

# ATRILBIB: DOCUMENTACIÓN Y MANUAL DE USO

07 de noviembre de 2023

## 1. Resumen

ATRILBIB es la solución que nuestro equipo ha propuesto ante una problemática común en el día a día de estudiantes, profesionistas y académicos de diversos contextos, no solo de nuestra universidad. Diariamente, la labor creativa requiere de una gran pericia, especialmente ante asuntos legales y económicos derivados de un uso incorrecto de la propiedad intelectual ajena. Es importante considerar que, aunque no siempre se tenga presente, al intentar obtener ingresos o algún nivel académico, es imprescindible dar crédito a aquellos de quienes tomamos ideas a través de sus publicaciones.

Aunque dar crédito a los autores de los fundamentos teóricos de nuestros trabajos es una labor no solo necesaria, sino en cierto modo obligatoria, es fácil darse cuenta de que esto puede ser muchas veces engorroso, lo que nos puede llevar a cometer errores por omisión involuntaria o simple desidia. El modo en que se realiza esto para ciertas plataformas, en nuestro caso LaTeX, puede resultar complejo al principio, ya que no son tan amigables con el usuario como otras de uso más común. Por las razones antes expuestas, hemos considerado necesario desarrollar una herramienta que facilite la generación automática de archivos de citación para referencias en la plataforma LaTeX. De este modo, usuarios sin experiencia o conocimientos relacionados con esta plataforma pueden concentrarse en su trabajo académico y dejar en manos de esta herramienta, operando en conjunto con los medios propios de las plataformas de uso común para este lenguaje, la labor de citar la información. A continuación, se detallan las funcionalidades de esta herramienta para que, con sencillas instrucciones, cualquiera pueda manejar de manera eficiente sus referencias en este formato.

## 2. Funcionalidades principales:

**Obtención automática de los datos necesarios:** mediante la extracción de meta-datos, ATRILBIB tiene acceso a la información necesaria para llevar a cabo la citación de artículos con base en sus URL's, para, en lo sucesivo generar un archivo .pdf que contenga estos datos y que pueda ser utilizado para referencias en plataformas de LaTeX.

**Exportación de archivos .pdf:** de la mano con el punto anterior, una vez que de las fuentes consultadas son ingresadas y sus meta-datos extraídos, la recopilación de estos puede exportarse para su uso en las plataformas LaTeX de forma sencilla.

**Toma de notas:** Adjunta a la capacidad de citación esta la funcionalidad de añadir notas que el usuario considere pertinentes al momento de generar sus citaciones.

**Sesión por usuario:** Permite la creación y acceso a usuarios, de modo que cada uno tenga acceso a sus propias referencias y notas mediante el acceso a sus cuentas.

**Conexión en línea:** este programa es accedido mediante una conexión a internet, de modo que el usuario no requiere instalar ningún programa en su computadora.

**Cuadro de búsqueda:** Integra la funcionalidad de encontrar artículos mediante Google académico, accedido desde un buscador local para permitir la citación directa.

**Librería:** Permite almacenar para cada usuario los sitios elegidos por este para futuras consultas.

### 3. Contexto de uso:

#### 3.1. Perfil del Usuario:

ATRILBIB está diseñado para satisfacer las necesidades de un amplio rango de usuarios que requieren gestionar referencias bibliográficas de manera eficiente y precisa. Estos usuarios incluyen:

**Estudiantes y Académicos:** Desde estudiantes de licenciatura hasta investigadores doctorales, que necesitan citar fuentes en sus trabajos, tesis o publicaciones.

**Profesionales:** Especialmente aquellos que trabajan en ramos relacionados a lo académico, sobre todo de perfil físico matemático, que necesitan mantener un registro preciso de sus referencias para informes, artículos o documentos legales.

#### 3.2. Escenarios de Uso:

**Creación de Documentos Académicos o Científicos:** Usuarios que trabajan en documentos que requieren un formato de citación específico y que desean integrar sus referencias directamente en LaTeX.

**Trabajos de Investigación:** Para aquellos que realizan investigaciones extensivas y necesitan una forma efectiva y ordenada de gestionar sus citas bibliográficas.

**Publicaciones Profesionales:** En contextos donde la precisión y el cumplimiento de los estándares de citación son cruciales.

