

**FORCE2021:** the annual conference of the FORCE11 community




Future of Research Communications and E-Scholarship

The global membership of FORCE11 are individuals working together to make positive changes in scholarly communication. Membership is free. Learn more and become a member at [force11.org/](https://force11.org/)

# FORCE2021 is a community effort

Thank you to all the volunteers that made this event possible, especially to the community groups that partnered with FORCE11 on this year's event: ICSTI, EIFL, ASAPbio, Global Young Academy, Sage Bionetworks, Software Sustainability Institute, AGU, IFMSA, Open Knowledge Maps, COAR, DOAJ and more!





All sessions are available via Zoom.  
Recordings will be made available after the event.

**Conference Information: [force2021.sched.com](https://force2021.sched.com)**  
**Code of Conduct: [force11.org/code-conduct](https://force11.org/code-conduct)**



# FORCE2021

Joining Forces to Advance the Future of  
Research Communications

**December 7-9, 2021**

# Deep Dive: Ethics of Contributor Roles

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FORCE Attribution Working Group

# Agenda

- Status quo of major CRs (5-7 min)
- Preliminary results of a coping review (5-7 min)
- In-session survey (5-7 min)
- Brainstorming (25 min)
- Conclusion, Q&A (5-7 min)

# CReditT (Contributor Roles Taxonomy)

- **Conceptualization** – Ideas; formulation or evolution of overarching research goals and aims.
- **Data curation** – Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later re-use.
- **Formal analysis** – Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data.
- **Funding acquisition** - Acquisition of the financial support for the project leading to this publication.
- **Investigation** – Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection.
- **Methodology** – Development or design of methodology; creation of models.
- **Project administration** – Management and coordination responsibility for the research activity planning and execution.
- **Resources** – Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools.
- **Software** – Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components.
- **Supervision** – Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.
- **Validation** – Verification, whether as a part of the activity or separate, of the overall replication/reproducibility of results/experiments and other research outputs.
- **Visualization** – Preparation, creation and/or presentation of the published work, specifically visualization/data presentation.
- **Writing – original draft** – Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation).
- **Writing – review & editing** – Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre- or post-publication stages.



**COMMENT**

## Credit where credit is due

Liz Allen, Amy Brand, Jo Scott, Micah Altman and Marjorie Hlava are trialling digital taxonomies to help researchers to identify their contributions to collaborative projects.

Research today is rarely a one-person job. Original research papers with a single author are — particularly in the life sciences — a vanishing breed. Partly, the inflation of author numbers on papers has been driven by national research-assessment exercises. Partly, it is the emergence of big and collaborative science, assisted by technology, that is changing the research landscape.

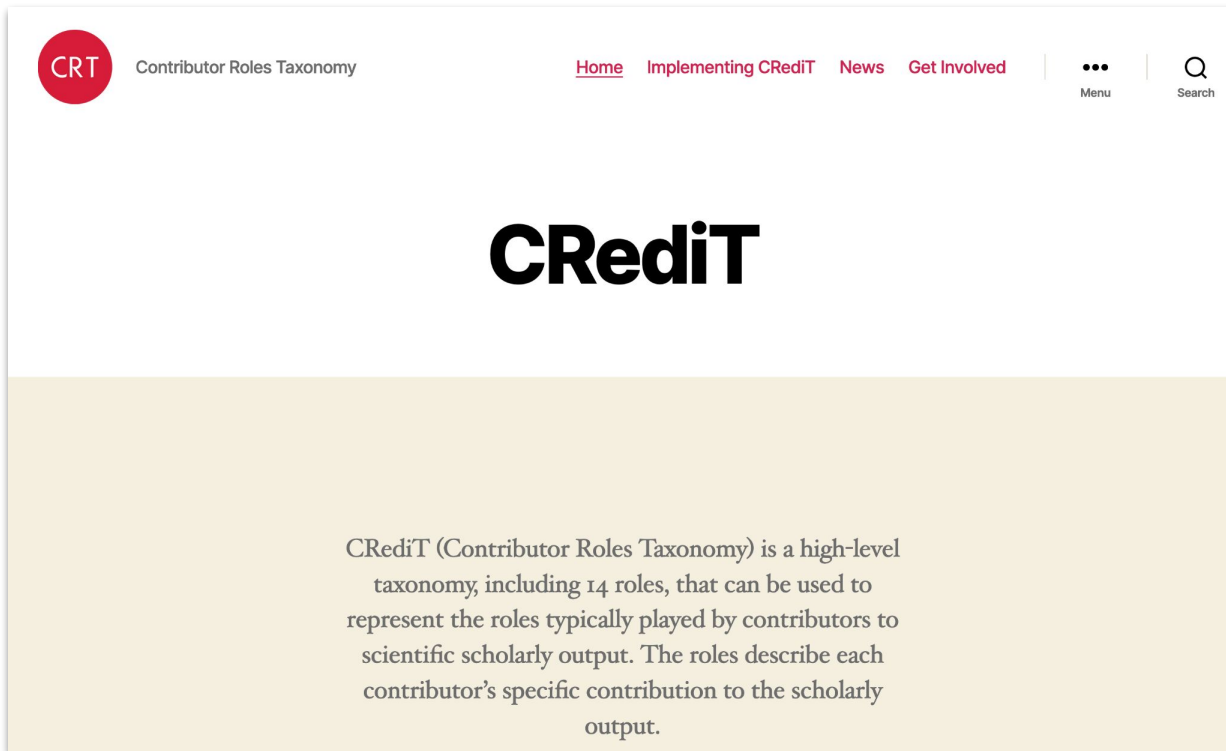
What we cannot tell easily by reading a paper is who did what. That is difficult to decipher by consulting the author lists, acknowledgements or contributions sec-

