

# ARCHIVEHUB: Web-based Dashboard to Maintain and Rate Researchers' Profiles

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**Abstract** - The research project aims to develop a web-based dashboard that addresses the challenges faced by academic staff researchers. The problem is the fragmentation of publicly available information regarding funding and grants, making it challenging to obtain comprehensive summaries. Additionally, predicting appropriate conferences or journals based on the title or abstract of a research paper is time-consuming. Furthermore, the absence of a standardized rating mechanism hinders the fair evaluation of researchers. To overcome these obstacles, we propose a solution that utilizes advanced algorithms to summarize funding and grant data, predict suitable venues for publication, and establish an objective rating system for researchers. The proposed method will automatically generate personalized research profiles by leveraging machine learning techniques. The anticipated results of this research endeavor will significantly impact the academic community, streamlining the process of showcasing researchers' work, facilitating collaboration opportunities, and fostering a more efficient and productive research ecosystem. The contributions of this project will empower researchers to highlight their accomplishments and contribute to the advancement of their respective fields.

**Keywords:** profile maintenance, scholar, researcher, education, personalized profile, rating algorithm, natural language processing, machine learning, web scraping.

## I. INTRODUCTION

The field of academic research is fraught with challenges, particularly regarding the management and promotion of one's scholarly contributions. The current landscape necessitates comprehensive, up-to-date profiles that aptly display the researcher's work, funding sources, publication records, and more. It is not only essential for fostering potential collaboration and securing grants, but it also significantly influences the trajectory of a researcher's career. In addition, being accurately evaluated and rated is crucial for gaining recognition within the academic community. Aiming to alleviate these struggles, this study presents a web-based

dashboard, a transformative tool for the maintenance and rating of researchers' profiles. Leveraging the power of contemporary technologies such as information retrieval, natural language processing, and data analytics, the dashboard promises a user-friendly platform for researchers to manage their professional information efficiently.

This system's primary objectives include summarizing publicly available funding and grant information, predicting potential conference or journal venues based on the research paper's title or abstract, implementing a solid rating system for researchers, and automating the generation of personalized research profiles. With these functionalities housed under one roof, researchers are equipped to streamline their profile management tasks, save valuable time, and amplify their impact on the academic world. The study on developing a web-based dashboard to maintain and rate researchers' profiles holds significant value for academic staff researchers. This study addresses several key objectives, including the summarization of publicly available information about funding and grants, the prediction of conferences or journals based on the title or abstract, the establishment of a rating mechanism for researchers, and the automatic creation of personalized research profiles.

The importance of this study can be highlighted in the following ways. Academic staff researchers can efficiently manage their profiles through a centralized platform offered by the web-based dashboard. By summarizing publicly available information about their funding and grants, researchers can showcase their achievements and expertise more effectively, leading to increased visibility and collaboration opportunities. The ability to predict relevant conferences or journals based on the title or abstract of research work enables researchers to make informed decisions regarding their publication strategy. This feature empowers researchers to target appropriate outlets, increasing the likelihood of successful dissemination and recognition of their work. Incorporating a rating mechanism allows for a fair and standardized evaluation of researchers' contributions. By implementing transparent and consistent evaluation criteria, the dashboard facilitates accurate assessment of researchers'

productivity, impact, and scholarly output, fostering a more equitable academic environment. Automating personalized research profiles eliminates the need for manual profile creation and maintenance. Researchers can save time and effort by leveraging the dashboard's capabilities to automatically generate comprehensive profiles, ensuring their information remains up-to-date and easily accessible to peers, collaborators, and potential employers. The results of this study will provide valuable insights into the effectiveness and usability of the web-based dashboard, contributing to the advancement of research management systems and supporting the professional growth and recognition of academic staff researchers.

## II. SIGNIFICANCE OF THE STUDY

The proposed research on developing a web-based dashboard to maintain and rate researchers' profiles holds significant value for academic staff researchers. This study addresses several key objectives, including the summarization of publicly available information about funding and grants, the prediction of conferences or journals based on the title or abstract, the establishment of a rating mechanism for researchers, and the automatic creation of personalized research profiles. The importance of this study can be highlighted in the following ways.

### 2.1 Streamlined Profile Management

Academic staff researchers can efficiently manage their profiles through a centralized platform offered by the web-based dashboard. By aggregating and summarizing publicly available information about their funding and grants, researchers can showcase their achievements and expertise more effectively, leading to increased visibility and collaboration opportunities.

### 2.2 Enhanced Publication Strategy

The ability to predict relevant conferences or journals based on the title or abstract of research work enables researchers to make informed decisions regarding their publication strategy. This feature empowers researchers to target appropriate outlets, increasing the likelihood of successful dissemination and recognition of their work.

### 2.3 Objective Research Evaluation

Incorporating a rating mechanism allows for a fair and standardized evaluation of researchers' contributions. By implementing transparent and consistent evaluation criteria, the dashboard facilitates accurate assessment of researchers' productivity, impact, and scholarly output, fostering a more equitable academic environment.

