinements and collaboration-based designs
		Safe composition of product lines
		Scalable software libraries
		Scaling step-wise refinement
		TSQL2 language specification
	Frank van Harmelen	From SHIQ and RDF to OWL: The making of a web ontology language
		OWL web ontology language overview
		Rippling: A heuristic for guiding inductive proofs

		Sesame: A generic architecture for storing and querying rdf and rdf schema
		The semantic web and its languages
		Web ontology language
	Javier Bezos Garrido	Assessment of diagnostic tools for eradication of bovine tuberculosis in cattle co-infected with Mycobacterium bovis and M. avium subsp. paratuberculosis
		Bovine tuberculosis (Mycobacterium bovis) in wildlife in Spain
		Comparison of four different culture media for isolation and growth of type II and type I/III Mycobacterium avium subsp. paratuberculosis strains isolated from cattle and goats
		Current ante-mortem techniques for diagnosis of bovine tuberculosis
		Effect of paratuberculosis on the diagnosis of bovine tuberculosis in a cattle herd with a mixed infection using interferon-gamma detection assay
		Evaluation of the sensitivity and specificity of bovine tuberculosis diagnostic tests in naturally infected cattle herds using a Bayesian approach
		High spoligotype diversity within a Mycobacterium bovis population: clues to understanding the demography of the pathogen in Europe
		Interference of paratuberculosis with the diagnosis of tuberculosis in a goat flock with a natural mixed infection
		Molecular epidemiology of Types I/III strains of Mycobacterium avium subspecies paratuberculosis isolated from goats and cattle
		Mycobacterium caprae infection in livestock and wildlife, Spain
		Persistence and molecular evolution of Mycobacterium bovis population from cattle and wildlife in Doñana National Park revealed by genotype variation
	Jeannette E. Riley	questing toward what might otherwise be: Adrienne Rich's Later Work
		Becoming an agent of change: Eavan Boland's Outside History and In a Time Of Violence
		Breaking boundaries: Ecofeminism in the classroom
		Characteristics of Successful Local Blended Programs in the Context of the Sloan-C Pillars.
		Contemporary feminist writers: Envisioning a just world
		Eavan Boland's "The Lost Land": Altering the Cartography of the Irish Poem
		Finding one's place in the "Family of Things": Terry Tempest Williams and a Geography of Self
		Implementation of blended learning for the improvement of student learning
		Students coming to voice: The transformative influences of feminist pedagogies
		Supporting Sustained Faculty Engagement in Blended Learning

