DYSTOPIAN CASES OF ORCID IDENTIFIERS: ANIMAL-ASSOCIATED ACCOUNTS

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"The creatures outside looked from pig to man, and from man to pig, and from pig to man again; but already it was impossible to say which was which."
George Orwell, *Animal Farm*, 1945

Authors form a central part of the academic publishing ecosystem, so it is essential to ensure that their identities are valid and neither fake nor fabricated [1]. This article focuses on Open Researcher and Contributor ID (ORCID) [2], whose primary function is to accurately identify authors [3]. ORCID emerged as a tool not only for author identification [4], but as an integral part of academic publishing ecosystem's integrity [5]. ORCID was even touted as a component of the open science movement by claims that it fortified trust [6]. There are currently over 15.7 million live ORCID accounts [7]. ORCID has grown rapidly, as evidenced by the number of accounts, with about 11.4 million accounts in May 2021, expanding by over 2 million accounts in less than one year to about 13.55 million in March 2022. However, there are problems with several ORCIDs, as is exemplified in this paper.

Not all ORCID accounts are valid, and estimates indicate that there may be problems or issues in about 5% of such accounts [8]. Yet, in crude absolute numbers, even 5% of 15 million accounts is equivalent to about 750,000 ORCID accounts that may have serious issues and/or

problems with information veracity. Such a large volume of fake or nonsense ORCID accounts may reduce trust not only in ORCID as a tool for accurate author identification, but also negatively impact integrity more widely within the academic publishing ecosystem [9]. For this reason, all academics, whether they are associated with biomedicine or in any field of research, should be interested in ORCID, not necessarily out of basic necessity, but more out of concern. Even more so for valid academics that have a credible ORCID account. It is curious to notice that ResearchGate and Academia.edu, two popular scientific social media-like platforms, claimed to have accounts of 20 million [10] and 194 million [11] academics and/or researchers. By virtue of the potential overlap between databases and platforms, and the intricate nature of scientific webs, it is reasonable to expect to find a body of academics (or others posing to be academics) within these vast communities that have problematic ORCID accounts.

What sort of fake or nonsense ORCID accounts populate the ORCID platform? Such research seems to be at an infancy and most evidence in the literature has only begun to emerge in the past few years. Baglioni et al. pointed out about a dozen cases of "escorts", who are clearly not researchers [8]. Another case study identified 35 incredulous cases, including of "academics" claiming to be Albert Einstein, Donald Trump, Michael Jackson

and Queen Elizabeth [12]. Even though ORCID is supposed to be an identification (and thus deidentification) tool, it was unable to discern dozens of "academics" with the name "Beatriz" [13]. Another set of cases involved 10 "researchers" with fruit-related names [14]. There are thus doubts about the veracity of ORCID's claim in its slogan: "ORCID […] distinguishes you from every other researcher". Even if the majority of ORCID accounts are valid.

ORCID has been used in several unethical settings that pose a direct threat to the integrity not only of the biomedical literature, but of the entire academic publishing ecosystem. In one example of a sting operation, a real researcher from Kosovo masqueraded herself with a fake name, affiliation, and email, validating that fake set of credentials with an equally fake ORCID account [15]. That example serves as a warning sign about how ORCID can be abused at the individual scale. However, the risk is even greater when ORCID becomes abused at an "industrial" scale, as may be taking place with the paper mill industry that is causing serious reputational harm to the academic publishing ecosystem [1, 16]. An as-yet unknown and unquantified number of ORCIDs have been shown to be associated with paper mills, which are services that provide authors – for a fee – an "academic" paper that might also include an email that is used by the paper mill to complete the submission and publication process on behalf of the stated authors, including partly or fully fabricated data, and/or an ORCID [17]. In some cases, the email/ORCID is used once only, i.e., it is disposable [17].

