

CRedit taxonomy – Exploratory interpretation grid

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UPR 2002 CNRS MAP

The CRedit (Contributor Roles Taxonomy) taxonomy is the outcome of an initiative launched in 2012 to establish a clear and formal classification of the types of contributions involved in the production of a scientific article, thereby making it possible to assign clear roles to each person. It became a standard of the National Information Standards Organisation (NISO) in 2022 and lists 14 types of contributions to a publication in order to cover a wide range of roles.

This document is an effort to clarify the different categories within the taxonomy of contributor roles known as ‘CRedit’ (<https://credit.niso.org>).

For each category, it identifies a number of keywords or examples of practices that form an “interpretation grid” intended to supplement the general definitions of the categories proposed by the CRedit taxonomy and clarify their use.

This work of identification and exemplification is the result of a collective effort carried out as part of the ‘Scientific Integrity, Ethics and Professional Conduct’ sessions organised at UPR 2002 MAP CNRS between March and October 2025. This document should not be interpreted as stating a “broad degree of applicability” of the proposed interpretation grid at an interdisciplinary level. Furthermore, it does not claim that the proposed interpretations are consistent with the intentions and reflections of the original creators and promoters of the CRedit taxonomy.

Its sole purpose is to create a framework for independent reflection in often highly complex situations that involve acknowledging the roles of contributors within a research work. It does not aim to discuss all situations in which CRedit users may face complex choices, nor does it seek to guarantee consistency or uniformity of interpretation of these situations, including within the UPR MAP. This is simply a proposed interpretation of the scope of the information contained in the CRedit¹ taxonomy, developed within the specific scientific context of our research unit².

¹ https://contributorshipcollaboration.github.io/projects/translation/translations/fr_latn/

² ... Its activities intersect two emerging interdisciplinary fields, heritage sciences and data sciences, and focus on the design and development of ‘highly digital’ methods for exploring and analysing heritage assets. One of the distinctive traits of the laboratory’s approach is a recurrent to-and-fro between theoretical, methodological and technological research and the implementation of concrete solutions in the form of research prototypes open to academic and societal partnerships ... cf. Scientific Identity of MAP laboratory (Proprietary Research Unit (UPR) of the Centre National de la Recherche Scientifique (CNRS), Humanities and Social Science)
<https://www.map.cnrs.fr/en/laboratory/scientific-identity/>

CRediT - term and definition English	examples to illustrate the definition in the context of our research field
Conceptualization	
<i>Ideas; formulation or evolution of overarching research goals and aims.</i>	• formulation of objectives or methods/approaches to be used, • definition of specifications, • hypothesis formulation, • conceptual modelling (e.g. scientific modelling, data/information modelling, system modelling)
Data Curation	
<i>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.</i>	• selection of an pre-existing data model (otherwise, use the 'Methodology' category), • organisation/structuring of data, • metadata creation, • data cleaning/selection, • data conversion/formatting or reformatting
Formal Analysis	
<i>Application of statistical, mathematical, computational, or other formal techniques to analyse or synthesize study data.</i>	• statistical analysis, • formal analysis – where the context and concepts are defined comprehensively and precisely, • data analysis and interpretation, • DataViz (use/exploitation of graphical representation of data and information to gain the insight).
Funding Acquisition	
<i>Acquisition of the financial support for the project leading to this publication.</i>	• individuals/persons who obtained funding for the publication • in the case of funding through an incentive programme, name the local project manager Potential funders (who provide financial or technical support) should be mentioned in the 'Acknowledgements' section of a publication.
Investigation	
<i>Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection.</i>	• collection/acquisition of new data (information based on human testimony, desk-based research or fieldwork), • conducting the research process, • conducting/executing experiments
Methodology	
<i>Development or design of methodology; creation of models.</i>	• development of protocols, • elaboration, design/adaptation of statistical methods or models

Project Administration	
<i>Management and coordination responsibility for the research activity planning and execution.</i>	• administrative project management, • project coordination
Resources	
<i>Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools.</i>	• provision of data (input data), instruments, materials, samples, • provision of “computational resources” (intranet, VPN, security, backup, etc.) and IT equipment
Software	
<i>Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components.</i>	• people involved in the ‘development pipeline’ (algorithmics, pseudocode, code implementation, etc.), • people involved in the tests of existing components
Supervision	
<i>Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.</i>	• effective management of staff, • steering/monitoring/control of actions, • guidance and orientation given to staff
Validation	
<i>Verification, whether as a part of the activity or separate, of the overall replication/reproducibility of results/experiments and other research outputs.</i>	• procedures for evaluating results, • repetition, replication of results
Visualization	
<i>Preparation, creation and/or presentation of the published work, specifically visualization/data presentation.</i>	• composition/creation of presentation elements - graphic elements, figures, data tables, diagrams, • formatting of visual layout, • bibliography formatting, text formatting, typography (index, table of contents)

Writing - Original Draft Preparation	
<i>Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation).</i>	• preparing the document structure, • compiling the state of knowledge and bibliography, • writing the original text – summary, method, evaluation, argumentation
Writing – Review & Editing	
<i>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.</i>	• writing, proofreading, corrections (content and meaning, clarification, stylistic corrections, text harmonisation, etc.), • amendment/modification of bibliographical references, • external proofreading or editing (content, meaning) (does not apply to editors/reviewers participating in the evaluation of the document in a journal or at a conference), • external translation ('secondary responsibility' of the content) • The use of LLM must be mentioned in the form of a comment added at the bottom of the CRediT note, specifying its role and nature (e.g. AI-generated/assisted translation from French to English (the name and version of the AI tool used)).