		The Eco-Narrative and the Enthymeme: Form and Engagement in Environmental Writing
		The Voice of Poetry Is Calling: Adrienne Rich's Democratic Impulse
		Understanding Adrienne Rich
	Jim Hendler	A framework for web science
		A portrait of the Semantic Web in action
		Agents and the semantic web
		HTN planning: Complexity and expressivity
		Inferring binary trust relationships in web-based social networks
		Information accountability
		Readings in planning
		The DARPA agent markup language
		The semantic web
		Trust networks on the semantic web
		UMCP: A Sound and Complete Procedure for Hierarchical Task-network Planning.
	Liping Guo	A constant voltage MPPT method for a solar powered boost converter with DC motor load
		All-trans retinoic acid modulates fas expression and enhances chemosensitivity of human medulloblastoma cells.
		Cervical human papillomavirus screening among older women
		Comparative evaluation of linear PID and fuzzy control for a boost converter
		Comparative evaluation of sliding mode fuzzy controller and PID controller for a boost converter
		Design projects in a programmable logic controller (PLC) course in electrical engineering technology
		Digital controller design for buck and boost converters using root locus techniques
		Distinct mechanisms for the impact of distraction and interruption on working memory in aging
		Efficient self-propelling of small-scale condensed microdrops by closely packed ZnO nanoneedles
		Electronic pillow for abating snoring/environmental noises, hands-free communications, and non-invasive monitoring and recording
		Evaluation of DSP-based PID and fuzzy controllers for DC-DC converters
		Exponential stability of impulsive stochastic functional differential equations
		Formation and restraint of toxic emissions in hydrogen-gasoline mixture fueled engines
		Four cobalt (II) coordination polymers with diverse topologies derived from flexible bis (benzimidazole) and aromatic dicarboxylic acids: syntheses, crystal structures and μ ;
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		Implementation of digital PID controllers for DC-DC converters using digital signal processors
		PID controller modifications to improve steady-state performance of digital controllers for buck and boost converters
		PWM-based adaptive sliding-mode control for boost DC-DC converters
	Lizandro Damian Solano-Quinde	Análisis de rendimiento y profiling del modelo WRF en un clúster HPC
		Automatic parallelization of GPU applications using OpenCL
		Characterizing artifacts in RR stress test time series
		Coarse grain computation-communication overlap for efficient application-level checkpointing for GPUs
		GPU Acceleration of the Horizontal Diffusion method in the Weather Research and Forecasting (WRF) Model
		Grid platform for medical federated queries supporting semantic and visual annotations
		Infraestructura basada en Globus Toolkit para dar soporte a repositorios distribuidos de imágenes médicas
		Minimizing the power consumption in Raspberry Pi to use as a remote WSN gateway
		Mobile teleradiology system suitable for m-health services supporting content and semantic based image retrieval on a grid infrastructure
		Module prototype for online failure prediction for the ibm Blue Gene/L
		Multi-GPU implementation of the Horizontal Diffusion method of the Weather Research and Forecast Model
		RR Stress Test Time Series classification using Neural networks
		Techniques for the parallelization of unstructured grid applications on multi-GPU systems
		Unstructured grid applications on GPU: performance analysis and improvement
		WebMedSA: a web-based framework for segmenting and annotating medical images using biomedical ontologies
	Luis Minchala	I. A model predictive control approach for integrating a master generation unit in a microgrid
		A Review of Optimal Control Techniques Applied to the Energy Management and Control of Microgrids
		An intelligent control approach for designing a low voltage DC breaker
		An open source scada system to implement advanced computer integrated manufacturing
		Comparison of the performance and energy consumption index of model-based controllers

		Design and implementation of a smart meter with demand response capabilities
		Fault diagnosis in power lines using Hilbert transform and fuzzy classifier
		Fault identification and classification of spur gearbox with feed forward back propagation artificial neural network
		Fault-tolerant control of a master generation unit in an islanded microgrid
		Fault-tolerant control with linear quadratic and model predictive control techniques against actuator faults in a quadrotor UAV
		Fault-tolerant controller design for a master generation unit in an isolated hybrid wind-diesel power system
		Model-based fault-tolerant control to guarantee the performance of a hybrid wind-diesel power system in a microgrid configuration
		Nonlinear robust H-Infinity PID controller for the multivariable system quadrotor
		Optimal energy management for stable operation of an islanded microgrid
		Trajectory tracking of a quadrotor using sliding mode control
	Maria José Carvalho Carmona	Apolipoprotein E4 genotype increases the risk of postoperative cognitive dysfunction in patients undergoing coronary artery bypass graft surgery
		Assessment of factors that influence weaning from long-term mechanical ventilation after cardiac surgery
		Atelectasis during anesthesia: pathophysiology and treatment
		Cardiopulmonary bypass alters the pharmacokinetics of propranolol in patients undergoing cardiac surgery
		Computed tomography assessment of lung structure in patients undergoing cardiac surgery with cardiopulmonary bypass
		Effects of Single Low Dose of Dexamethasone before Noncardiac and Nonneurologic Surgery and General Anesthesia on Postoperative Cognitive Dysfunction; A Phase III Double Blind Study
		Hyperkalemia accompanies hemorrhagic shock and correlates with mortality
		Inhaled nitric oxide leading to pulmonary edema in stable severe heart failure
		L-Arginine reduces heart rate and improves hemodynamics in severe congestive heart failure
		Low doses of inhaled nitric oxide in heart transplant recipients.
		Potassium in hemorrhagic shock: a potential marker of tissue hypoxia
		The effects of positive end-expiratory pressure on respiratory system mechanics and hemodynamics in postoperative cardiac surgery patients
		Thermal filament continuous thermodilution cardiac output delayed response limits its value during acute hemodynamic instability