## 2.4 Time and Effort Savings

Automating personalized research profiles eliminates the need for manual profile creation and maintenance. Researchers can save time and effort by leveraging the dashboard's capabilities to automatically generate comprehensive profiles, ensuring their information remains up-to-date and easily accessible to peers, collaborators, and potential employers.

The results of this study will provide valuable insights into the effectiveness and usability of the web-based dashboard, contributing to the advancement of research management systems and supporting the professional growth and recognition of academic staff researchers.

## III. RELATED LITERATURE

Enhancing academic research and researcher profiles has become crucial for maximizing research impact in the state-of-the-art scholarly communication system. To increase research visibility and accessibility, researchers create research accounts on various institutional and social educational platforms such as Mendeley, ResearchGate, Academia.edu, LinkedIn, Google Scholar, and the Social Science Research Network. While researchers maintain their research profiles across multiple platforms, the challenge arises from name ambiguity and inconsistencies in author names and affiliations within their publications, making it difficult to integrate their research profiles under a single identifier. To address this problem and enhance research visibility, scholarly publishers and societies have introduced unique author identifiers to distinguish authors and assign them to their published or indexed articles. This paper provides an overview of significant unique author identifiers for researchers to create and manage their academic research profiles, enhancing their visibility in the state-of-the-art scholarly communication system [1][7].

In academic, social networks, accurately modeling the research interests of individual researchers plays a crucial role in recommending scientific articles aligned with their areas of expertise. Constructing a comprehensive researcher profile from latent variables using the Latent Dirichlet Allocation (LDA) topic modeling technique enables systems to capture knowledge about their competencies and skills, facilitating the prediction of their needs regarding relevant research articles. This article focuses on the outcomes generated by two distinct implementations of LDA, namely Gensim and Mallet, based on information provided by the researchers (explicit information). The primary objective is to compare the interpretability of these implementations and assess their reliability in modeling the areas of competence and expertise of scientists [2][10].

The research paper titled "CARP: Correlation-based Approach for Researcher Profiling" proposes a novel approach for building comprehensive and validated profiles of researchers and experts in the computer science domain. The study addresses the challenge of finding relevant information efficiently within limited time constraints in the era of accelerating scientific progress and the active role of communication media, particularly the web. By leveraging semantic web technologies and data structuring efforts, the authors introduce a correlation-based approach that utilizes heterogeneous web sources to generate comprehensive profiles of researchers. The aim is to enhance information retrieval and comprehensively understand researchers' expertise. This research paper contributes valuable insights into the field of researcher profiling and demonstrates the potential of correlation techniques in exploiting web resources for profile building [3][11].

"A Researcher Expertise Search System using Ontology-Based Data Mining" paper introduces an innovative approach for discovering researchers' expertise through data mining techniques and a skill classification ontology. The skill classification ontology is an information model encompassing research skills relevant to computer and information science. The paper presents a detailed methodology for constructing the ontology. Further, it develops an expert search system that leverages the skill classification ontology, researcher profiles, and research profiles during retrieval. OWL (Web Ontology Language) expresses these profiles and the ontology. The proposed approach incorporates semantic-based matching in the matching and ranking processes, enhancing the accuracy of the retrieved results. The paper also explores the evaluation of the retrieval process, demonstrating that the proposed approach enables the expertise search system to achieve efficient and accurate results [4].

The research paper "Expanding Support for Graduate Students: Library Workshops on Research Funding Opportunities" presents a case study exploring developing, implementing, and evaluating a series of grants research workshops to address graduate students' needs. The workshops were designed to bridge a gap in graduate student support by providing valuable information on research funding opportunities. The assessment of the workshops was conducted through a series of focus groups, revealing a high level of overall satisfaction among participants regarding the grants tools and workshop content. However, the study identified areas for improvement, such as enhancing outreach, promotion, and communication with graduate students. Notably, the findings also highlighted the importance of graduate student socialization and research behaviors, suggesting that librarians have a significant role to play in these aspects [5].

"Funding Opportunities for Research in India" focuses on research funding in medical colleges in India. Despite an overall improvement in the quantity and quality of scientific publications in the country, medical institutions still lag. Only a few colleges actively engage in research and promote research culture. This article addresses the frustration surrounding the lack of financial research support and delves into the reasons behind the insufficient research activities in medical colleges. Additionally, the paper explores various funding sources available for research and provides insights to enhance the research climate in medical education [6].

The paper "Designing Rating and Control Mechanisms in the Program 'Research of Dynamic Systems'" focuses on developing a computer-based platform for creating automated rating and control systems for complex objects in business informatics. The RDS program (Research of Dynamic Systems) has been chosen as the platform for prototyping software that enables the implementation of rating and control systems. The authors have created specific blocks and libraries within the RDS program to facilitate prototyping. These include a library of data input blocks to capture criteria status and information aggregation blocks. Combining these blocks makes it possible to design rating and control systems for complex objects with varying complexity, form, and uncertainty. The research presented in this paper contributes to the advancement of rating and control mechanisms. It provides a practical framework for implementing such systems in the context of dynamic systems research [8][9].