Expanding these extraordinary cases, in this paper, additional evidence is provided in the form of 24 "researchers" with animal-related "names" (Table 1). These cases were discovered after manually searching the ORCID database using the common names of domesticated animals, inspired by the work of George Orwell's Animal Farm [18]. Obviously, these are not researchers nor academics, and yet they are presented as such on the ORCID platform, co-populating a community of valid researchers and academics.

It could be argued that ORCID provides the academic community with a tool whose usefulness far outweighs a potentially small number of cases of potential fraud, abuse, and unethical behavior [8]. However, is this the standard that academia wishes to set for itself, and should valid researchers and academics accept sharing a tool and platform with fake individuals, or individuals with fake identities validated with an ORCID? Absent radical reform, and if these issues and fake or nonsense accounts are not addressed, then ORCID risks

becoming an imperfect tool. Moreover, as was argued earlier, because a pool of fake accounts becomes intermingled with the accounts of real and honest individuals, at some point, a threshold may be exceeded in which it becomes difficult to distinguish fake from valid or real. A dichotomous value system may breed concerns and distrust [8]. There is another potential serious risk: If fraudulent individuals (or organizations that lie behind paper mills) are aware that ORCID has weaknesses, failures and loopholes that cannot be plugged, this may fuel more fraud and abuse. ORCID thus needs to move beyond branding [4], and shore up public trust by shutting down those accounts, even though ORCID cannot remove or shut down accounts because it claims that they are permanent, with a transparent explanation on the web-page of terminated accounts for the exact reason why such accounts no longer exist. By doing so, ORCID would achieve two objectives: 1) it would take ownership of its imperfect tool but send a message to the wider community that while it recognizes that ORCID is imperfect, that the organization is attempting to deal with cases of fraud and abuse; 2) academics could continue to rely on ORCID as a trustworthy tool for author identification and deidentification knowing that fake and nonsense accounts have been honestly and transparently indicated. However, absent reforms and visible notices that indicate which accounts are invalid, fake, or nonsense, how can any academic (with or without an ORCID) claim, with confidence, that any "researcher" that they observe with an ORCID is really a researcher? To shore up trust and confidence in the validity of an ORCID account, the account could also be linked to other author identifiers such as Scopus Author ID [19].

Trust lies at the core of the academic publishing ecosystem, or so it is said. ORCID has been promoted, and is being very actively used by journals and publishers, not only as an author identification tool, but as one step of their integrity-related processes, primarily related to submissions. So much so that some journals mandate (i.e., force) authors, either the corresponding author or all authors, to have an ORCID account in order to complete the submission and publication of a paper. However, such ORCID mandates may be in violation of their rights and freedoms of choice [20, 21]. Another related emerging concern is the two-tier implementation of ORCID, mandatory for authors in ORCID-mandating journals, but optional or non-existent for those journals' editors, albeit to differing degrees [22]. These are additional reasons why the academic community needs to be careful about mandating the adoption of tools and platforms related to integrity, such as ORCID, that may transform the publishing ecosystem into a dystopian

state of draconian "verification", not unlike George Orwell's Animal Farm [18].

How will fraudulent individuals and groups (e.g., paper mills) that abuse ORCID, and indirectly the trust of the academic community, be held criminally liable and accountable [14]? This issue needs to be addressed not only by ORCID, but also by associated journals and publishers that use ORCID in order to shore up trust in the wider academic community. Finally, Figure 1 highlights the wider risk to data integrity in publishing by housing nonsense or fake "researchers" with an ORCID on Publons, which was a peer review rewards platform [23]. Even though Publons has now been phased out and amalgamated into Clarivate's Web of Science [24], there is a risk that fake or nonsense ORCID accounts that were once associated with Publons (Fig. 1C) are still associated with the Web of Science (Fig. 1D). A future in-depth analysis would need to try and identify such ORCID accounts in the Web of Science. If multiple cases of nonsense or fake ORCID accounts are identified in the Web of Science, then this may spell problems for the academic publishing ecosystem, given Clarivate's global reach.