		Ultrasound-guided percutaneous dilational tracheostomy versus bronchoscopy-guided percutaneous dilational tracheostomy in critically ill patients (TRACHUS): a randomized æ
	Marten van Sinderen	Architecture and specification style in formal descriptions of distributed systems
		Middleware support for quality of context in pervasive context-aware systems
		On the notion of abstract platform in MDA development
		Quality-of-context and its use for protecting privacy in context aware systems
		Situations in conceptual modeling of context
		Specification styles in distributed systems design and verification
		Supporting context-aware mobile applications: an infrastructure approach
		Towards an application framework for context-aware m-health applications
		Transparent dynamic reconfiguration for CORBA
	Mauricio Espinoza Mejía	Combining statistical and semantic approaches to the translation of ontologies and taxonomies
		D5. 4.3. Revision and Extension of the NeOn Methodology for Building Contextualized Ontology Networks
		Discovering the Semantics of User Keywords.
		Enriching electronic program guides using semantic technologies and external resources
		Querying the web: A multiontology disambiguation method
	Miguel Angel Valderde de Castro	Acute activation of Maxi-K channels (hSlo) by estradiol binding to the β subunit
		Cell volume regulation and swelling-activated chloride channels
		Differential effects of tamoxifen and I− on three distinguishable chloride currents activated in T84 intestinal cells
		Environmental estrogenic pollutants induce acute vascular relaxation by inhibiting L-type Ca ²⁺ channels in smooth muscle cells
		Gain-of-function mutation in the KCNMB1 potassium channel subunit is associated with low prevalence of diastolic hypertension
		Human CIC-3 is not the swelling-activated chloride channel involved in cell volume regulation
		Human TRPV4 channel splice variants revealed a key role of ankyrin domains in multimerization and trafficking
		IP ₃ sensitizes TRPV4 channel to the mechano-and osmotransducing messenger 5′-6′-epoxyeicosatrienoic acid
		Maxi K ⁺ channel mediates regulatory volume decrease response in a human bronchial epithelial cell line

		Protein kinase C-mediated phosphorylation of the human multidrug resistance P-glycoprotein regulates cell volume-activated chloride channels.
		RCAN1 (DSCR1) increases neuronal susceptibility to oxidative stress: a potential pathogenic process in neurodegeneration
		Separation of drug transport and chloride channel functions of the human multidrug resistance P-glycoprotein
		Swelling-activated Ca ²⁺ entry via TRPV4 channel is defective in cystic fibrosis airway epithelia
		Tamoxifen blocks chloride channels. A possible mechanism for cataract formation.
		The asthma-associated ORMDL3 gene product regulates endoplasmic reticulum-mediated calcium signaling and cellular stress
		The estrogen trinity: membrane, cytosolic, and nuclear effects
		TRPV4 channel is involved in the coupling of fluid viscosity changes to epithelial ciliary activity
		TRPV4 channel participates in receptor-operated calcium entry and ciliary beat frequency regulation in mouse airway epithelial cells
		Volume-activated chloride channels in HeLa cells are blocked by verapamil and dideoxyforskolin
		Volume-regulated chloride channels associated with the human multidrug-resistance P-glycoprotein
	Miguel Angel Zuñiga Prieto	Multi-GPU implementation of the Horizontal Diffusion method of the Weather Research and Forecast Model
		Observation of a Centrality-Dependent Dijet Asymmetry in Lead-Lead Collisions at with the ATLAS Detector at the LHC
	Natasha Noy	Creating semantic web contents with protege-2000
		The evolution of Protégé: an environment for knowledge-based systems development
		The knowledge model of Protege-2000: Combining interoperability and flexibility
	Otto Parra González	A Model-driven Method and a Tool for Developing Gesture-based Information Systems Interface
		A model-driven method for gesture-based interface requirements specification.
		An empirical comparative evaluation of gestUI to include gesture-based interaction in user interfaces
		Extending and validating gestUI using technical action research
		gestUI tool: A Tool to Include Gesture-based Interaction in User Interfaces Through Model-Driven
		GestUI: A Model-driven Method and Tool for Including Gesture-based Interaction in User Interfaces
		Including multi-stroke gesture-based interaction in user interfaces using a model-driven method
		Tailoring User Interfaces to Include Gesture-Based Interaction with gestUI