#### 3.3. Problemática que resolvemos:

**Automatización de Citas Bibliográficas:** Reduce el tiempo y el esfuerzo necesarios para crear y formatear citas manualmente.

**Prevención de Errores:** Minimiza los errores comunes en la citación, como citas incompletas o mal formateadas.

**Compatibilidad con LaTeX:** Facilita la integración de referencias en documentos LaTeX, un desafío común para usuarios no familiarizados con este lenguaje.

**Gestión de Referencias:** Ayuda a organizar y mantener un registro claro de las fuentes consultadas, crucial en proyectos de investigación a largo plazo.

#### 3.4. Entornos de uso:

**Entornos Educativos:** Universidades y otras instituciones educativas.

**Centros de Investigación:** Laboratorios, grupos de investigación y centros académicos.

### 4. Requisitos y configuración de uso:

**Requisitos:** En el momento de expedición de esta documentación, ATRILBIB se encuentra en etapas tempranas de desarrollo, su medio de acceso es un entorno en línea mediante navegadores, en el momento en que esta sea accesible, el principal requisito para operar será una conexión a internet.

**Configuración inicial:** para poder hacer uso pleno de las funcionalidades del programa es necesario acceder con un usuario creado en la página, en lo sucesivo se explica como.

### 5. Uso del programa:

A continuación se explica el modo de usar ATRILBIB de manera adecuada, claro, para sacarle el mayor provecho.



Figura 1: Pantalla inicial de ATRILBIB.

### 5.1. Pantalla inicial:

Esta es la pantalla inicial, aquí podemos ingresar palabras clave para encontrar artículos de interés en línea usando Google Académico, para esto seleccionamos el cuadro de búsqueda e ingresamos la solicitud deseada, luego al presionar 'buscar' o ENTER, se ejecutará nuestra búsqueda. Para citar directamente, en caso de que no sea posible acceder al artículo deseado por medio de la búsqueda, podemos ingresar la URL del sitio deseado.

En la esquina superior izquierda, se encuentran los apartados de 'mis notas' y 'mis librerías', en estos apartados, al pulsarlos, se accede (en el caso de los usuarios con cuentas) a las notas y bibliotecas de cada usuario.

### 5.2. Inicio de sesión:

Las opciones de 'Registrarse' e 'iniciar sesión' permiten llevar a cabo estas operaciones, al registrarse se solicita un usuario y contraseña nuevos, así mismo, al iniciar sesión se pide al solicitante su usuario y contraseña.

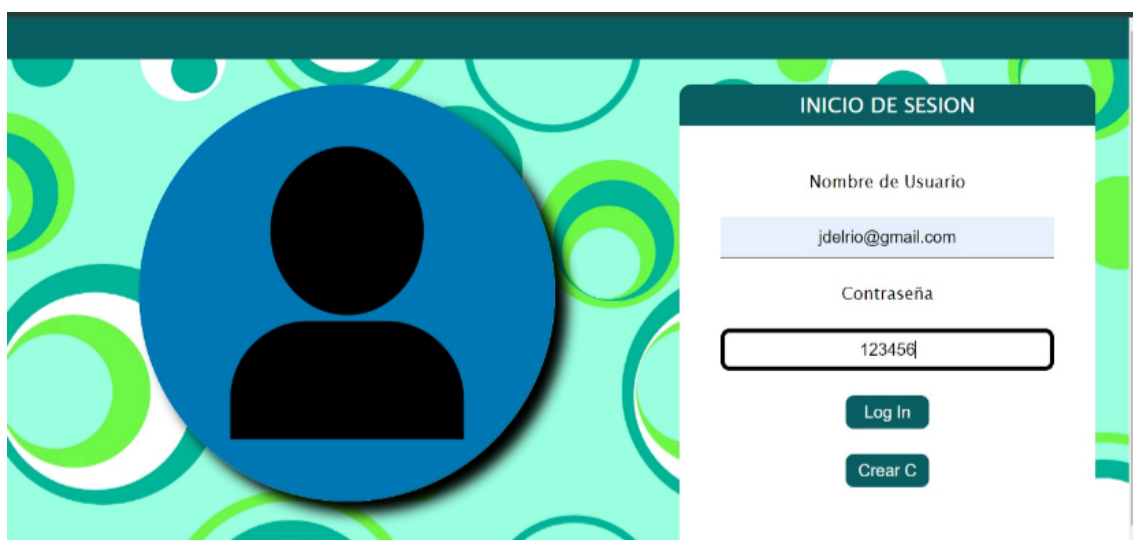


Figura 2: Inicio de sesion en ATRILBIB.