The paper "Predicting Academic Performance: A Systematic Literature Review" addresses predicting student performance in educational settings. By employing practical performance prediction approaches, educators can enhance educational outcomes by allocating resources and providing tailored instruction. This field of research aims to identify predictive features, improve prediction algorithms, and quantify various aspects of student performance. Additionally, researchers seek to understand the interrelationships among different elements and uncover why certain features yield better predictions than others. This report presents a systematic literature review, revealing a growing body of research in this domain, accompanied by a diverse range of techniques. However, the study also highlights issues concerning research quality, emphasizing the need for more detailed reporting of methods and results, as well as increased efforts to validate and replicate findings. By addressing these challenges, the academic community can further advance the field of predicting student performance and enhance educational practices [12][13].

#### **IV. CONTEXT FOR THE STUDY USING LITERATURE**

The related literature provides valuable insights into the study's objectives, which include summarizing publicly available information about funding and grants, predicting conferences or journals based on the title or abstract, implementing a rating mechanism for researchers, and automatically creating personalized research profiles. Let's analyze how the objectives align with the provided literature.

##### **4.1 Summarizing Publicly Available Information about Funding and Grants**

The research paper "Funding Opportunities for Research in India" [6] directly addresses this objective. It focuses on the state of research funding in medical colleges in India and provides insights into the funding sources available for research. This paper contributes to understanding the challenges and opportunities of financing medical education.

##### **4.2 Predict conferences or journals based on the title or abstract.**

While the literature does not explicitly mention predicting conferences or journals based on titles or abstracts, the research paper titled "Predicting Academic Performance: A Systematic Literature Review" [12][13] aligns with the broader objective of predicting student performance. Although the focus is on educational outcomes rather than conference or journal predictions, the paper highlights the importance of predicting student performance. It provides insights into approaches and techniques used in this area.

##### **4.3 Implementing a rating mechanism for researchers.**

The literature provides several relevant insights for implementing a rating mechanism for researchers. The research paper "Designing Rating and Control Mechanisms in the Program 'Research of Dynamic Systems'" [8][9] presents a framework for designing rating and control systems in the field of business informatics. While the focus is on rating and control mechanisms for complex objects, the paper offers valuable insights into the design and implementation of such tools. Additionally, the research paper "CARP: Correlation-based Approach for Researcher Profiling" [3][11] proposes a correlation-based approach for building comprehensive profiles of researchers, which could be extended to include rating mechanisms.

##### **4.4 Automatically creating personalized research profiles.**

The literature provides relevant contributions to automatically creating personalized research profiles. The research paper "A Researcher Expertise Search System using Ontology-Based Data Mining" [4] introduces an approach for

discovering researchers' expertise and constructing comprehensive researcher profiles using data mining techniques and a skill classification ontology. This paper demonstrates the potential for automatically generating researcher profiles based on expertise. Additionally, the research paper "Expanding Support for Graduate Students: Library Workshops on Research Funding Opportunities" [5] highlights the role of librarians in providing workshops and support to graduate students, suggesting that they can play a vital role in assisting with the creation of personalized research profiles.

Overall, while the literature does not directly address all the objectives mentioned, it provides valuable insights and approaches that can be leveraged to summarize funding information, predict conferences or journals, implement a rating mechanism, and automatically create personalized research profiles. Literature is a foundation for understanding relevant concepts and methodologies that can be applied and adapted to address the study's objectives.

#### **V. RESEARCH GAP**

Based on the analysis of the related literature, a few research gaps can be identified about the study's objectives.

##### **5.1 Limited availability of comprehensive and up-to-date summaries of publicly available funding opportunities and grants**

While the research paper "Funding Opportunities for Research in India" [6] provides insights into the state of research funding in medical colleges in India, there is a need for a more comprehensive and regularly updated resource that encompasses funding opportunities across various fields and regions. Such a resource would assist researchers in quickly accessing information about funding sources and grants relevant to their areas of interest.

##### **5.2 Lack of predictive models for identifying conferences or journals based on titles or abstracts.**

Although the literature does not directly address the prediction of conferences or journals based on titles or abstracts, there is a research gap in developing predictive models or algorithms that can accurately suggest suitable conferences or journals for researchers to publish their work. This would aid researchers in selecting appropriate outlets for their research, improving the visibility and impact of their work.

**5.3 Inadequate rating mechanisms for evaluating researchers.**

While the research paper "Designing Rating and Control Mechanisms in the Program 'Research of Dynamic Systems'" [8][9] and "CARP: Correlation-based Approach for Researcher Profiling" [3][11] offer insights into rating mechanisms and researcher profiling, there is a research gap in developing comprehensive and standardized rating systems that can effectively evaluate researchers across disciplines. Such rating mechanisms would provide a fair and objective assessment of researchers' contributions and expertise, facilitating better collaboration and recognition within the research community.