The author's concerns are somewhat shared by a recent analysis that indicated that only about 48% of the ORCID accounts that were examined indicated a single published paper, while empty accounts might have been created simply to complete the submission process [25]. Weak adoption of ORCID was noted in PubMed-indexed journals from 2012–2020, with a small percentage of papers (13.9%) containing at least one ORCID, and tiny percentage of authors (4.3%) being associated with an ORCID [26].

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Table 1. Inspired on George Orwell's Animal Farm [18], 24 examples of ORCID "researcher" accounts with identities associated with domesticated animals, none of which was associated with any academic paper indexed in Google Scholar 1

ORCID first name[2]	ORCID last (family) name	ORCID ID/URL	Date last modified
Cat			
Cat		https://orcid.org/0000-0002-3946-027X	Jul 1, 2019, 3:43:27 PM
Cat		https://orcid.org/0000-0001-6011-3021	Jun 8, 2021, 12:40:56 PM
Cat	Ngo	https://orcid.org/0000-0001-9003-2468	Oct 31, 2017, 1:00:50 AM
Cat	Mandoo	https://orcid.org/0000-0001-7347-4061	Jan 19, 2017, 2:02:31 PM
cat	Evolution	https://orcid.org/0000-0001-8163-9217	Jul 7, 2021, 12:04:16 PM
Cat	Rex	https://orcid.org/0000-0001-7130-0754	Nov 11, 2019, 9:25:44 PM
Cat	S	https://orcid.org/0000-0002-2962-0831	Jul 16, 2019, 8:41:59 AM
tinyc	Cat	https://orcid.org/0000-0002-8816-7336	Jul 27, 2020, 10:25:40 AM
fat	Cat	https://orcid.org/0000-0002-7177-9141	Jan 8, 2021, 2:29:20 AM
cat	Loaded	https://orcid.org/0000-0003-2618-2247	Feb 21, 2021, 9:16:25 PM

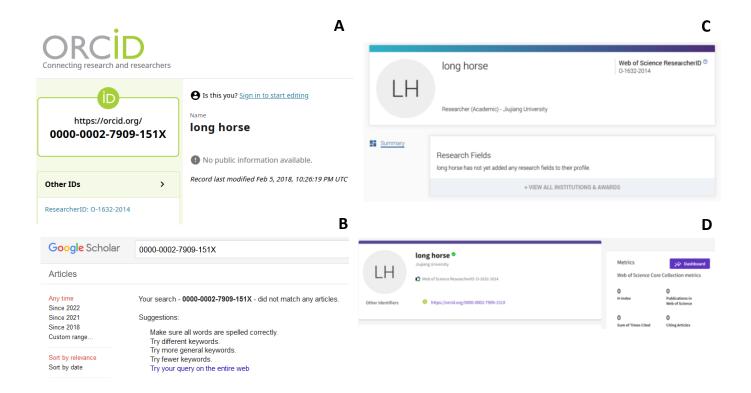| ORCID first name[2]	ORCID last (family) name	ORCID ID/URL	Date last modified
Dog			
rob	Dog	https://orcid.org/0000-0003-0091-5457	Dec 17, 2015, 11:17:46 PM
dog	Cat	https://orcid.org/0000-0002-5666-694X	Oct 5, 2020, 6:52:50 PM
skoon	dog	https://orcid.org/0000-0002-6873-0937	May 4, 2019, 3:46:11 AM
Pippa	Dog	https://orcid.org/0000-0002-0511-2541	Feb 12, 2017, 7:57:42 PM
Red	Dog	https://orcid.org/0000-0003-1480-1266	Feb 8, 2021, 3:12:07 AM
Dog	Behavior	https://orcid.org/0000-0003-1774-392X	May 7, 2021, 4:35:44 PM
big	dog	https://orcid.org/0000-0001-7824-2411	Mar 27, 2021, 1:49:32 PM
Old	Dog wu	https://orcid.org/0000-0002-1958-0960	Oct 10, 2020, 2:34:55 AM
Goat			
black	goat	https://orcid.org/0000-0001-8191-5509	Nov 22, 2021, 2:43:53 AM
Horse			
horse[3]	Mr	https://orcid.org/0000-0002-0925-9612	May 17, 2021, 5:10:24 PM
long[4]	horse	https://orcid.org/0000-0002-7909-151X	Feb 5, 2018, 10:26:19 PM
Pig			
pig[5]	pg	https://orcid.org/0000-0001-7830-4600	Jun 20, 2021, 6:25:18 PM
Sheep			
Sheep	W	https://orcid.org/0000-0002-9610-1468	Jul 13, 2021, 5:10:41 PM
sheep	vic	https://orcid.org/0000-0002-9463-4842	Aug 23, 2021, 2:16:16 PM