The CRediT text should be extended to include remarks concerning the use of artificial intelligence tools in any stage of research (conceptualisation, data preparation, research, writing, etc.). In accordance with the COPE statement on AI tools (COPE Council 2023), AI tools – which cannot be held responsible for the integrity, originality or validity of published work – cannot be credited as authors. The author(s) must describe the content created or modified with the help of artificial intelligence tools and cite the name and version of the AI tool used.

Standard tools used to improve spelling and grammar are not included in the parameters of this guideline.

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References

COPE Council. 2019. « COPE Discussion Document: Authorship ». COPE: Committee on Publication Ethics, Septembre 2. <https://publicationethics.org/guidance/discussion-document/authorship>.

COPE Council. 2023. « COPE Position - Authorship and AI TOOLS ». COPE: Committee on Publication Ethics, février 13. <https://publicationethics.org/guidance/cope-position/authorship-and-ai-tools>.

Comité d'éthique du CNRS. 2017. « Pratiquer une recherche intègre et responsable. Guide ». CNRS. https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.cnrs.fr/sites/default/files/ressource-file/Pratiquer-une-recherche-integre-et-responsable-2017.pdf&ved=2ahUKEwjYwqO_2ZiMAxX6LPsDHU-NIagQFnoECBYQAQ&usq=AOvVaw2cdhgoaW2iOyH59qabTGXT.

European Federation of Academies of Sciences and Humanities. 2023. « The European Code of Conduct for Research Integrity - ALLEA ». <https://allea.org/code-of-conduct/>.

Fovet-Rabot, Cécile, et Marie-Claude Deboin. 2023. Définir les auteurs d'une publication scientifique en 10 points. CIRAD. <https://doi.org/10.18167/COOPIST/0006>.

Fovet-Rabot, Cécile, et Marie-Claude Deboin. 2022. *Reconnaître tous les contributeurs d'une publication 5 - Les évolutions souhaitées de la taxonomie CRediT*. Cirad. <https://coop-ist.cirad.fr/etre-auteur/reconnaitre-tous-les-contributeurs/5-les-defis-et-les-evolutions-souhaitees-de-la-taxonomie-credit>

Gourdon-Kanhukamwe, Amélie, et David C. Vaidis. 2025. « French Translation of CRediT ». The CRediT Project, septembre 9. https://contributorshipcollaboration.github.io/projects/translation/translations/fr_latn/.

Maisonneuve, Hervé. 2017. « Les 7 péchés mortels de la science | Rédaction Médicale et Scientifique ». REVUES & INTÉGRITÉ. <https://www.redactionmedicale.fr>, août 10. <https://www.redactionmedicale.fr/2017/08/les-7-peches-mortels-de-la-science-le-rachat>.

Research Integrity - ALLEA ». <https://allea.org/code-of-conduct/>.

Office français de l'intégrité scientifique (OFIS). 2019. « Charte française de déontologie des métiers de la recherche ». OFIS. <https://comite-ethique.cnrs.fr/charte/>.

Pasteur, Ceris-Institut. 2022. « Contributeurs, demandez CRediT ! » Open science : évolutions, enjeux et pratiques, juin 15. <https://openscience.pasteur.fr/2022/06/15/contributeurs-demandez-credit/>.

RESUVal. 2015. « Charte de publication scientifique ». février 25. http://resuval.com/wp-content/uploads/2019/07/2019_02-25_Charte-de-Publication.pdf.

Steneck, Nicholas, Tony Mayer, et Meilssa Anderson. 2025. « WCRI Singapore Statement ». WCRIF - The World Conferences on Research Integrity Foundation, mars 20. <https://www.wcrif.org/guidance/singapore-statement>.

« Être ou ne pas être auteur, auteur de publications scientifiques (articles, livres, communications, affiches...) ». 2014. Université de Sherbrooke, octobre. https://www.usherbrooke.ca/ssf/fileadmin/sites/ssf/documents/Je_dirige/Propriete_intellectuelle_des_etudiants/Je-dirige-PI-depliant-auteur-2014-V-WEB.pdf.

The CRediT project. 2015. « Contributor Role Taxonomy (CRediT) ». CRediT. <https://credit.niso.org/>.

The CRediT project. 2020. « Origins of CRediT ». Contributor Role Taxonomy. CRediT, avril 14. <https://credit.niso.org/origins/>.

Université de Sherbrooke. 2014. « Qualité d'auteur (Authorship) ». Service d'appui à la recherche, à l'innovation et à la création - Université de Sherbrooke. <https://www.usherbrooke.ca/saric/valorisation-rayonnement/prop-intellec/qualite-auteur>.