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Exhaustive Survey of Rickrolling in Academic Literature

Abstract: Rickrolling is an Internet cultural phenomenon born in the mid 2000s. Mostly confined to Internet fora, it has spread to other channels and media. In this paper, we hypothesize that rickrolling has reached the formal academic world. We design and conduct a systematic experiment to survey rickrolling in the academic literature. As of March 2022, there are 23 academic documents intentionally rickrolling the reader. Rickrolling happens in footnotes, code listings, references. We believe that rickrolling in academia proves inspiration and facetiousness, which is healthy for good science. This original research suggests areas of improvement for academic search engines and calls for more investigations about academic pranks and humor.

1 Introduction

“It looks like there aren’t many great matches for your search”, Google Search Message

Rickrolling consists of hiding facetious links on the Internet pointing to a specific Youtube video: the video clip of “Never Gonna Give You Up” by singer Rick Astley. The interested reader can watch the preparatory material at <https://youtu.be/dQw4w9WgXcQ>.

Rickrolling is a massive cultural phenomenon. It has appeared on the Internet in the mid 2000s reaching all countries with an exponential growth. Rickrolling has contributed to the staggering number of views of Rick Astley’s Youtube videos, 1.17 billion at the time of writing.

In this survey, we address an open research question: has rickrolling rippled beyond Internet chatting platforms? In particular, we hypothesize that rickrolling reached some formal circles, including the academic world of peer reviewed articles,

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formally edited books and seriously examined theses. To study this important question, we design and conduct a systematic experiment to survey rickrolling in the academic literature (section 2).

Our results are clearcut: as of March 11 2022, there are 34 academic documents with a mention to Rick Astley’s video. In this paper, we exhaustively study them, one by one, to identify the intent and form of the rickrolling (section 3).

We find that: 1) rickrolling is present in the academic literature, with 23 academic documents intentionally rickrolling the reader; 2) rickrolling is mostly done in Master’s and PhD thesis; 3) rickrolling is performed in majority in the field of information technology, for reasons we speculate about (section 3). Our study also uncovers some essential challenges for engineering proper academic search engine engines (section 4).

2 Methodology

The survey is performed per the state of the art of systematic and snowballing literature reviews. Next, we document our experimental methodology.

2.1 Research Questions

Our survey is articulated around 4 research questions

- RQ1. How many unique academic publications refer to the video clip of Rick Astley’s song “Never Gonna Give You Up”?
- RQ2. How many of these academic publications refer to Rick Astley’s video clip with the intention of rickrolling their readers?
- RQ3. What is the nature of the academic publications that rickroll?
- RQ4. How is the rickroll integrated into the publication?

2.2 Data Collection

The systematic methodology that we rigorously followed is structured in 2 steps.

First, we identify the canonical rickroll url. For this, we enter one single query in Youtube’s search engine: “rick astley never gonna give you up” and collect the most viewed URL, which is <https://youtu.be/dQw4w9WgXcQ>.

Second, we make one single query in Google Scholar to query all the documents referenced by the academic search engine and that contain the term “dQw4w9WgXcQ”: scholar.google.com/?q=dQw4w9WgXcQ. This query has been done

on Friday 11 March 2022, at 15h02, from a Swedish IP, in Konstfack, Stockholm. The replication package is available on Github at [replication-package-exhaustive-systematic-review-rickrolling](#). For the sake of reproducibility, we have collected the pdf of each document.

Ref.	Title and Comment	Type	Year
[1]	Multi-label Emotion Classification of Tweets Using Machine Learning Note: rickrolling; part of a made-up tweet in a table.	Article	2022
[2]	Practical Bot Development ¹ Note: rickrolling; part of a made up JSON code listing.	Book	2018
[3]	Improving Patch Quality by Enhancing Key Components of Automatic Program Repair Note: rickrolling; as a foonote in introduction.	PhD	2021
[4]	Harvesting Production GraphQL Queries to Detect Schema Faults Note: rickrolling; as part of a made-up JSON code listing.	Article	2022
[5]	Audience Feedback Final Report Note: rickrolling; in a student report, 3 rickrolls, once as footnote and twice in the technical appendix.	Report	2021
[6]	Data Science at the Command Line Note: rickrolling; as part of a command line example, with a bitly URL specifically created https://bit.ly/2XBxvwK	Book	2021
[7]	Never gonna dig you up! Modelling the economic impacts of a moratorium on new coal mines Note: rickrolling; in footnote, with a tribute title.	Report	2016
[8]	Leet Noobs: Expertise and Collaboration in a “World of Warcraft” Player Group as Distributed Sociomaterial Practice Note: legit.	PhD	2010
[9]	Lifecycle of viral YouTube videos Note: legit.	MSc	2014
[10]	CSS Mastery ¹ Note: rickrolling; as part of a HTML code listing.	Book	2016
[11]	Good Internet Would be Pretty Cool: A Policy Proposal to Expand Internet Access Note: rickrolling; reading “For a video presentation of this paper, please visit this link”	BSc	2020