### 5.3. Exportación:

Para exportar una referencia simplemente pulsamos 'citar' en la pantalla inicial, esto nos generará un archivo .pdf con el formato empleado por los .bib



Figura 3: Exportación.

## 6. Documentación del código.

### 6.1. Funciones y archivos principales de la aplicación web.

**function buscar(num);**

Funciona como un motor de búsqueda que recoge la cadena que esta dentro del input 'search' y lo manda con metodo post al script que esta dentro de 'search.php' el cual carga resultados de busqueda como articulos, relacionados con la cadena ingresada en el campo antes dicho. La misma, se activa con el boton 'buscar'.

**function buscar\_manual();**

Esta funcion se ejecuta al presionar el boton 'Citar' del input, selecciona el valor de la URL que se halla puesto en el input 'urle' y se manda al script 'recibe\_url.php' donde se conecta con el archivo meTADAO.py para obtener los metadatos de la pagina deseada y cargar un archivo con los datos de la cita. Devuelve un mensaje de alert(), indicando si se logro exportar la informacion a un archivo externo o si fallo en la conexion (todos estos mensajes se generan en el archivo de python).

**function regis(num);**

Esta funcion permite el acceso a ciertos apartados del menu de navegacion mediante el parametro 'num', el cual se describe siempre y cuando exista una sesion activa. Si no la hay, alterará los resultados que de estos se puedan obtener.

#### **SEARCH.PHP**

En search.php, se recoge la cadena ingresada y se descompone en un arreglo para poder indexar cada palabra a la url de busqueda: 'https://scholar.google.es/scholar?hl=es&sdt=0'

Despues, con la funcion reservada de php curl(); se busca el html o la pagina que genera el motor de busqueda y la carga dentro de la aplicacion.

Despues, con el documento simple\_html\_dom.php, se hace referencia a la clase simple\_dom\_html() por medio de la variable \$titArticulos que usa la funcion 'load(\$respuesta)' para cargar el html generado. Finalmente, se utiliza la funcion de find('elemento'), por medio del ciclo foreach() para cargar todos hipervinculos de la pagina, y guardar el resultado en una variable llamada \$link. OJO: esta carga todos los hipervinculos (no solo los articulos), por lo que, dentro del ciclo, se seccionan y se filtran solo aquellos hipervinculos que tengan alguna coincidencia con la cadena del motor de

busqueda que ingresó el usuario. Si hay coincidencia (en minúsculas o en mayúsculas), muestra en el documento el artículo deseado. Con el cual se pueden hacer 3 acciones:

**function uRL(variable)**

Esta función se ejecuta al presionar el botón 'Citar' en el artículo, selecciona el valor del atributo href del artículo (que tiene la url del sitio) y se manda al script 'recibe\_url.php' donde se conecta con el archivo meTADAO.py para obtener los metadatos de la página deseada y cargar un archivo con los datos de la cita. El parámetro que se utiliza es para identificar el elemento padre del hipervínculo deseado. Devuelve un mensaje de alert(), indicando si se logró exportar la información a un archivo externo o si falló en la conexión (todos estos mensajes se generan en el archivo de python).

**function buscar\_manual()**

Ejecuta la misma acción que la función buscar\_manual() dentro de index.php

**function real(variable,iduser)**

Se ejecuta con el botón de 'Agregar a Librería', dentro del campo del artículo. Toma 2 variables, que son el numerador de resultados de la búsqueda (para identificar el artículo) y la id del usuario que está activo. Retorna un mensaje de alerta para confirmar que se ejecutó la acción de manera correcta.

NOTA: Esta acción no se puede completar si no hay un usuario activo. Toma dichos datos y selecciona el Nombre del sitio y url del artículo los manda al script 'salva\_Registro.php', y los guarda en la base de datos del usuario.

**function showNota()** Activa un cuadro de texto fijo en la pantalla en el que le permite al usuario activo crear sus propias notas. Al momento de guardar, se usa el botón que guarda la función guardarN();.

