



ResearchGate Profiles of Academics: An Altmetric Analysis of Engineering Faculty Members

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Abstract

This study examines academics' research engagement and performance at Visvesvaraya Technological University (VTU), Belgaum, Karnataka, through their ResearchGate profiles. The objectives were to evaluate profile creation, research contributions, publication categorization, and full-text availability, and to identify the most productive departments and faculty members. Data were collected from 143 profiles, including metrics like publications, citations, h-index, reads, profile views, RI score, followers, and following. The study reveals that only 38.02% of VTU faculty have ResearchGate profiles, with Aerospace Engineering leading at 36.25%. Male faculty participation is higher (47.62%) than females (30.77%). Civil Engineering has the highest reads (229,541), recommendations (155), citations (751), and h-index (33), while Computer Science Engineering is the most productive department with an RI score of 2339.4. These findings offer valuable insights into research engagement and collaboration opportunities within the academic community.

Keywords: Academic Social Networking Sites, Altmetric Analysis, ResearchGate, Visvesvaraya Technological University (VTU)

1. Introduction

In the digital age, the academic communication and dissemination landscape has undergone a significant transformation. Traditional metrics of academic impact, such as citation counts and journal impact factors, are increasingly being complemented by alternative metrics (altmetrics) that capture the broader impact and engagement of research in the digital sphere. Academic networking sites have revolutionized how academic researchers communicate, cooperate, and share their research worldwide. These platforms function as digital ecosystems where

scholars from many fields come together to exchange information, participate in intellectual conversations, and increase their presence within the academic community. Among the various platforms facilitating this shift, ResearchGate has emerged as one of the leading social networking platforms for scholars, facilitating the dissemination of research and fostering collaboration among academics (Börner, Maru, & Goldstone, 2016). With its unique features that allow researchers to share publications, track citations, and engage with a global community, ResearchGate plays a pivotal role in enhancing the



visibility and impact of academic work (Fang & Wang, 2018). ResearchGate provides a platform where researchers can share their publications, follow the work of colleagues, engage in discussions, and monitor the impact of their research through various metrics. These metrics include the Research Impact Score, publication views, downloads, and citations, which collectively offer a multifaceted view of a researcher's academic influence (ResearchGate, 2021). ResearchGate, with its global user base, enables effortless collaboration, provides access to an extensive collection of research papers, and offers real-time metrics to measure research impact, including reads, recommendations, citations, and h-index.

This study aims to conduct an altmetric analysis of the ResearchGate profiles of faculty members at Visvesvaraya Technological University (VTU), Karnataka by focusing on various metrics such as publication counts, citation indices, and engagement levels. VTU was established in 1998 and is among India's largest technological institutions, boasting a 24-year legacy of excellence in engineering and technical education, research, and innovation (<https://vtu.ac.in/>). The significance of this research lies in understanding how engineering faculty utilize ResearchGate to enhance their academic presence and influence. Altmetrics, which provide alternative measures of research impact beyond traditional citation metrics, offer valuable insights into the reach and engagement of scholarly work in the digital age (Priem et al., 2010). By analyzing the profiles of engineering faculty, this study seeks to identify trends in academic networking, the effectiveness of ResearchGate as a tool for scholarly communication, and the correlation between online engagement and traditional measures of academic success (Thelwall et al., 2013). Moreover, this research will contribute to the growing body of literature on altmetrics by providing a focused examination of engineering academics.

2. Review of Literature

A literature review is critical in academic

research as it provides a comprehensive overview of existing knowledge and highlights the significance of the study within a broader scholarly context.