[12]	Mapping the current state of SSL/TLS Note: rickrolling; as part of a data example.	BSc	2017
[13]	Digital platform for psychological assessment supported by sensors and efficiency algorithms Note: rickrolling, taken as an example URL.	MSc	2020
[14]	Analyzing the use of quick response codes in the wild Note: rickrolling and legit; appears twice, as a QR code in the intro (rickroll), as an explanation in the result section (legit)	Article	2015
[15]	Mangarizer: Aplicación Android para crear manga a partir de un archivo de vídeo Note: legit.	MSc	2016
[16]	Enhancing# TdF2017: Cross-media controversies and forensic fandom during live sports events Note: rickrolling; as an example URL, in footnote.	Article	2021
[17]	Techniques for detecting compromised IoT devices Note: : rickrolling, hidden as fake data in appendix.	MSc	2017
[18]	Hard Drive Heritage: Digital Cultural Property in the Law of Armed Conflict Note: legit.	Article	2021
[19]	Towards an architecture for tag-based predictive placement in distributed storage systems Note: legit.	PhD	2017
[20]	Daljinsko upravljanje i nadzor pneumatskog manipulatora Note: rickrolling, fake reference as last reference.	MSc	2021
[21]	Exhaust gas recirculation on twin shaft gas turbines Note: : rickrolling; in a fake reference.	MSc	2015
[22]	Grounded Visual Analytics: A New Approach to Discovering Phenomena in Data at Scale Note: rickrolling; as part of an example URL in a PhD thesis.	PhD	2019
[23]	Egzystencjalna teoria umysłu. Konstrukcja narzędzia pomiarowego Note: rickrolling; fake reference.	MSc	2021
[24]	Música para la prevención del acoso escolar (ciberbullying) en educación secundaria Note: legit.	MSc	2021

[25]	One Does Not Simply Preserve Internet Memes: Preserving Internet Memes Via Participatory Community-Based Approaches Note: legit.	BSc	2021
[26]	Hephaestus: a Rust runtime for a distributed operating system note: rickrolling; in Rust code listing, in appendix.	BSc	2015
[27]	A cultural History of the Disneyland theme parks Note: rickrolling; as footnote, in a multilevel tribute Star Trek, Terry Pratchett.	Book	2020
[28]	Duplicate of [21], because of a badly referenced subtitle.	-	-
[29]	Unbuckle: Faster in the kernel Note: rickrolling; in code listing, as part of the Appendix.	BSc	2014
[30]	A Forensic web Log Analysis Tool: Techniques and implementation Note: rickrolling; in code listing for dos detection mechanism.	MSc	2011
[31]	Recomendado Para Você: o impacto do algoritmo do YouTube na formação de bolhas Note: legit; in Brazilian portuguese.	MSc	2018
[32]	Measuring and Improving Security and Privacy on the Web: Case Studies with QR Codes, Third-Party Tracking, and Archives Note: legit; overlapping content of [14]	PhD	2015
[33]	Brettspillbasert opplæring i informasjonssikkerhet Note: rickrolling; the Youtube link is given as part of a test to learn to distinguish URLs that look suspicious.	BSc	2019
[34]	Ungdom i en digital verden—en studie om tid, søvn og dataspill Note: rickrolling; fake explicit reference: last reference in bibliography but never cited in the thesis; in Norwegian.	MSc	2020

Tab. 1: Exhaustive Data Analysis of the Rickrolling Academic Literature. ¹ means that the Google Scholar title metadata was wrong, and fixed here.

3 Experimental Results

Table 1 provides the exhaustive list of academic documents that refer to the “dQw4w9WgXcQ” Youtube video for “Never Gonna Give you Up”. The references appear in the order given by Google Scholar, in our research-oriented web browsers.

For each document, the first column gives the bibliographic reference. The second column provides the title of the document, as well as a note about the intention of the Youtube url. The intention can either be rickrolling, or a legitimate usage of the url, e.g., in the case of academic studies that analyze the rickrolling internet culture phenomenon. The third column is the publication type and the fourth the publication year.

RQ1 (Prevalence) Per the data collected on March 11 2022, at 15h02, Google Scholar knows 34 documents containing an explicit mention to “Never Gonna Give You Up” Youtube URL. With manual analysis, we identify that two URLs are duplicate. This exactly makes 33 documents containing “dQw4w9WgXcQ”.

RQ2 (Intention) Among the 33 documents, they are 10 articles for which the appearance of the Youtube link is legit, as part of a discussion about rickrolling or internet memes. Based on careful manual assessment, we confirm that there are 24 academic documents for which the intention is clearly to rickroll the reader, with no relationship between the topic of the document and the link. This means that rickrolling is significantly more practiced (33x) than studied (10x) in the academic literature.