[1] The following searchterms were used: cat (https://orcid.org/orcid-search/search?searchQuery=cat), dog (https://orcid.org/orcid-search/search?searchQuery=dog), goat (https://orcid.org/orcid-search/search?searchQuery=goat), horse (https://orcid.org/orcid-search/search?searchQuery=horse), pig (https://orcid.org/orcid-search/search?searchQuery=pig), sheep (https://orcid.org/orcid-search/search?searchQuery=sheep). All ORCID URLs last accessed: January 2, 2022. This is a non-exhaustive list: other examples were found on these searches that showed curiosities, for example company names (e.g., https://orcid.org/0000-0003-1285-1235, which claims to be "Dog Create", even though the company webiste appears to indicate the company name of "Dog Crate"), brands, etc., but these were not incuded in the table. Domesticated animals

that appeared in Orwell (1945), and that did not have any ORCID accounts worthy of profiling, were: cow (https://orcid.org/orcid-search/search?searchQuery=cow), donkey (https://orcid.org/orcid-search/search?searchQuery=donkey), and hen (https://orcid.org/orcid-search/search?searchQuery=hen). Disclaimer: the listing of these ORCID accounts is not an accusation of misconduct, fraud or unethical behavior. These cases are tabulated to show "odd" or inriguing cases, most of which have names that one would not associate with researchers, and whose identities could not be found to be linked with any academic publication, raising douts therefore, about the "researcher" status of these ORCID-bearing entities.

2 The order of ORCID names is listed alphabetically according to animal genres, then in order of appearance in the ORCID search engine.

3 This "researcher" claims to be affiliated with Tianjin University, in China, as: "1999-06-06 to present | student (sofeware [sic] engineering)".

4 This "researcher" claims to be affiliated with Jiujiang University, in China, and with a Clarivate / Publons ResearcherID: https://publons.com/researcher/2465659/long-horse/ (Fig. 1C; readers shoudl note that Publons was phased out [23], and this account has now become https://www.webofscience.com/wos/author/record/1715538; Fig. 1D)

4 The website (https://pigpg.com/) associated with this "researcher" is written inThai, but a Google translate suggests that this website is associated with gambling. It is not clear what the academic relevance of this "researcher" is.

Figure 1. ORCID and ResearcherID of a "researcher" named "long horse". (A) ORCID. (B) No academic papers associated with this ORCID on Google Scholar. (C) "long horse" aso had a Publons account. Screenshots: (A) https://orcid.org/0000-0002-7909-151X; (C) Now defunct Publons account: https://publons.com/researcher/2465659/long-horse/; (D) Current Web of Science account. Screenshot dates: January 2, 2022 (A, B, C); September 26, 2022 (D).

ORCID ИДЕНТИФИКАТОРЛАРЫНЫҢ ДИСТОПИЯЛЫҚ ЖАҒДАЙЛАРЫ: ЖАНУАРЛАРМЕН БАЙЛАНЫСТЫ ЕСЕПТЕР

ИДЕНТИФИКАТОРЫ ORCID, АССОЦИИРОВАННЫЕ С ЖИВОТНЫМИ