	Priscila Cedillo	A systematic literature review on devices and systems for ambient assisted living: Solutions and trends from different user perspectives
		A systematic mapping study for intelligent user interfaces- iui
		Definición de Mecanismos Personalizados de Monitorización de Servicios Cloud
		Evaluating the usability of mashups applications
		Intelligent pillbox: Automatic and programmable Assistive Technology device
		MOOCEP, un método para construir cursos masivos para adultos mayores: usando una creación MOOCEP
		MOOCEP: A Method for Building Massive Open Online Courses for Elderly People The Analysis Activity
		MOOCEP: Towards a method for building massive open online courses for elderly people
		Quality of web mashups: a systematic mapping study
	Victor Saquicela	Design of an integrated decision support system for library holistic evaluation
		Detecting similar areas of knowledge using semantic and data mining technologies
		Enriching electronic program guides using semantic technologies and external resources
		Geographical linked data: a Spanish use case
		GeoLinked data and INSPIRE through an application case
		Integration of digital repositories through federated queries using semantic technologies
		Interlinking geospatial information in the web of data
		Literature review of data mining applications in academic libraries
		Rdf-ization of dicom medical images towards linked health data cloud
	Yaskelly Yedra	DE LA BRECHA SOCIAL A LA BRECHA TECNOLÓGICA Y COGNITIVA
	Yong Hu	A magnetically separable photocatalyst based on nest-like γ -Fe ₂ O ₃ /ZnO double-shelled hollow structures with enhanced photocatalytic activity
		A microwave-assisted rapid route to synthesize ZnO/ZnS core-shell nanostructures via controllable surface sulfidation of ZnO nanorods
		Assembling carbon-coated γ -Fe ₂ O ₃ hollow nanohorns on the CNT backbone for superior lithium storage capability
		Carbon-Coated CdS Petalous Nanostructures with Enhanced Photostability and Photocatalytic Activity
		Coating colloidal carbon spheres with CdS nanoparticles: microwave-assisted synthesis and enhanced photocatalytic activity
		Construction of hierarchical Ni-Co-P hollow nanobricks with oriented nanosheets for efficient overall water splitting

		Effects of nano-TiO ₂ on photosynthetic characteristics of <i>Ulmus elongata</i> seedlings
		Facile Formation of Mesoporous BiVO ₄ /Ag/AgCl Heterostructured Microspheres with Enhanced Visible-Light Photoactivity
		Facile one-pot synthesis of uniform TiO ₂ /Ag hybrid hollow spheres with enhanced photocatalytic activity
		Facile one-step microwave-assisted route towards Ni nanospheres/reduced graphene oxide hybrids for non-enzymatic glucose sensing
		Facile synthesis of Z-scheme Ag ₂ CO ₃ /Ag/AgBr ternary heterostructured nanorods with improved photostability and photoactivity
		Formation of Mesoporous Heterostructured BiVO ₄ /Bi ₂ S ₃ Hollow Discoids with Enhanced Photoactivity
		Magnetic-field induced formation of 1D Fe ₃ O ₄ /C/CdS coaxial nanochains as highly efficient and reusable photocatalysts for water treatment
		Microwave-assisted non-aqueous route to deposit well-dispersed ZnO nanocrystals on reduced graphene oxide sheets with improved photoactivity for the decolorization of dyes
		Microwave-assisted synthesis of porous CdO/CdS core/shell nanoboxes with enhanced visible-light-driven photocatalytic reduction of Cr (VI)
		Microwave-Assisted Synthesis of Porous Ag ₂ S/Ag Hybrid Nanotubes with High Visible-Light Photocatalytic Activity
		One-Pot Magnetic Field Induced Formation of Fe ₃ O ₄ /C Composite Microrods with Enhanced Lithium Storage Capability
		Seed-mediated synthesis of NaYF ₄ : Yb, Er/NaGdF ₄ nanocrystals with improved upconversion fluorescence and MR relaxivity
		Synthesis of novel nickel sulfide submicrometer hollow spheres
		Uniform hamburger-like mesoporous carbon-incorporated ZnO nanoarchitectures: One-pot solvothermal synthesis, high adsorption and visible-light photocatalytic decolorization of dyes

TABLA DINÁMICA
AÑO VS AUTOR VS CLUSTER

Explicación: Esta tabla busca representar el año y el/los autor/es que tienen investigaciones clasificados como los distintos clusters.