Through the endorsement of individuals' contributions, researchers can start to move beyond 'authorship' as the dominant measure of esteem. For funding agencies, better information about the contributions of grant applicants would aid the decision-making process. Greater precision could also enable automated analysis of the role and potential outputs of those being funded, especially if those contributions were linked to an open and persistent researcher profile or identifier. It would also help those looking for the most apt peer reviewers. For institutions,

journal articles could be classified using a 14-role taxonomy (see 'Who did what?'). The survey was sent to 1,200 corresponding authors of work published in PLOS journals, Nature Publishing Group journals, Elsevier journals, *Science* and *eLife*. Corresponding authors were asked to indicate the contribution of each author of their article according to the roles in the taxonomy, and to comment on its comprehensiveness; whether there were any significant role descriptors missing; how using the taxonomy compares with current author-contribution assignment; and

Allen, L., Scott, J., Brand, A. *et al.* Publishing: Credit where credit is due. *Nature* 508, 312–313 (2014). <https://doi.org/10.1038/508312a>

# CRedit @ NISO



The screenshot shows the homepage of the CRedit website. At the top left is a red circular logo with 'CRT' in white, followed by the text 'Contributor Roles Taxonomy'. To the right are navigation links: 'Home', 'Implementing CRedit', 'News', and 'Get Involved'. Further right are icons for a menu (three dots) and search (magnifying glass). The main heading 'CRedit' is centered in a large, bold, black font. Below this, a light beige background contains a paragraph of text: 'CRedit (Contributor Roles Taxonomy) is a high-level taxonomy, including 14 roles, that can be used to represent the roles typically played by contributors to scientific scholarly output. The roles describe each contributor's specific contribution to the scholarly output.'

<https://credit.niso.org/>

## CRedit via NISO:

- Support adoption and encourage further practical usage - particularly through implementation
- Ensure that CRedit is tied to ORCID and included in the Crossref metadata capture
- Formal standardization of the taxonomy via partnership with NISO.
- Laying the foundation for community engagement and support via establishing community CRedit Interest Group, spreading the word, and providing mechanisms for feedback

<https://credit.niso.org/>



# Implementing CRediT



CRT Contributor Roles Taxonomy

Home **Implementing CRediT** News Get Involved

Menu Search

## Implementing CRediT

**For academics**

Just begin allocating the terms appropriately to your contributors within research outputs. Advocate that your institution and any publications you're submitting to acknowledge and adopt the taxonomy.

**For Publishers**

<https://credit.niso.org/implementing-credit/>

## Academics:

- Allocate the terms appropriately to your contributors within research outputs. Advocate that your institution and any publications you're submitting to acknowledge and adopt the taxonomy.

## Publishers (recs on applying taxonomy):

- List all Contributions – All contributions should be listed, whether from those listed as authors or individuals named in acknowledgements;
- Multiple Roles Possible – Individual contributors can be assigned multiple roles, and a given role can be assigned to multiple contributors;
- Degree of Contribution Optional – Where multiple individuals serve in the same role, the degree of contribution can optionally be specified as 'lead', 'equal', or 'supporting';
- Shared Responsibility – Corresponding authors should assume responsibility for role assignment, and all contributors should be given the opportunity to review and confirm assigned roles;
- Make CRediT Machine Readable – CRediT tagged contributions should be coded in JATS xml v1.2





# DataCite and Contributor Roles

DataCite Metadata Working Group. (2021). DataCite Metadata Schema Documentation for the Publication and Citation of Research Data and Other Research Outputs. Version 4.4. DataCite e.V. <https://doi.org/10.14454/3w3z-sa82>

# DataCite and Contributor Roles

Major Documentation changes:

- Following community feedback and suggestions, this version includes further clarification as regards the following **contributorTypes**:

**DataManager**

**DataCurator**

**ResearchGroup**

**HostingInstitution**

# DataCite and Contributor Roles

If Contributor is used, then contributorType is mandatory.

## Controlled List Values:

ContactPerson

DataCollector

DataCurator

DataManager

Distributor

Editor

HostingInstitution

Producer

ProjectLeader

ProjectManager

ProjectMemberRegistration

Agency

RegistrationAuthority

RelatedPerson

Researcher

ResearchGroup

RightsHolder

Sponsor

Supervisor

WorkPackageLeader

Other

# Preliminary results of a scoping review of the literature about Contributor Roles

This review was originally conducted as part of my PhD thesis at Dublin City University, Ireland.