Naderbeigi and Isfandyari-Moghaddam (2018) analyzed the ResearchGate profiles of the Sharif University of Technology faculty and found a stronger correlation between the RG h-index and the Web of Science h-index. A study by Rahmani, Chakoli, and Asnafi (2018) examined engineering researchers' expectations from ResearchGate. The result showed that had the highest membership on ResearchGate. Vinay, Sampath Kumar, and Shiva Kumara (2020) observed that 61.17% of science faculty in Karnataka had ResearchGate profiles, with the University of Mysore leading in citations and RG Score. Clavier et al. (2021) explored the impact of social networks on academic output among anesthesia researchers, finding those with active Twitter and ResearchGate accounts had more publications and higher h-indices. Singh, Srichandan, and Lathabai (2022) compared bibliometric data between ResearchGate and Google Scholar, revealing significant differences in publication and citation counts, with Google Scholar generally recording higher metrics.

Sulakshana, Sampath Kumar, and Basavaraja (2022) examined ResearchGate profiles at Kuvempu University, noting significant reads, citations, and h-indices. Knudson (2023) found a correlation between total citations, and h-index, suggesting it does not provide unique influence insights beyond traditional citation metrics. A study by Sulakshana and Sampath Kumar (2023) on the University of Mysore faculty found substantial research outputs and impact. Panda and Kaur (2023) highlighted the importance of academic social networking sites like ResearchGate for increasing research visibility, with Sujit K Bhattacharya and S G Deshmukh leading in citations, publications, and RG Scores.

A recent study by Desai, Mehta, and Rana (2024) analyzed the influence of ResearchGate using

Social Network Analysis, focused on followers and followings. The results were compared with RG Score and Total Research Interest (TRI) to determine the most effective metric. Kumar and Buragohain (2024) examined the correlation of ResearchGate metrics among science faculty members in North-East India's central universities using Altmetrics approaches. The findings of the study highlighted the lack of awareness and engagement on ResearchGate and suggested the need for self-improvement and future development in these disciplines. Despite the extensive literature, no in-depth studies have been conducted on the chosen research area, justifying the need for this study on the ResearchGate profiles of Visvesvaraya Technological University faculty.

3. Objectives of the Study

The objectives of the study are as follows.

- To identify the number of faculty members who created RG profiles.
- To understand the research contributions of faculty members, as reflected in their respective RG profiles.
- To identify the number of full-text publications uploaded in the ResearchGate profile.
- To identify the most productive university, departments, and faculty members based on RI scores.

4. Research Methodology

In the preliminary research stage, data on the names and designations of VTU faculty (143 faculty members) were systematically retrieved from the university's official website (<https://vtu.ac.in/>). Each faculty names were entered into ResearchGate, and those with profiles were categorized by academic title and department. ResearchGate metrics collected included the number of research articles, conference papers, full-text uploads, H-Index, total citations, followers, following, participation in Q&A, and Research Interest (RI) Score. These parameters were systematically analyzed to assess the distribution and research involvement of faculty across departments, focusing on criteria like RI Score, H-Index, and research output.

5. Data Analysis and Interpretation

The research focused exclusively on ResearchGate, analyzing altimetric and bibliometric measures among faculty at Visvesvaraya Technological University (VTU), Belagavi, Karnataka. The study included only Professors, Associate Professors, and Assistant Professors with ResearchGate accounts. Data quality depended on the accuracy of the information provided in RG profiles, with any modifications made after data collection not considered.

Table 1: The number of faculty members who created the ResearchGate Profile by department.

Departments	Total no of faculty members	No faculty members who created a profile	%
Aerospace Engineering	47	29	36.25
Applied Science	10	7	8.75
Civil Engineering	19	14	17.5
Computer Science Engineering	4	1	1.25
Electronics And Communications Engineering	50	22	27.5
Management Studies	3	1	1.25
Mechanical Engineering	10	6	7.5
Total	143	80	100



Table 1 indicates the number of faculty members who created ResearchGate profiles. Among these, Aerospace Engineering leads, with 36.25% of its faculty members having created profiles, showcasing a strong interest in research visibility and collaboration. Following closely behind, Electronics and Communications Engineering and Civil Engineering stand out, with 27.5% and 17.5% of their faculty members creating profiles. However, Computer Science Engineering and Management Studies show lower levels of engagement, with only 1.25% each.

Table 2. ResearchGate Profile created by designation and gender.