RQ3 (Publication type) The references to the Youtube link are essentially present in academic theses. We found a total of 22 theses among the 33 documents surveyed in this work, which are distributed as follows: 5 PhD, 11 MSc, 6 BSc theses. The other references appear in 4 books, 2 reports and 5 articles. We also note that rickrolling in the academic literature is a rather new phenomenon, we found only 8 references before 2017, while 25 references have appeared in the last 5 years. The recent growth of rickrolling in the academic literature, combined with a majority of references in theses, likely reflect a generational movement: the BSc and MSc students from the late 2020’ were teenagers at the boom of rickrolling in the end of the 2010’s.

RQ4 (Rickroll form) Per our manual analysis, we are able to create a taxonomy of rickrolling forms.

Footnote For writers who don’t dare to break academic seriousness in the main text ¹, it is natural to use footnotes as a place for rickrolling. For example, footnote

¹ For a study of academic pranks, we refer the reader to “Le rire de la vieille dame.” (Pierre Verschuere), see <https://bit.ly/2XBxvwK>.

```

{
  "data": {
    "teasers": [
      {
        "title": "Finance 101",
        "subTitle": "The basics of finance",
        "url": "https://youtu.be/dQw4w9WgXcQ",
        "__typename": "Teaser"
      },
      {
        "title": "Development 101",
        "subTitle": null,
        "url": "https://youtu.be/jNQXAC9IVRw",
        "__typename": "Teaser"
      }
    ]
  }
}

```

Listing 1: An example of rickrolling hidden in a code listing [4] (reproduced with permission).

36, page 52 of [27] reads “The original Star Trek series (1966–69) also proclaims space as the final frontier in its opening credits. See <https://www.youtube.com/watch?v=dQw4w9WgXcQ>”.

Code We have seen a number of rickrolling cases planted in code listings. For example, Zetterlund et al. [4] rickroll in a JSON listing, which we reproduce in Listing 1, with permission.

URL When one needs an example URL or a metasyntactic link, it is a good opportunity to rickroll. For example, Hagen takes the innocuous example “when user ‘@salhagen1’ references the link ‘<https://www.youtube.com/dQw4w9WgXcQ>’ two times or more, we only kept the most-liked instance.” [16].

References Finally, one can hide rickrolling links in a reference [28]. For example, the last reference of Helle’s master’s thesis is a fake rickrolling reference [34].

4 Discussion

4.1 Threats to Validity

Our measurement of rickrolling is sound but conservative. Not all rickrolling instances can be found with the Youtube identifier.

First Rick Astley’s video clip was released in 1987 and 4chan, where rickrolling likely was born, went online in 2003. We may miss early rickrolling that predate Youtube (2005).

Second, there many copycats and remixes of Never Gonna Give You Up on Youtube. It is clear that some rickrolling documents refer to another URL than the canonical one.

Third, there are some academic documents where rickrolling is done with an implicit hyperlink, where the target of the hyperlink does not appear in text. In that case, Google Scholar does not index the document under the rickrolling identifier, and thus does not return it for the query under consideration. To our knowledge, there is no way for us to overcome this, only a Googler with internal access to the database could be able to see the actual rickrolling hypergraph.

4.2 Limitations of Indexing

We note that not all academic search engines are equal. For the same request with the “dQw4w9WgXcQ” Youtube video identifier, the IEEE academic search engine yields no result, and the ACM academic search engine returns a single paper [14]. This means that Google Scholar is far better at indexing rare terms.

We speculate that that academic indexing at IEEE and ACM is limited to known terms from a predefined dictionary, with some stemming. This is a real limitation. Beyond rickrolling there are many use cases for search for rare terms. For example, researchers may search for rare protein or asteroid identifiers: this is not supported by IEEE or ACM. For such use cases, Google Scholar provides a great service to science by indexing arbitrary terms.

Google Scholar is not perfect though. In our study, we have identified two shortcomings in Google Scholar: 1) properly handling subtitles to deduplicate documents 2) properly identifying whether theses are master’s thesis or PhD thesis. This hinders the soundness and completeness of all systematic literature reviews based on Google Scholar. In this paper, we address these shortcomings through a complete, thorough manual check of all documents.

Last but not least, as stated in the threats to validity, there is useful feature of an academic search engine that is missing, even in the best-of-breed Google Scholar: let users search for all documents which an hyperlink to a particular URL, or with a term contained in that hyperlink. This information is most certainly available in Google’s database but is not exposed in the API.

5 Conclusion

In this paper, we have presented the first ever study of rickrolling in the academic literature. Although rickrolling in academia remains confidential, it is clearly an inspiring force for students and scholars alike. This is evidenced by a significant growth of rickrolling in the last 5 years. Seriously, our research highlights limitations in academic search engine indexing and querying. We call for an action from IEEE and ACM to better index rare terms. Meanwhile, Google Scholar should provide a way to query the hyperlink graph embedded in academic pdf documents.

Future work is required to fully understand the rickrolling phenomenon. For instance, preliminary inquiry suggests that it is used as fake persona homepages². And we leave for future work to survey the academic literature on “Dance Dance Authentication”³.

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² As Github user profile link: <https://github.com/search?p=3&q=dQw4w9WgXcQ&type=Users>

³ <https://m.youtube.com/watch?v=VgC4b9K-gYU>

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