- In collaboration with Kristi Holmes, Bert Gordijn and a librarian at Galter Library we are currently working on a revised version of the review, with a view to publish it in the first half of 2022.

# Methodology

## Used Methodology in the initial review of the literature

- Google Scholar and Web of Science
- Resources provided by the developers of three major CRs (CRediT, TaDiRAH, CRO) on their websites or GitHub pages

## Additions in the fresh round of review

- Improved search strategy and protocol
- New keywords (e.g., DataCite) and MESH terms
- More indices (e.g., PubMed, Scopus)

# Analysing relevant documents

Inclusion criteria: documents should discuss CRs in a significant way

Inductive analysis is the method used to infer ethical issues:

- Highlight sections of the document that contain ethical issues.
- Each highlighted section is then labelled with a title that represents the issue raised. Similar labels will be grouped and overlaps reduced to develop a coherent and consistent list of ethical issues.

# Selected ethical issues

## 1. Ethical issues about the attribution of credit using CRs:

- Recognition of tasks that do not merit authorship, but are mentioned in the acknowledgement section. How should these be viewed and what are the implications of different perspectives?

## Research Integrity and Peer Review

Home About [Articles](#) [Submission Guidelines](#)

Research | [Open Access](#) | [Published: 01 December 2021](#)

# Gender disparity in publication records: a qualitative study of women researchers in computing and engineering

[Mohammad Hosseini](#) & [Shiva Sharifzad](#)

Should we capture all of these roles with CRs? What does it mean to capture all of these?

- Would those credited with the role of *Methodology*, assume responsibility for methodological flaws?
- Should they assume responsibility for methodological flaws?

How to capture these contributions with CRs (e.g. CRediT roles)?

- Agata's role: Investigation
- Lisa, Karen, Melrona: Methodology
- Samuel: Validation
- Sandra, Greg and Fiona:?

## Acknowledgments

The authors wish to thank and acknowledge [Agata Ptaszynska](#) for her assistance in transcribing interviews and support with the preliminary coding exercise. We also thank Ms. [Sandra Healy](#) (the former head of the DCU Equality Office), and Professor [Greg Hughes](#) and Ms. [Fiona Morrissey](#) of the DCU Research Office for their support of this project. We thank Professor [Lisa Looney](#), Dr. [Karen Kelsky](#) and Dr. [Melrona Kirrane](#) for providing suggestions that improved our research instrument, and Professor [Samuel Bruton](#) for his feedback on our analysis. We also thank the journal editor and three reviewers for their constructive and valuable feedback.



## 2. Ethical concerns about the attribution of responsibilities

- How should CRs be used, when more than one person is involved in conducting a task?

**REVISED** Implementing a quality management system using good clinical laboratory practice guidelines at KEMRI-CMR to support medical research [version 2; peer review: 2 approved]

✉ Horace Gumba <sup>1</sup>, Joseph Waichungo<sup>1</sup>, Brett Lowe<sup>1,2</sup>, Alfred Mwanzu <sup>1</sup>, Robert Musyimi<sup>1,3</sup>, Johnstone Thitiri<sup>1,3</sup>, Caroline Tigoi<sup>1,3</sup>, Martin Kamui<sup>1,3</sup>, James A. Berkley <sup>1,3</sup>, Ronald Ngetich<sup>4</sup>, Susan Kawai<sup>4</sup>, Samuel Kariuki <sup>4</sup>

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Roles:  Conceptualization, Investigation,  Methodology, Writing – Original Draft Preparation

Joseph Waichungo

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Roles: Funding Acquisition, Investigation,  Writing – Review & Editing

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Roles: Investigation, Methodology,  Supervision,  Writing – Review & Editing

Task that involved only one person

Task that involved more than one person

Several supervisors

# What is next?

Upon completion of the review, we aim to develop a questionnaire informed by the review results. We will engage the research community in a survey informed by ethical issues and themes that are discussed in the literature.

# Quick Survey

Which CRs have you use so far?

What are some challenges of using CRs in your context?

Do you use/know any additional/complimentary solutions that employ CRs, e.g., Tenzing, Rescognito?

What functionality/tools would facilitate/improve your use of CRs?

What kinds of outputs or scholarly products do you produce, that you don't currently get credited for?

# Brainstorming (25-25 minutes)

- Discuss the use of CRs from the perspective of different scholarly stakeholders (funders, metrics suppliers, universities, publishers, researchers).
- Let's contribute to a Google Doc, adding thoughts about the perspective of stakeholder in terms of how CRs would benefit or challenge them.
- Google Docs will inspire a blog post or short commentary article about CRs.

# Concluding remarks

- Questions and feedback

# Thanks!

Please join us at the working group:

<https://www.force11.org/group/attributionwg>

Read more about the work of the group, including work inspired at past FORCE conferences:

<https://www.force11.org/blog/advancing-collaborative-research-contributor-roles>