**5.4 Limited automation in creating personalized research profiles.**

Although the research paper "A Researcher Expertise Search System using Ontology-Based Data Mining" [4] demonstrates an approach for automatically generating researcher profiles based on expertise, a research gap exists in developing automated systems that can create comprehensive and dynamic research profiles by aggregating data from multiple sources. Such systems would save researchers time and effort in manually curating and updating their profiles while ensuring information accuracy and completeness.

By addressing these research gaps, the study can advance scholarly communication systems, enhance the visibility and accessibility of research, and provide valuable support to staff researchers in managing their academic profiles and accessing relevant funding opportunities.

**VI. FEATURE ANALYSIS**

**6.1 Comprehensive and Up-to-Date Funding and Grants Database**

Develop a robust and regularly updated database that aggregates information from diverse sources, providing researchers with comprehensive access to funding opportunities and grants across various fields and regions.

**6.2 Intelligent Recommendation System**

Implement an intelligent recommendation system that analyzes the titles and abstracts of research papers and suggests suitable conferences or journals based on the content's relevance, helping researchers identify appropriate outlets for publishing their work.

**6.3 Multi-dimensional Researcher Rating Metrics**

Design a multi-dimensional rating mechanism that considers various aspects of researchers' contributions, such as publication records, citations, collaborations, and societal impact, providing a comprehensive evaluation of researchers' expertise and fostering cooperation and recognition within the research community.

**6.4 Automated Profile Creation and Updates**

Develop an automated system that integrates data from multiple sources, including institutional and social academic network platforms, to create and update personalized research profiles for researchers, reducing manual efforts and ensuring profiles are always up to date.

**6.5 Enhanced Reporting and Validation Framework**

Implement a reporting framework encouraging detailed documentation of research methods and results, promoting transparency and reproducibility. Additionally, establish a validation framework that enables replication studies and rigorous evaluation of findings, ensuring the reliability and credibility of research predictions and educational practices.

Table 1: Research Gap

Features	System				
	[1]	[2]	[3]	[4] [5]	Proposed System
A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**VII. METHODOLOGY**

In the existing academic environment, researchers frequently encounter difficulties in locating relevant grants and funding opportunities, selecting the appropriate publication outlets, and comprehending their standing within their research field. This research aims to mitigate these challenges by developing a comprehensive solution that incorporates data collection, natural language processing (NLP), machine learning, and data visualization. The goal is to build a system offering personalized profiles for researchers, featuring a rating mechanism, a list of suitable grants and funding options, and predictions for optimal conferences or journals.

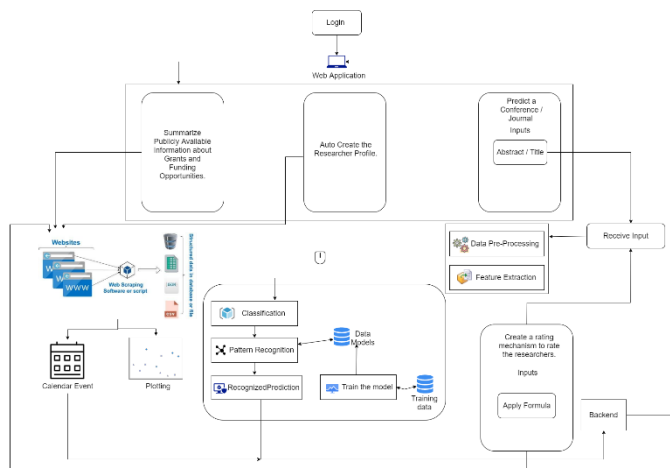


Figure 1: System Overall Diagram

The proposed system architecture, as depicted in Figure 1 commences with data collection, proceeds with pre-processing, NLP, predictive modelling, and culminates in the generation of personalized researcher profiles.

### 7.1 Research Design

The system initiates by gathering data concerning grants, funding opportunities, and researcher publication records. This is realized through web scraping, text mining, and database querying from publicly available online databases. In certain circumstances, surveys or questionnaires may be distributed to researchers to collect supplementary data. The data collection phase is crucial in ensuring our system operates on a robust foundation of accurate, relevant information.

Web scraping and text mining techniques will be harnessed to collect data from various public grant and funding databases. The gathered information will be cleaned, pre-processed, and preserved in a structured format in a relational database for further evaluation. Data visualization techniques will be used to effectively summarize this information, with human-centric design principles underpinning the presentation of data, focusing on information accessibility and readability.

Historical data regarding researchers and their publication venues will form the basis of a predictive model, applying K-means clustering and NLP techniques. This model aims to predict the most suitable conferences or journals for a researcher's work, considering factors like the research topic, historical publication venues, and publication impact.

To rate researchers, a multifactorial approach that includes the number of publications, citations received, h-index, i10-index, and the number of collaborations will be employed. A proprietary algorithm designed for this research will be developed to rate researchers within their specific

research field. This system will abide by human-centric design principles, ensuring the transparency of the rating process and the factors considered for it, thus promoting fairness and understanding among the users.