Designation	Total number of RG profile creators			
	Male	%	Female	%
Professor (n=21)	10	47.62	04	19.05
Associate Professor (n=26)	08	30.77	2	7.69
Assistant Professor (n=96)	37	38.54	19	19.79
Total (N=143)	55	116.93	25	46.53

Table 2 outlines the creation of ResearchGate (RG) profiles based on designation and gender. Among professors, 47.62% of males and 19.05% of females have profiles. For associate professors, 30.77% of males and only 7.69% of females are profile creators. Among assistant professors, 38.54% of males and 19.79% of females have RG profiles. Out of the total faculty surveyed (N=143), 116.93% of males and 46.53% of females have created profiles on ResearchGate.

Table 3. Faculty members uploaded research items to the RG profile.

Forms	Total Publications	Percentage
Journal Articles	517	64.79
Chapters	55	6.89
Conference Papers	180	22.56
Research	08	1.00
Preprint	07	0.88
Book	07	0.88
Data	05	0.63
Thesis	04	0.50
Presentation	01	0.13
Experiment Findings	14	1.75
Total	798	100.00

The distribution of research items uploaded by faculty members at VTU on their ResearchGate profiles is presented in Table 3. Journal articles make up the majority, with 64.79%, highlighting a strong emphasis on formal, peer-reviewed publications and following conference papers at 22.56%, indicating active engagement in academic conferences and knowledge dissemination. Other forms such as chapters, research, preprints, books, data, theses, and experiment findings collectively contribute smaller percentages.

Table 4: Total number of full text uploaded by the faculty members.

Name of the department	Total no. of faculty members created RG profile	Total no full text uploaded
Computer science engineering	329	113
Civil Engineering	201	153
Mechanical Engineering	101	53
Applied Science	80	12
Management Studies	62	39
Electronics and Communications Engineering	20	07
Aerospace Engineering	5	01
Total	798	378

Table 4 presents data on the total number of full-text uploads by faculty members across different departments on ResearchGate. Among the departments listed, Computer Science Engineering has the highest number of faculty members (329) with ResearchGate profiles, of which 113 have uploaded full-text documents. Civil Engineering follows closely with 201 profile creators, of which 153 have uploaded full-text documents. Applied Science has 80 profile creators, and only 12 have uploaded full-text documents; Aerospace Engineering has a small number of profile creators at 5, with one having uploaded full-text documents.

Table 5: Number of reads, recommendations, citations, and h-index received by faculty members

Disciplines	Reads	Recommendations	Citations	h-index
Civil Engineering	229541	155	751	33
Mechanical Engineering	106142	120	478	33
Computer science engineering	82258	133	3659	80
Management Studies	14144	07	93	14
Applied Science	5590	35	623	14
Electronics and Communications Engineering	1411	0	47	6
Aerospace Engineering	1011	01	99	3
Total	440097	451	5750	183

Table 5 indicates data on the research impact metrics. Among the disciplines, Civil Engineering stands out with the highest number of reads (2, 29,541), recommendations (155), citations (751), and h-index (33), indicating significant research visibility and impact within the academic community. Mechanical Engineering follows closely with substantial metrics across all categories, including 1,06,142 reads, 120 recommendations, 478 citations, and an h-index of 33. Computer Science Engineering also demonstrates notable research impact, particularly with 82,258 reads, 3659 citations, and an impressive h-index of 80, showcasing the influential contributions of faculty members in this discipline.

The study found a statistically significant positive correlation ($r = 0.969$, $p = 0.001$) between the number of publications uploaded by faculty members to ResearchGate and the number of reads. Therefore, the null hypothesis is rejected, and the accepted alternative hypothesis (H1) is accepted. The result indicates that there is a weak positive correlation ($r = 0.256$) between the number of reads of publications and the



number of citations. The high p -value (0.579) indicates this correlation is not statistically significant ($p > 0.05$). Hence, accept the null hypothesis and reject the alternative hypothesis (H2).