Cluster	Año	Autor
cluster_0	1985	Don Batory
	1992	Don Batory
	1993	Amit Sheth
	1997	Juan Pablo Carvallo
		Natasha Noy
	1999	Natasha Noy
	2000	Frank van Harmelen
		Natasha Noy

	2001	Alexander Egyed
		Frank van Harmelen
		Jim Hendler
		Natasha Noy
	2002	Natasha Noy
	2003	Alexander Egyed
		Frank van Harmelen
		Juan Pablo Carvallo
		Natasha Noy
	2004	Alexander Egyed
		Amit Sheth
		Frank van Harmelen
		Jim Hendler
		Lizandro Solano-Quinde Damian
		Marten van Sinderen
		Natasha Noy
	2005	Amit Sheth
		Don Batory
		Jim Hendler
	2006	Alexander Egyed
		Don Batory
		Juan Pablo Carvallo
		Natasha Noy
	2007	Aguado de Cea, Guadalupe
		Mauricio Espinoza Mejía
		Natasha Noy
	2008	Aguado de Cea, Guadalupe
		Alexander Egyed
		Frank van Harmelen
		Mauricio Espinoza Mejía
	2009	Don Batory
		Mauricio Espinoza Mejía
		Natasha Noy
	2010	Alexander Egyed
		Amit Sheth
		Juan Pablo Carvallo
		Marten van Sinderen
		Mauricio Espinoza Mejía
	2011	Aguado de Cea, Guadalupe
		Juan Pablo Carvallo
		Natasha Noy
		Otto Parra González
		Zhenjiang Hu

	2012	Aguado de Cea, Guadalupe
		Dario Rodriguez
		Marten van Sinderen
		Mauricio Espinoza Mejía
	2014	Juan Pablo Carvallo
		Marten van Sinderen
		Otto Parra González
		Zhenjiang Hu
	2015	Marten van Sinderen
		Otto Parra González
		Victor Saquicela
	2016	Juan Pablo Carvallo
		Marten van Sinderen
		Mauricio Espinoza Mejía
		Otto Parra González
		Victor Saquicela
	2017	Otto Parra González
		Zhenjiang Hu
	2018	Zhenjiang Hu
	2019	Otto Parra González
cluster_1		Mauricio Espinoza Mejía
	1985	Liping Guo
	1988	Angel de Castro
		Don Batory
		Marten van Sinderen
	1990	Alex Nicolau
		Jim Hendler
	1991	Marten van Sinderen
	1993	Amit Sheth
		Bill Punch
		Don Batory
		Frank van Harmelen
	1994	Angel de Castro
		Don Batory
	1995	Alex Nicolau
		Jim Hendler
	1996	Alex Nicolau
		Jim Hendler
	1997	Dario Rodriguez
		Don Batory
		Jeannette E. Riley
		Luis I. Minchala
		Zhenjiang Hu
	1998	Alexander Egyed

		Amit Sheth
		Angel de Castro
		Don Batory
		Liping Guo
	1999	Zhenjiang Hu
	2000	Alex Nicolau
		Bill Punch
		Frank van Harmelen
		Jim Hendler
	2001	Alex Nicolau
		Alexander Egyed
		Amit Sheth
		Bill Punch
		Don Batory
		Jim Hendler
		Lizandro Solano-Quinde Damian
		Natasha Noy
	2002	Alex Nicolau
		Alexander Egyed
		Angel de Castro
		Don Batory
		Frank van Harmelen
		Zhenjiang Hu
	2003	Alex Nicolau
		Alexander Egyed
		Angel de Castro
		Bill Punch
		Dario Rodriguez
		Frank van Harmelen
		Jeannette E. Riley
		Jim Hendler
		Juan Pablo Carvallo
		Luis I. Minchala
		Zhenjiang Hu
	2004	Alex Nicolau
		Alexander Egyed
		Angel de Castro
		Bill Punch
		Dario Rodriguez
		Don Batory
		Frank van Harmelen
		Jeannette E. Riley
		Liping Guo