**function guardarN()**

Carga la nota y la manda al script 'guardarN.php'. Dentro de este, se indexan otras variables como fecha (guarda la fecha y hora actual en la que se guardó la nota con la función datetime()), título (genera la cadena 'Tit. comentario') y la id del usuario activo para guardarlas en la tabla de notas del usuario en la base de datos. Retorna un mensaje de alerta para confirmar que se ejecutó la acción de manera correcta.

**LOGIN.PHP**

'validarUser(); y validar();' Validan el inicio de sesión del usuario, que los campos no estén vacíos y manda el formulario a un script ('validarUser.php') para corroborar que exista un usuario activo en la BD. Se generan las variables de usuario para poder navegar por la aplicación y se abre el acceso a ciertos apartados que dependen intrínsecamente de la sesión activa.

**REGISTRARSE.PHP**

**saleC();**

Verifica que no haya un usuario en la base de datos con la misma dirección de correo electrónico que se pretende iniciar para el nuevo usuario.

**validar();**

Valida que no haya campos vacíos en el formulario de registro. Si no los hay, envía los datos a 'salvaU.php', el cual ejecuta un comando para guardar los archivos en la BD de usuarios.

**LIBRERIA.PHP**

Muestra las citas y urls guardadas al usuario asociado en el inicio de sesión.

**NOTAS.PHP**

Muestra los comentarios y la fecha de los mismos generados por el usuario activo.

## 6.2. Funciones principales para la exportación.

A continuación, se proporciona una explicación más detallada sobre las funciones principales del código. **Función get-metadata-from-url(url)**

**Descripción Detallada:**

Esta función se especializa en extraer metadatos de artículos académicos a partir de una URL que apunta a una página web. Utiliza la biblioteca requests para realizar la solicitud HTTP y BeautifulSoup para analizar la estructura HTML de la página y extraer información relevante. Detalles de Implementación:

**Solicitud HTTP:** La función utiliza `requests.get(url)` para obtener el contenido HTML de la URL.

**Análisis HTML:** Se emplea BeautifulSoup para analizar el HTML y buscar metaetiquetas específicas que contengan información sobre el artículo, como título, autores, revista, etc.

**Manejo de Excepciones:** La función maneja posibles errores de solicitud HTTP utilizando bloques try y except para garantizar un manejo adecuado de situaciones como errores de conexión o tiempo de espera.

#### **Función `getmetadatafrompdfurl(pdfurl)`**

##### **Descripción Detallada:**

Esta función se encarga de obtener metadatos a partir de una URL que apunta a un documento PDF. Utiliza `requests` para obtener el contenido del PDF y `PyPDF2` para extraer el texto del documento.

##### **Detalles de Implementación:**

Solicitud HTTP para el PDF: Similar a la función anterior, utiliza `requests.get(pdf-url)` para obtener el contenido del PDF. Extracción de Texto del PDF: Hace uso de `PyPDF2` para leer el contenido del PDF y extraer el texto de todas las páginas del documento. Procesamiento Adicional: En la implementación actual, simplemente devuelve el texto completo del PDF como metadato. Se podría mejorar para procesar el texto y extraer información específica según las necesidades.

#### **Función `generate-bib-entry(metadata)`**

##### **Descripción Detallada:**

Esta función toma un diccionario de metadatos y genera una entrada BibTeX en formato de artículo. La entrada BibTeX sigue un formato estandarizado para facilitar su integración en documentos académicos y herramientas de gestión bibliográfica.

##### **Detalles de Implementación:**

Validación de Metadatos: Verifica que se hayan proporcionado metadatos y que la lista de autores no esté vacía. Generación de la Clave BibTeX: Utiliza el apellido del primer autor y el año de publicación para generar una clave única. Generación de la Entrada BibTeX: Concatena los metadatos en el formato BibTeX, incluyendo campos como título, autores, revista, volumen, año, etc. La función `export-to-pdf` utiliza la biblioteca `reportlab` para generar un archivo PDF. La sección de metadatos muestra cada clave y valor del diccionario de metadatos en líneas consecutivas, mientras que la sección de entrada BibTeX muestra cada línea de la entrada BibTeX en líneas consecutivas. Se ha proporcionado un ejemplo de uso al final de la documentación para ilustrar cómo se puede utilizar la función.

