| **Systematic Review Title** | Inteligencia Artificial Aumentada aplicada a la etapa de Implementación dentro del ciclo de vida del Desarrollo del Software. Una revisión sistemática de la literatura. |
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| **Planning stage** | |
| Research Question | ¿Cómo la Inteligencia Artificial Aumentada se relaciona con la etapa de implementación dentro del desarrollo de software? |
| Research sub-questions | * ¿Qué herramientas de IA son usadas dentro de la etapa de Implementación en el ciclo de vida del Desarrollo de Software? * ¿Qué factores influyen en la elección de las herramientas de IA durante la etapa de Implementación en el ciclo de vida del Desarrollo del Software? * ¿Cómo está direccionada la investigación de la IA Aumentada dentro del Desarrollo de Software? |
| Search Strategy | **Digital Libraries**  ACM Digital Library **si** / no  IEEE Xplore Digital Library **si** / no  Springer Link si / **no**  Science Direct si / **no**  Others: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Indexers**  Scopus si / **no**  Latindex si / **no**  Scholar si / **no**  Others: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Manual Search**  Books:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Journals:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Conferences:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Others:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Snowball:**  Snowball technique will be used si / **no**  \*In order to search automatically in the selected digital libraries, we planned to use the following search string:   | **Concept** | **Sub-String** | **Connector** | **Alternative Terms** | | --- | --- | --- | --- | | Augmented  Artificial Intelligence | AI-Augmented | OR |  | | Artificial Intelligence | Artificial Intelligence | OR |  | | Augmented Intelligence | Augmented Intelligence | OR |  | | AI | AI | AND |  | | Software Development Life Cycle | Software Development Life Cycle | NOT |  | | Reality | Reality |  |  | |  |  |  |  |   Final Automatic String: ("AI Augmented" OR "Artificial Intelligence" OR "Augmented Intelligence OR AI") AND (Software Development Life Cycle) NOT "Reality"  **Note:** The search will be conduct by applying the search string to the same metadata (i.e., title, abstract and keywords) of each article for all the sources (the search string syntax will be adapted in order for it to be applied in each digital library). These search terms were also considered in the other sources that will be manually inspected in order to perform a consistent search.  **Period:** 2018-2023  **Note:** The period reviewed included studies published from 2018 to 2023. This starting date was selected considering that the time of appearance of this emerging technology "AI-Augmented" occurred about 5 years ago. |
| Selection of primary studies | **Inclusion criteria**  The studies that met at least one of the following inclusion criteria will be ***included.***   * *Studies presenting AI tools within the Software Development Cycle.* * *Studies presenting metrics to consider in the choice of AI tools within the Software Development Cycle.* * *Studies about the investigation of AI Augmented within the Software Development Cycle.*   **Exclusion criteria**  The studies that met at least one of the following inclusion criteria will be ***excluded.***   * *Introductory papers for special issues, books and workshops.* * *Duplicate reports of the same study in different sources.* * *Short papers with less than five pages.* * *Paper not written in English.* |
| Quality Assessment | In addition to general inclusion/exclusion criteria, it is considered critical to assess the “quality” of primary studies.  A three-point Likert-scale questionnaire will be used to provide a quality assessment of the selected studies. The questionnaire contained two subjective closed-questions and two objective closed-questions.  The subjective questions are:   * The study presents issues about AI tools in Software Development. * The study presents issues about how AI improves the efficiency or quality in Software Development.   The possible answers to these questions are:   | +1 -> I agree | | --- | | 0 -> Partially agree | | -1 -> I do not agree |   The objective questions are:  The study has been published in a relevant journal or conference.  The possible answers to these questions are:   | *+1 -> I agree* | | --- | | *0 -> Partially agree* | | *-1 -> I do not agree* |   This question was rated by considering the order of relevance provided by the digital library, the CORE conference ranking (A, B and C conferences), and the Journal Citation Reports (JCR) lists.  The study has been cited by other authors. The possible answers to this question are:   | *+1 -> Yes. If the paper has been cited by more than five authors* | | --- | | *0 -> Partially. If the paper has been cited by 1-5 authors* | | *-1 -> If the paper has not been cited* |   This question was rated by considering the Google Scholar citations count. It is important to note that the minimum score for early publications is considered as “Partially” in order not to penalize them.  The score for each closed-question will be the arithmetic mean of all the individual scores from each reviewer. The sum of the four closed-question score of each study provides a final score (an integer between -4 and 4). These scores were not used to exclude papers from the systematic mapping study but were rather used to detect representative studies in order to discuss each research sub-question. |
| **Data extraction strategy** | The data extraction strategy that will be employed is based on providing the set of possible answers for each research sub-question that had been defined. This strategy ensures the application of the same extraction data criteria to all selected papers and it facilitates their classification.  The following table is an example of the extraction criteria |
| **Synthesis methods** | We are going to apply both quantitative and qualitative synthesis methods.  The quantitative synthesis is based on:   * Counting the primary studies that are classified in each answer from our research sub-questions. * Defining bubble plots in order to report the frequencies of combining the results from different research sub-questions. A bubble plot is basically two x–y scatter plots with bubbles in category intersections. This synthesis method is useful to provide a map and giving a quick overview of a research field. * Counting the number of papers found in each bibliographic source per year.   The qualitative synthesis is based on:   * Including several representative studies for each research sub-question by considering the results from the quality assessment. |
| **Conducting stage** | With the application of the review protocol we will yield preliminary results. The results will be selected in accordance with the inclusion criteria.  Here we will obtain a table in which we can summarize the results of the conducting stage, the source of the automatic searches, the potential studies and the selected studies.  In this stage we could found some studies that possibly had been published in more than one journal/conference and in this case, we will select only the most complete version of the study. Almost we could find some studies appeared in more than one source. In this case we should take in account only once according to our search order, which is the following: ACM, IEEEXplore, ACM, Springer Link, Science Direct, etc. |
| **Reporting stage** | The final phase of a systematic mapping involves writing up the results of the review and circulating the results to potentially interested parties. The results should be communicated effectively. |
| **Bibliography** | B. Kitchenham and S. Charters, “Guidelines for performing Systematic Literature Reviews in Software Engineering,” *Engineering*, vol. 2, p. 1051, 2007.  Extraction criteria bibliography |