	2005	Aguado de Cea, Guadalupe
		Alex Nicolau
		Alexander Egyed
		Amit Sheth
		Jeannette E. Riley
		Liping Guo
		Lizandro Solano-Quinde Damian
	2006	Alex Nicolau
		Angel de Castro
		Dario Rodriguez
		Don Batory
		Jim Hendler
		Juan Pablo Carvallo
		Mauricio Espinoza Mejía
		Zhenjiang Hu
	2007	Alexander Egyed
		Angel de Castro
		Don Batory
		Jeannette E. Riley
		Lizandro Solano-Quinde Damian
		Luis I. Minchala
		Marten van Sinderen
		Zhenjiang Hu
	2008	Alex Nicolau
		Amit Sheth
		Angel de Castro
		Bill Punch
		Jim Hendler
		Lizandro Solano-Quinde Damian
	2009	Angel de Castro
		Bill Punch
		Dario Rodriguez
		Jeannette E. Riley
		Luis I. Minchala
		Marten van Sinderen
	2010	Aguado de Cea, Guadalupe
		Dario Rodriguez
		Jeannette E. Riley
		Lizandro Solano-Quinde Damian
		Marten van Sinderen
		Victor Saquicela

	2011	Aguado de Cea, Guadalupe
		Dario Rodriguez
		Lizandro Solano-Quinde Damian
		Marten van Sinderen
		Mauricio Espinoza Mejía
	2012	Alexander Egyed
		Dario Rodriguez
		Juan Pablo Carvallo
		Lizandro Solano-Quinde Damian
		Marten van Sinderen
		Priscila Cedillo
		Victor Saquicela
		Zhenjiang Hu
	2013	Aguado de Cea, Guadalupe
		Lizandro Solano-Quinde Damian
		Priscila Cedillo
		Zhenjiang Hu
	2014	Jeannette E. Riley
		Juan Pablo Carvallo
		Liping Guo
		Lizandro Solano-Quinde Damian
		Mauricio Espinoza Mejía
		Victor Saquicela
		Zhenjiang Hu
	2015	Alexander Egyed
		Amit Sheth
		Dario Rodriguez
		Juan Pablo Carvallo
		Lizandro Solano-Quinde Damian
		miguel angel zuñiga prieto
		Victor Saquicela
		Zhenjiang Hu
	2016	Don Batory
		Jeannette E. Riley
		Liping Guo
		Lizandro Solano-Quinde Damian
		miguel angel zuñiga prieto
		Victor Saquicela
		Yaskelly Yedra

		Zhenjiang Hu
	2017	Jeannette E. Riley
		Juan Pablo Carvallo
		Liping Guo
		miguel angel zuñiga prieto
		Priscila Cedillo
		Zhenjiang Hu
	2018	Priscila Cedillo
		Zhenjiang Hu
	2019	Jeannette E. Riley
		Liping Guo
cluster_2	1991	Amit Sheth
	2001	Amit Sheth
	2003	Amit Sheth
		Jim Hendler
	2004	Jim Hendler
		Lizandro Solano-Quinde Damian
	2005	Amit Sheth
	2007	Mauricio Espinoza Mejía
	2010	Marten van Sinderen
		Victor Saquicela
	2011	Victor Saquicela
	2012	Amit Sheth
		Victor Saquicela
	2014	Marten van Sinderen
		miguel angel zuñiga prieto
		Priscila Cedillo
	2015	Marten van Sinderen
		miguel angel zuñiga prieto
		Priscila Cedillo
	2016	Marten van Sinderen
		miguel angel zuñiga prieto
		Priscila Cedillo
	2017	miguel angel zuñiga prieto
cluster_3	1992	Liping Guo
	1993	Angel de Castro
	1997	Angel de Castro
	2001	Angel de Castro
	2004	Luis I. Minchala
	2005	Luis I. Minchala
	2006	Alex Nicolau
		Angel de Castro
	2007	Luis I. Minchala

	2009	Liping Guo
	2010	Luis I. Minchala
	2011	Liping Guo
		Luis I. Minchala
	2012	Luis I. Minchala
	2014	Luis I. Minchala
	2015	Liping Guo
		Luis I. Minchala
	2016	Luis I. Minchala