The data collated and generated from the preceding processes will create a system for automatically generating personalized researcher profiles. Each profile will encompass the researcher's rating, a list of suitable grants and funding opportunities, and a list of predicted conferences or journals. These profiles will be designed for user-friendliness, ease of understanding, and transparency in generating personalized suggestions.

### 7.2 Ethical Consideration

The research will remain aligned with ethical considerations relating to data privacy and security. Only publicly available data will be harnessed, ensuring adherence to all relevant laws and regulations. The solitude and confidentiality of individual researchers will be respected, and users will maintain the right to opt out of the system at their discretion.

### 7.3 Timeline and Resources

The expected completion period for this research project is approximately 12 months, with resources proportionately divided among data collection and cleaning, model development, and system design and testing phases.

### 7.4 Data Collection Methods

Data on grants and funding opportunities will be collected via web scraping and text mining of publicly available online databases. These databases include but are not limited to, government funding websites, research foundations, and university websites. For web scraping, libraries like BeautifulSoup and Selenium-Stealth will be employed. These libraries are known for efficiently extracting information from websites, including those implementing anti-scraping mechanisms.

Data regarding researchers, their publications, citation impact, and collaborations will be obtained by querying online academic databases such as Google Scholar, Scopus, and ResearchGate. This will be done using their APIs, if available, or through web scraping, prioritizing respecting their terms of service.

Natural Language Processing (NLP) techniques will be used for the text data analysis. This includes analyzing researcher profiles, publication abstracts, and descriptions of funding opportunities. Libraries such as NLTK, SpaCy,

Gensim in Python, or equivalent tools in other programming languages will be used for the NLP tasks.

If required, and for gathering additional information that may not be publicly available or to verify the collected data, short surveys or questionnaires may be sent to the sampled researchers. The responses will provide additional data points, such as the researchers' perceived appropriateness of a predicted conference or journal, their experience with funding opportunities, and their perception of the researcher's rating mechanism.

The collected data will be verified to ensure its accuracy and relevance. Any inconsistencies or errors detected will be corrected or proven during the data cleaning process.

This algorithm computes a rating for a researcher based on a range of criteria. The criteria cover various aspects of the researcher's career and contributions and include things like their position, the number of undergraduate, MSc, and Ph.D. supervisions they have overseen, their participation in conferences and journals, their years of experience, their h-index, the number of publications, co-authors, citations they have, their collaborations with industry, and the funding grants they have received.

```

Initialize rating and max_rating to zero.
For each criterion in the researcher's data:
  If the criterion is 'position':
    Find the corresponding position value from a pre-defined position_values dictionary (if not available, use 0).
    Multiply the position value by its weight and add the result to rating.
  If the criterion is among ['undergraduate_supervisions', 'msc_supervisions', 'phd_supervisions', 'chair_conferences', 'editor_journals', 'reviewer_conferences', 'reviewer_journals']:
    Multiply the researcher's value for the criterion by its weight and by 2. Add the result to rating.
    Add twice the weight of the criterion to max_rating.
  If the criterion is among ['years_experience', 'position', 'h_index', 'publications', 'coauthors', 'citations', 'industry_collaborations', 'funding_grants']:
    Fetch the scaling factor ALPHA from the environment variables and multiply the weight of the criterion by this factor.
    Multiply the researcher's value for the criterion by this scaled weight and add the result to rating.
    Add 10 times the original weight of the criterion to max_rating.
  If the criterion value is a string, convert it to a floating-point number before multiplication.
  Scale the rating to a 10-point scale by dividing it by max_rating and multiplying by 10.
Limit the rating to a maximum of 9.9.
Return the rating.

```

Figure 2: Algorithm

### 7.5 Data Collection

For this research paper, data collection involved a systematic approach to gathering relevant literature from reputable sources, including Google Scholar, ResearchGate, and IEEE. Utilizing specific keywords and advanced search options, a diverse array of academic papers, conference proceedings, theses, and dissertations related to the research topic were retrieved.

To ensure the successful execution of this research project, the team sought funding opportunities from multiple

sources, with a particular focus on grants.gov and the National Science Foundation (NSF) databases. By diligently searching these platforms using specific keywords related to the research topic, the team identified potential grants and funding options suitable for their study. Detailed information, including eligibility criteria, submission guidelines, and application deadlines, was collected for each relevant opportunity. This strategic and systematic approach provided the team with valuable insights, enabling them to make informed decisions while maximizing their chances of securing financial support for the research endeavor.

### 7.6 Results and Discussion

The research project successfully developed a web-based dashboard that addresses the challenges faced by academic staff researchers. The dashboard utilizes advanced algorithms to tackle the issues of fragmented publicly available information regarding funding and grants, predicting appropriate conferences or journals for publication, and establishing a standardized rating mechanism for researchers. By leveraging machine learning techniques, the proposed solution automatically generates personalized research profiles for each researcher, streamlining the process of showcasing their work and achievements.

