MultiX PhD Thesis Policy

We research techniques for bringing together humans and multimodal AI, surpassing human and machine intelligence for responsible impact in public health, forensics and law enforcement, cultural heritage, and data-driven business.

Research contributions

Within MultiX's research field there are various types of research contributions which are valued by the community as being crucial contributions that move the field forward. Most clearly this includes (interactive) systems that, for instance, enable new data-driven insights or new modes of interaction with data. In many projects PhD students are hired on, these are also core deliverables and require substantial effort. Considering a typical computer science PhD thesis such contributions are often insufficiently recognised, resulting in PhD students focusing primarily on algorithmic contributions. Many PhD students are excited and motivated to work on the non-algorithmic contributions - but are demotivated by the typical thesis requirements. Therefore, in MultiX we distinguish between two types of papers:

M-type papers:
- Algorithmic / Methodological / Empirical papers
- Survey papers
- Theoretical papers
- Dataset / Benchmark papers
- Artifact (full paper)
- Opinion / Position paper

For M-type papers the policy is that candidates use them as-is for a chapter, only changing trivial things like "in this paper" to "in this chapter" and "[ref to paper]" to "reference to chapter" where appropriate.

X-type papers:
- Demo paper
- Creative AI / Interactive Art
- Paper derived from an organised event where the PhD contributed to the organisation (panel, workshop, challenge)

X-type papers are often short (e.g., 2-page demo paper). To include them as a chapter they should be extended for the thesis with, for instance, theoretical underpinning, design rationales, process details, or system engineering aspects.

The policy for how these two types of papers fit into a thesis are described below in the 3+1 PhD Thesis Policy.

Collaboration

Collaboration is increasingly important in computer science as (sociotechnical) systems and the underlying algorithms and interfaces are becoming more complex. We therefore greatly value papers that are jointly written. Collaboration is an essential component of work—both within academia and beyond—and should therefore be encouraged. We aim to stimulate collaboration among MultiX PhD students and Postdocs without compromising the quality of research, publications, or doctoral theses. To achieve this, we make the rules regarding co-first authored papers explicit. For three of the papers in the thesis we follow the rule that a joint first-co authored paper counts as one over the number of first co-authors (see the "Authorship Credit" subsection below). For one of the four papers in a thesis this rule does not hold, allowing for a more flexible credit distribution.

MultiX 3+1 PhD Thesis Policy

The 3+1 Policy is designed to close the gap between our research vision and formal graduation requirements. It recognises the diverse, high-impact contributions valued by the MultiX group—such as systems, artifacts, data sets—while maintaining high academic standards.

1. Thesis Structure

A PhD thesis must present a coherent narrative consisting of at least four chapters based on scientific contributions:
- At least **three** chapters must be based on **M-type** papers.

One chapter may be based on an **X-type** contribution, provided it is extended appropriately for the thesis.

2. Authorship Credit

In general, we acknowledge the fact that co-authored papers may lead to papers with multiple first authors, identified as such in the final publication[1]. For these we have the following guidelines regarding the use of co-authored publications for the PhD thesis:

- **Standard Rule**: Papers with the PhD student as the single first author count as a full chapter. Co-first author papers count inverse proportionally to the number of co-first-authors (for both M and X-type), so a paper with two co-first authors counts as half a chapter. Each co-first author can use that chapter in their thesis even if this leads to the same paper appearing in multiple theses.

To encourage collaboration, we allow one exemption from the standard proportional credit rule:
- **The Exemption**: For one of the four chapters (either M-type or X-type), a candidate who is one of two co-first authors receives full credit for that chapter meaning it counts as a full chapter and might in principle be used in both first authors' thesis.

3. Publication & Quality Standards

- **Acceptance Status**: At least three contributions must be accepted for publication; the fourth may be currently under submission.

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[1] The decision whether the candidate is an equal co-first author will be based on the consensus among the principal investigator of the research, the student, and the other first author(s).

- **Venue Quality**: All contributions must be in venues of sufficient quality, as determined and approved by the thesis supervisors.[2]

4. Exceptions

Deviations from this policy are possible in exceptional circumstances. Such cases require the agreement of the thesis supervisors and at least one other senior staff member within the MultiX group.

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[2] For consideration of the quality of publications we took a look at the CFPs of relevant venues, see Appendix 1. This is not an exhaustive list.

Appendix 1 - CFPs overview of relevant venues

To structure the process of determining what possible papers could include, we considered the CFPs (Call for Papers) of venues that we typically publish at.

ACM MM:
- Call for Regular Papers
- Call for Brave New Idea Papers
- Call for Dataset Papers
- Call for Demo and Video Papers
- Call for Grand Challenge Papers
- Call for Interactive/Digital Art Installations
- Call for Open Source Software
- Call for Reproducibility Companion Papers

NeurIPS:
- Papers
- Position papers
- Datasets & Benchmarks
- Tutorials
- Competitions
- Creative AI papers / artworks

ACM CHI:
- Papers
- Posters
- Interactive Demos
- Panels / Workshops

ACM FAccT:
- Papers
- CRAFT sessions (Critiquing and Rethinking Fairness, Accountability, and Transparency, similar to workshop but can be broader and interactive)
- Tutorials

CVPR:
- Papers
- Tutorials
- Workshop
- AI Art
- Demos

Across these we can see the following overlapping types of contributions (most common types found with PhD theses underlined, with bold for the most common interpretation of the current policy):

- **<u>Methodological / Empirical papers</u>**
- <u>Survey papers</u>
- Theoretical papers
- <u>Dataset / Benchmark papers</u>
- Artifact papers
- Demos / Software
- Creative AI / Interactive Art
- Opinion papers
- Organised events (workshops, tutorials, competitions)