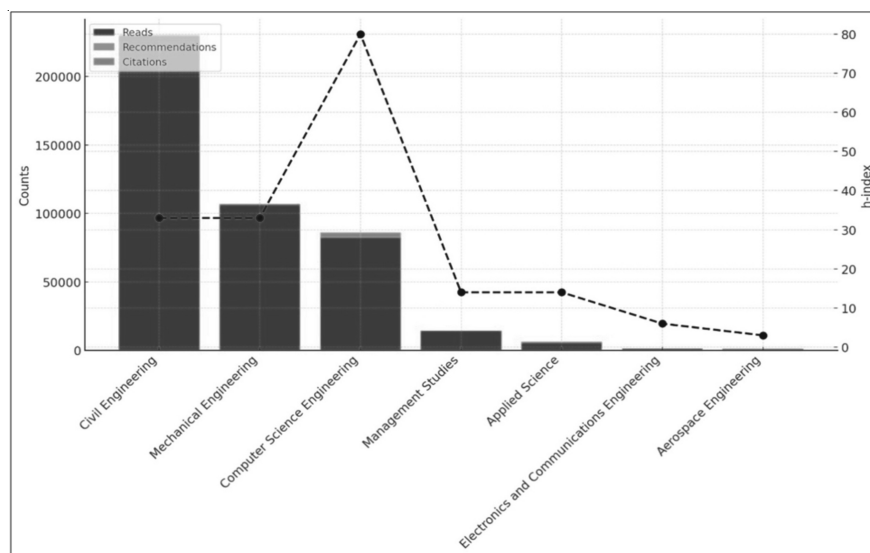


Figure 1: Number of reads, recommendations, citations, and h-index received by faculty members by subject

Table 6: Most productive departments based on RI Score by the faculty members

Name of the department	Total no of Publication Uploaded	RI Score	Rank
Computer science engineering	329	2339.4	1
Civil Engineering	201	1613.3	2
Mechanical Engineering	101	610.1	3
Applied Science	80	341.2	4
Management Studies	62	147.9	5
Aerospace Engineering	5	58.1	6
Electronics and Communications Engineering	20	34.4	7
Total	798	5144.4	

Table 6 shows that Computer Science Engineering is topping the list, with 329 publications uploaded and an impressive RI Score of 2339.4, securing the first rank. Following closely behind is Civil Engineering, with 201 publications and an RI Score of 1613.3, which secured the second position. Aerospace Engineering and Electronics and Communications Engineering complete the list, with lower RI Scores of 58.1 and 34.4, respectively. The study found a weak positive correlation ($r = 0.120$) between the number of publications uploaded to ResearchGate and the number of citations. However, the correlation is not statistically significant ($p = 0.798$) because the accepted value is more than 0.05. Therefore, the null hypothesis is accepted, and rejected the alternative hypothesis (H3) is rejected.

Table 7: Ranking of top ten faculty members based on the RI score

Rank	Name of the Faculty member	Department	RI Score
1.	Goudar R. H	Computer Science Engineering	1057
2.	Keerthi Gowda B S	Civil Engineering	890.2
3.	Mahantesh N. Birje	Computer Science Engineering	483
4.	Prasanna D Shivaramu	Applied Science	341.2
5.	Harish B.G	Computer Science Engineering	306.2
6.	Ashwin.C.Gowda	Mechanical Engineering	273.7
7.	Chandrashekarayya G. Hiremath	Civil Engineering	204.4
8.	Anand V. Shivapur	Civil Engineering	198.9
9.	Shanmukhappa A Angadi	Computer Science Engineering	196.7
10.	Maneeth. P. D	Civil Engineering	117.3

The ranking of the top ten faculty members is based on their Research Impact (RI) scores, which are presented in Table 7. It can be seen from the table that R. H. Goudar from Computer Science Engineering secured the top position with an impressive RI score of 1057, followed by Keerthi Gowda B S from Civil Engineering with a score of 890.2. Notably, Computer Science Engineering dominates the list, with three faculty members among the top ten, showcasing their significant research impact within the department.