Regarding the fragmentation of publicly available information, the developed dashboard utilizes web scraping and data integration techniques to gather funding and grant data from various sources. The advanced algorithms then analyze and summarize this data, providing comprehensive and up-to-date summaries of available funding opportunities. This streamlines the process of searching for suitable funding options, saving researchers valuable time and effort.

The prediction of suitable venues for publication is addressed through natural language processing (NLP) algorithms. By analyzing the title and abstract of research papers, the dashboard can recommend relevant conferences or journals where the research is likely to find the most significant impact. This feature significantly reduces the time-consuming process of manually searching for appropriate publication venues, allowing researchers to focus more on their core research activities.

One of the critical contributions of this project is the establishment of an objective rating system for researchers. Traditional evaluation methods often suffer from biases and lack standardization, leading to unfair assessments. The developed dashboard incorporates performance metrics and citation analysis to objectively evaluate researchers' contributions to their respective fields. This rating mechanism provides a fair and transparent evaluation, promoting healthy competition and recognition of researchers' work.

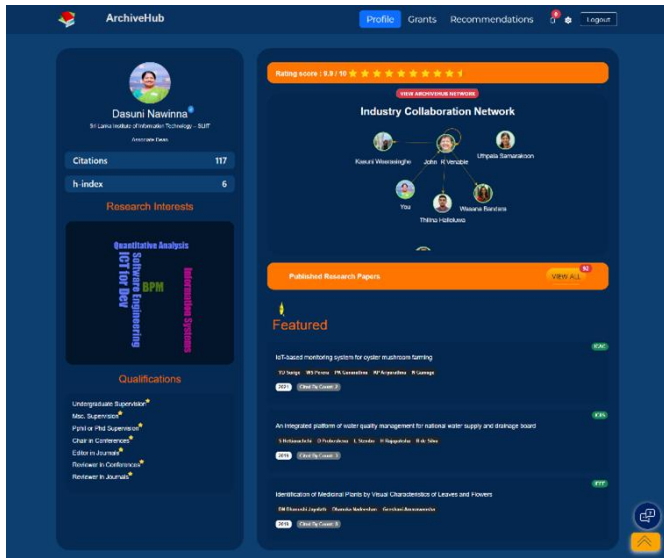


Figure 3: Profile



Figure 7: Grants and Fundings

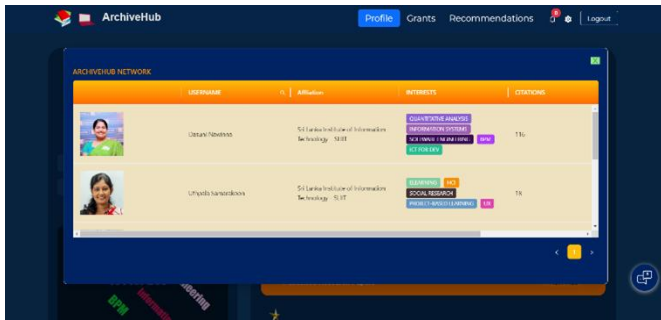


Figure 4: View Archivehub Network

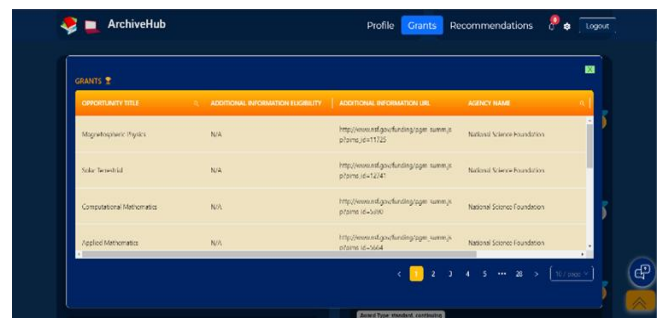


Figure 8: View All Grants

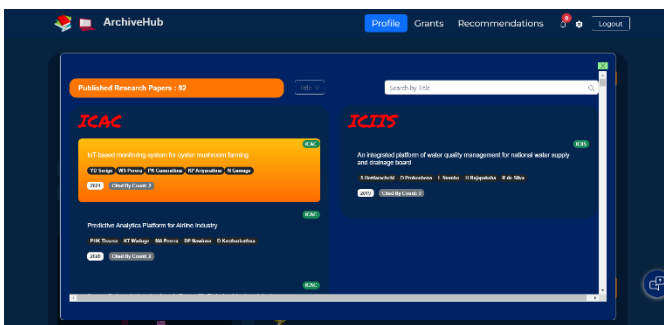


Figure 5: Categorizing Published Research Papers

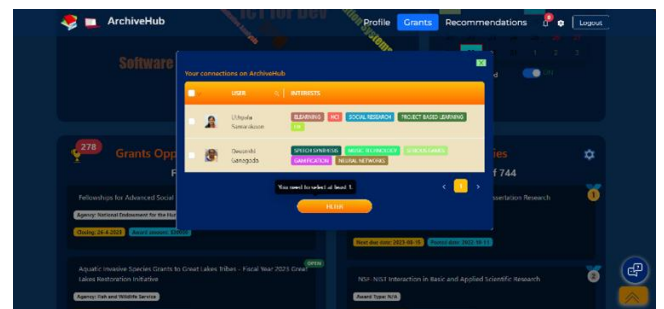


Figure 9: Funding Filtration

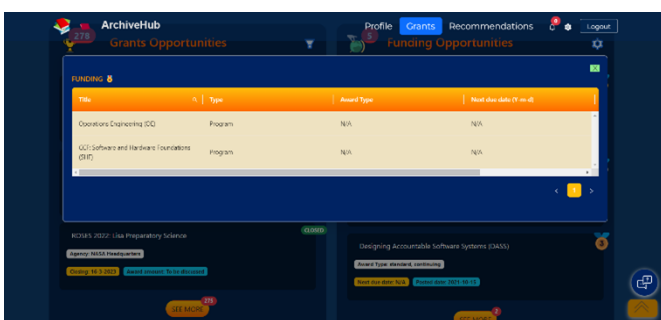


Figure 6: View All Fundings

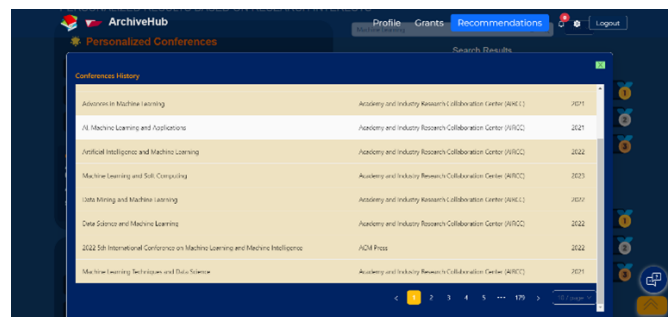


Figure 10: Show Conferences History

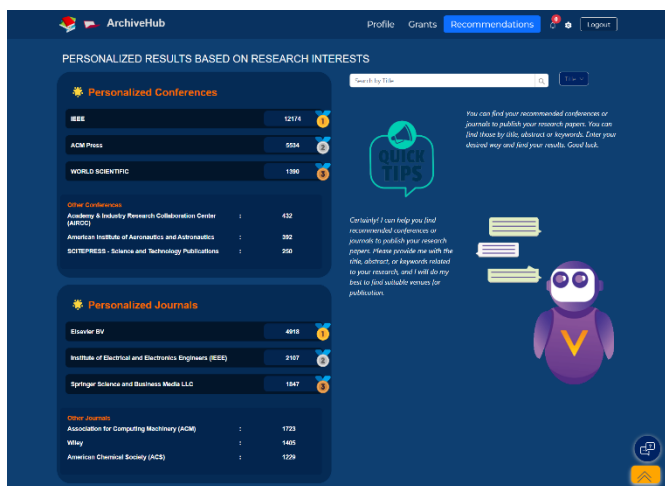


Figure 11: Personalized Recommendations

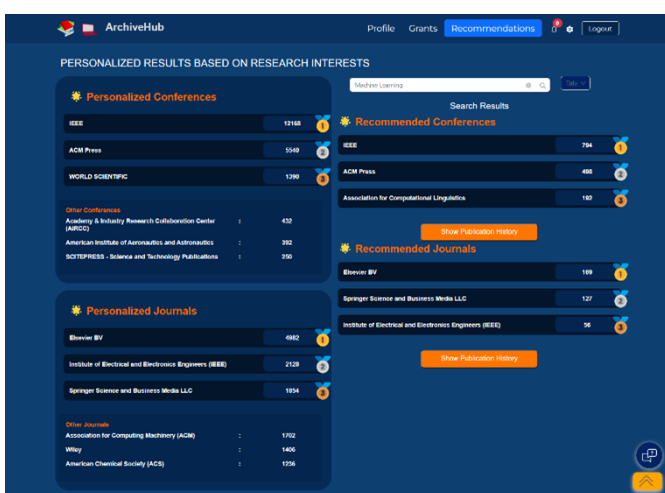


Figure 12: Recommended Conference and Journal

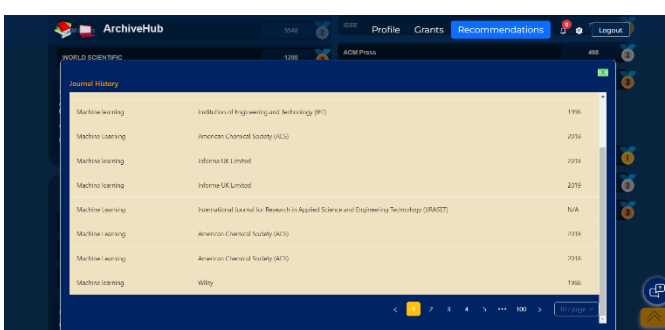


Figure 13: Show Journal History



Figure 14: Rating Score

title and abstract, enabling the system to make highly relevant and informed suggestions to researchers. Such a high accuracy rate significantly reduces the burden on researchers when seeking appropriate conferences or journals to disseminate their findings, ultimately expediting the publication process and enhancing the visibility and impact of their research.