#### **Función `main()`**

##### **Descripción Detallada:**

La función principal sirve como punto de entrada para el usuario y coordina el flujo de trabajo. Solicita al usuario que ingrese una URL de un artículo académico o PDF, utiliza las funciones anteriores para obtener metadatos y generar una entrada BibTeX, e imprime y almacena los resultados.

##### **Detalles de Implementación:**

Entrada del Usuario: Utiliza la función `input` para obtener la URL del usuario. Determinación del Tipo de Recurso: Verifica si la URL apunta a un PDF mediante la extensión del archivo. Coordinación de las Funciones Principales: Utiliza las funciones `get-metadata-from-url` y `get-metadata-from-pdf-url` según la naturaleza de la URL para obtener metadatos. Luego, utiliza `generate-bib-entry` para generar la entrada BibTeX. Salida al Usuario y Escritura en Archivo: Imprime los metadatos y la entrada BibTeX en la consola y escribe la entrada BibTeX en un archivo `'referencia.bib'`.

#### **Resumen de las Funciones Principales:**

**Entrada: `get-metadata-from-url`:** URL de la página web del artículo académico.

**`get-metadata-from-pdf-url`:** URL del documento PDF.

##### **Salida:**

`get-metadata-from-url` y `get-metadata-from-pdf-url`: Diccionario de metadatos específicos del tipo de recurso. **`generate-bib-entry`:** Entrada BibTeX en formato estándar.

**`main`:** Impresiones en la consola y escritura en un archivo. Estas funciones trabajan de manera conjunta para proporcionar una solución completa para la gestión de referencias bibliográficas, desde la extracción de metadatos hasta la generación de entradas BibTeX.

## 7. Formato de salida

Esta aplicación permite generar archivos bib, Un archivo ‘.bib’ es un tipo de archivo utilizado para la gestión de referencias bibliográficas en LaTeX, un sistema de composición de textos. Estos archivos se utilizan junto con BibTeX, un programa y formato de archivo asociado con LaTeX, que facilita la cita de fuentes y la elaboración de bibliografías.

### Estructura Básica de un Archivo ‘.bib’

Un archivo ‘.bib’ consiste en una serie de entradas, cada una correspondiente a una referencia bibliográfica. Cada entrada tiene un formato específico y contiene información clave sobre una fuente, como el autor, título, año de publicación, etc. La estructura básica de una entrada en un archivo ‘.bib’ es la siguiente:

*Tipo de Entrada:* Al inicio de cada entrada, se especifica el tipo de documento que se está citando (por ejemplo, ‘@article’ para artículos de revistas, ‘@book’ para libros, ‘@inproceedings’ para artículos de conferencias, etc.).

*Etiqueta de Citación:* Seguido del tipo de entrada, entre llaves “”, se encuentra la etiqueta de citación. Esta es una etiqueta única que utilizarás en tu documento LaTeX para referenciar esa fuente específica.

*Campos:* Dentro de las llaves, se incluyen varios campos que proporcionan detalles sobre la fuente. Estos campos están separados por comas y cada uno tiene un formato ‘clave = valor’. Algunos campos comunes incluyen: - ‘author’: Los nombres de los autores. - ‘title’: El título del trabajo. - ‘year’: El año de publicación. - ‘publisher’: La editorial (para libros). - ‘journal’: El nombre de la revista (para artículos de revistas). - ‘pages’: Número de página o rango de páginas. - ‘doi’: Digital Object Identifier, un identificador único para documentos electrónicos.

### Ejemplo de la estructura un Archivo ‘.bib

```
@bookSmith2023,  
author = John Smith,  
title = Ejemplo de un Libro,  
year = 2023,  
publisher = Editorial XYZ  
@articleDoe2023,  
author = Jane Doe,  
title = Ejemplo de un Artículo,  
journal = Revista de Ejemplos,  
year = 2023,  
volume = 42,  
number = 1,  
pages = 1-10,  
doi = 10.1234/ejemplo.2023  
Uso en Documentos LaTeX
```

Para citar estas referencias en un documento LaTeX, utilizarías la etiqueta de citación correspondiente con comandos como ‘citeSmith2023’. Luego, al compilar tu documento con LaTeX y BibTeX, la bibliografía se generará automáticamente basándose en las citas y el estilo bibliográfico seleccionado.

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