Table 8: H-Index and H-index excluding self-citations.

Name of the Department	H-Index	H-Index excluding self-citations
Aerospace Engineering	03	03
Applied Science	14	14
Civil Engineering	33	31
Computer Science Engineering	80	75
Electronics And Communications Engineering	06	06
Management Studies	14	13
Mechanical Engineering	33	30

Table 8 indicates that Computer Science Engineering has the highest H-Index of 80, which reduces slightly to 75 when self-citations are excluded. It indicates a significant and influential body of research output from the department. Civil Engineering follows closely with an H-Index of 33, reducing slightly to 31 when self-citations are excluded, showcasing a strong research presence. Mechanical Engineering also demonstrates a notable H-Index of 33, which decreases to 30, excluding self-citations.

The t-test result indicates a moderate difference ($t = 2.185$) between the H-Index and the H-Index, excluding the self-citations of faculty members. However, the difference is not statistically significant because the p-value of 0.072 is greater than the conventional alpha level of 0.05. Therefore, we accepted the null hypothesis and rejected the alternative hypothesis (H_4).

**Table 9: Followers and following of faculty members.**

Discipline	No of the faculty members who created the RG profile	No of followers	No. of Following
Aerospace Engineering	29	39	05
Applied Science	7	99	125
Civil Engineering	14	221	335
Computer Science Engineering	1	532	515
Electronics And Communications Engineering	22	69	62
Management Studies	1	319	226
Mechanical Engineering	6	347	244
Total	80	1626	1512

Table 9 shows the followers and following counts of faculty members who have created profiles on ResearchGate (RG) across various disciplines. Civil Engineering emerges with the highest number of faculty members, garnering a substantial following of 221 individuals while following 335 others. Computer Science Engineering, one faculty member with a profile, boasts the most prominent follower count at 532 while following 515 others. Meanwhile, Aerospace Engineering and Mechanical Engineering demonstrate lower follower counts, with 39 and 347 followers, respectively.

6. Discussion

The study reveals that the Department of Aerospace Engineering leads with the highest percentage of faculty members with ResearchGate profiles (36.25%). In contrast, Computer Science Engineering and Management Studies have the lowest participation at just 1.25% each. This result supports the study conducted by Kumar and Buragohain (2024). Gender disparities are also evident, with male faculty members showing higher participation rates in profile creation than their female counterparts. This result corroborates the study conducted by Sulakshana and Sampath Kumar (2022). Specifically, 47.62% of male professors have profiles compared to 19.05% of female professors, with similar trends observed among associate and assistant professors. These findings underscore the importance of promoting equitable involvement of women in digital scholarly forums. The study also highlights the focus on journal articles and conference papers as primary research outputs, with Civil Engineering achieving the highest reads (229,541), recommendations (155), citations (751), and h-

index (33). The Department of Computer Science Engineering is identified as the most productive based on its Research Impact (RI) Score of 2339.4, followed by Civil Engineering (1613.3) and Mechanical Engineering (610.1), reflecting high research quality and productivity.

7. Conclusion

The findings offer insights into how VTU faculty connect with ResearchGate, underscoring the need to enhance visibility, foster collaboration, and promote gender equality in academia. Overall, the study provides valuable intuitions into the online scholarly engagement of academics. It emphasizes the need for focused strategies to improve online presence, equitable participation, and research excellence, contributing to the advancement of scholarly engagement and knowledge sharing within the academic community.

8. Recommendations

- Targeted awareness campaigns and training sessions need to be conducted to encourage

greater participation in ResearchGate.

- Institutions need to implement strategies to promote equitable involvement, such as mentorship programs and incentives for online scholarly engagement.
- Encouraging faculty members to upload full-text versions of their research can enhance visibility, citations, and engagement.
- Incorporating the altmetric indicators such as reads, recommendations, and social media engagement in faculty assessments can provide a more comprehensive measure of research impact.
- To streamline research tracking and visibility, VTU should explore institutional integrating with ResearchGate, allowing faculty profiles to be linked with university repositories.

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