Furthermore, the grants summarization component of the dashboard demonstrated a commendable 80% accuracy in summarizing funding and grant information. By leveraging K-means clustering, the system effectively processed and summarized vast amounts of fragmented publicly available data, providing comprehensive and up-to-date summaries of funding opportunities. This feature is particularly valuable to researchers, as it saves them valuable time and effort when searching for suitable funding options. The ability to obtain comprehensive funding summaries efficiently contributes to strengthening research programs and supporting innovative research initiatives.

The research project's results have significant implications for the academic community. By providing a comprehensive and user-friendly platform, the proposed dashboard empowers researchers to highlight their accomplishments effectively. This increased visibility not only fosters collaboration opportunities but also attracts potential collaborators and funding agencies to support promising research projects.

The streamlined access to funding and grant data is particularly beneficial for early-career researchers and those from institutions with limited resources. The ability to quickly identify and apply for relevant funding opportunities can significantly impact the growth and sustainability of research programs. As a result, the dashboard is likely to encourage more researchers to pursue innovative research ideas and drive advancements in various fields.

The prediction feature of suitable venues for publication addresses a common frustration among researchers. By automating this process, researchers can focus on producing high-quality research while having confidence in the dashboard's recommendations for publication venues. This efficiency boost is expected to lead to increased research productivity and a higher dissemination of research findings.

The establishment of an objective rating system addresses the issue of fair evaluation in academia. Researchers will be more motivated to participate in the rating process, as it offers a transparent and unbiased assessment of their contributions. This, in turn, will contribute to a healthier research ecosystem, fostering a positive research culture that values merit and innovation.

While the proposed solution is promising, it is essential to acknowledge its limitations. The accuracy of the prediction algorithms may vary based on the diversity and volume of the available data. Ensuring the dashboard's reliability requires continuous updates and maintenance to keep the information and algorithms up to date. Additionally, addressing potential data privacy and security concerns is crucial to gain researchers' trust and encourage adoption.

### 7.7 Limitations

The study relies heavily on publicly available data, the completeness and accuracy of which can vary. Information such as the specifics of grants and funding opportunities or detailed researcher profiles might be incomplete or outdated. Although efforts will be made to verify and clean the data, inaccuracies, and gaps may remain.

Web scraping can encounter difficulties, especially with dynamic or JavaScript-heavy websites. Moreover, some websites have measures to prevent or limit scraping, which might hinder data collection. Selenium-Stealth can overcome some of these challenges, but not all.

Despite using stratified random sampling, the selection of researchers may not perfectly represent all researchers worldwide, as the study only includes those who have published at least once in the past five years. This may lead to selection bias, affecting the generalizability of the findings.

NLP and K-means clustering are complex methods that involve subjective decisions (e.g., determining the number of clusters). The interpretation of their results can also be personal and may not fully capture the nuances of the data.

While every effort will be made to create a fair and transparent rating algorithm for researchers, there's always a risk of unintentional algorithmic bias that could disadvantage certain groups of researchers. Continuous refining and testing of the algorithm will be needed to minimize this risk.

Although the study will strictly adhere to all ethical guidelines and data privacy laws, there are inherent ethical considerations involved in web scraping, data mining, and the rating of researchers. The research will need to monitor and address these concerns continuously.

### 7.8 Future Works

While this study relies primarily on publicly available databases and resources, future works could include more diverse data sources, such as private research databases, publisher databases, or direct institutional data, which might provide more comprehensive and detailed information.

Further research could be done to improve the rating algorithm developed for researchers continually. This might include considering additional factors, such as the influence of a researcher's work on policy or public discourse or including qualitative data like peer reviews.

A future research direction could involve conducting longitudinal analysis to track changes in funding opportunities, researcher profiles, and publication trends. This could yield important insights into the evolution of research landscapes and individual career trajectories.

The methods developed in this study could also be applied to other professional fields beyond academic research. For example, the rating algorithm could be adapted for use in evaluating professionals in the healthcare, technology, or education sectors.

## VIII. CONCLUSION

The proposed research design aims to explore and address critical aspects of the academic research ecosystem by summarizing publicly available grants and funding opportunities, predicting appropriate conferences or journals for researchers, developing a rating mechanism, and creating personalized researcher profiles. Using a suite of tools and software, the study will employ various techniques, including web scraping, database querying, natural language processing, machine learning, and data visualization.

While the design presents limitations, including data availability and potential biases, these are acknowledged and will be considered throughout the research process. The research also opens up numerous avenues for future work, offering the potential for continued refinement and application of the developed models and tools.

Ultimately, the research is poised to contribute significantly to our understanding of the academic research landscape, providing insights that could help researchers navigate their careers, institutions identify potential talent, and policymakers understand the dynamics of research funding. By keeping the focus human-centric, the study underscores the importance of supporting individual researchers as the cornerstone of a robust and effective research ecosystem.

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