

Review of Doctoral Dissertation by Anna Gelich

WHAT IS MY ARTWORK WORTH IN THE 21st CENTURY?

APPLYING COMPUTATIONAL TECHNIQUES TO THE PROBLEM OF CONTEMPORARY VISUAL ARTS EVALUATION: RECOMMENDER SYSTEM FOR ART PRICING

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Criteria for PhD Review

1. The Doctoral thesis presents the candidates **general theoretical knowledge** in the Discipline
2. The candidate has the **ability to independently conduct scientific or artistic work**
3. The subject of the doctoral thesis is **an original solution to a scientific problem**, an **original solution in the scope** of apply the results of ones own scientific research in the economic or social sphere or an original artistic achievement.

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General Review and Feedback

I would like to recommend that Anna Gelich's research study is awarded a PhD Doctorate of Philosophy following completion of some **changes** which are detailed in the following review report. Some changes may not be possible to complete but I would recommend that they are at least acknowledged within the thesis as an area for further and future research.

This research study is complex and interdisciplinary with multiple facets to the research. It took some time for me to understand the subject matter and the full extent of the research study. I would also like to insert a caveat with regard to my critical evaluation of the research. I am not a computer scientist but I do have extensive experience working in software design and development, in particular with search platforms for rich media. However, my technological knowledge is limited and the short timeframe provided to me to review this research was three weeks.

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Firstly, I would like to congratulate Anna on her choice of subject which is both a topical and emerging field of research that is transdisciplinary in nature, spanning art, design, technology and business/marketing discipline areas. This research examines artistic practice and its commercial value through an empirical lens and applies computer science techniques, including software platform design and rapid prototyping. In addition Anna presents a body of personal practice artworks that explore and experiment with art concepts from the avant-garde coupled with digital technologies, audience interaction and virtual space to create hybrid spatial experiences.

The thesis and portfolio present an interesting and emerging space for art and technology that requires significant inquiry and further development in order to understand, make accessible and

support the value of emerging artists work in a society increasingly dependent on, and mediated through, digital media and technology platforms.

Anna's research is ambitious and it sets out possible pathways for progressing a digital solution to support the price valuation and promotion of transparent art selling in the digital and real-world market place. Anna's practical work demonstrates the process of an artist exploring screen, digital and virtual technologies as both medium and spatial environment for audience interactions in a hybrid spatial experience.

Anna demonstrates good general theoretical knowledge in the discipline as evidenced throughout the PhD thesis.

She has demonstrated that she has the ability to independently conduct both scientific research and artistic work at an advanced level.

The subject matter of the doctoral thesis and the body of art practice presented demonstrate a clear intent to solve a scientific problem which is pricing contemporary art works in a transparent manner using the advantages of latest technology. The original solution is a prototype recommender system documented in thesis and the body of art works created by Anna.

The weakest area of this PhD research is in the presentation and evaluation of key findings. I have added critical feedback on each chapter with areas which can be expanded on to clarify how the results of the research were evaluated and applied to the research question. I believe the scope of the research is large and some editorial changes in the thesis can help to frame the scope of limitations within this study. Clearly it was not possible to complete so many tasks over the course of the PhD research study. However without clearly framing and acknowledging the limitations of the scope, this appears to highlight clear omissions within the research presented.

If you have any questions or require further clarity on this report, please don't hesitate to contact me.

With kind regards,

Hilary

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Critical Review Notes on Thesis and Recommended Changes

Chapter 1 – Introduction

The thesis is generally well-structured and the introduction sets out the development of contemporary art in the 21st century and the state of contemporary art practices and markets. It sets the scene for the research study and outlines the general territory and gap in current research and the market place – namely that there are few publicly available recommender systems for art pricing/valuation.

Section 1.2.1 Method – This section of the thesis requires further information and detail on the primary research methodologies used and importantly what were the key findings for this research study. Following on from this, these findings should be documented and critically evaluated with regard to their specific influence and impact on how the research study was designed and carried out.

Currently this section is very brief and provides a broad overview of the scope of research methods and stakeholders consulted but does not provide specific detail on the methods used and the findings that followed from this primary research.

The thesis states that 155 interviews were completed during the period of 2017-2020.

The thesis also includes a questionnaire – which is typically understood to be a survey method. This could be a language translation issue? But clarification is required on the use of these research methods as they are different. For example, is Appendix A an interview script set of questions? Or is it a survey questionnaire?

The **survey method** is usually distributed electronically and respondents are invited to complete an online/print questionnaire in an unmoderated context (without the researcher present). This method is useful for primarily quantitative data gathering and measurement may be binary yes/no or via a Likert scale. Typically surveys include only a small amount of qualitative data gathering (usually one or two questions).

The design of the survey questionnaire should be included in the Appendix, and this method should be described sufficiently in the text to include the digital tools used to design the survey form, the method of circulation, the circulation size, respondent sample size, data collection and method of analysis of findings.

The **interview method** is usually conducted in a conversational dialogue between the research and participant (virtual/in-person) and the method should also be described in the thesis. This should include the number of participants, method of communication (in-person, email, phone call etc), type of interview – structured, semi-structured, open etc). Data collection and methods/tool used for analysis for this type of rich data should also be documented and critically discussed within thesis. Typically, the analysis of findings from interviews are qualitative and require thematic coding analysis etc. This is critically important in order to validate the research findings and conclusions from the discovery and definition phase at the beginning of the research study.

Currently, there is little evidence or critical discussion of the findings from either/or interviews or survey questionnaire.

The findings from the primary research carried out by the researcher is separate and distinctly important from secondary research carried out in the literature review of existing research publications on the research topic. If the findings from this phase of primary research are recorded in earlier submissions outside of this thesis, then they should be included as an appendix. But it is usual for a

summary with the details of the methodology, results analysis and conclusions about how the findings inform and shape the subsequent thesis should be included here.

The reason I draw specific attention to this is because there appears to be significant primary research carried out by the researcher (with 155 participants?) which is not presented. This would surely contribute significant original (not secondary research) to this study. Original contribution to knowledge is a critical aspect of PhD research.

Sections 1.3.2 – please add a critical comment on how the rise and development of digital art (and experiences) relates to your research question. For example, how was value for this type of work measured, and how did it gain importance and status. Could it be replicated in a context for viewing outside of the gallery for a potential buyer?

Change recommended

Document primary research methods as discussed above to include all relevant details in order to validate the primary research findings and to further demonstrate and strengthen the candidate's ability to independently conduct scientific or artistic research, and as validation of the research gap. These are both critical elements in the PhD research study.

Conclusions in chapter 1 should discuss the critical comparison between findings from primary research conducted by the researcher with 155 participants, and secondary research (literature). Did the primary research further validate the literature and/or identify gaps? Concluding discussion should show how together they inform the research study undertaken and discussed in following chapters. The researcher can cite her own unpublished primary research to support this discussion and include it as an appendix. This further validates her PhD research.

This change should be completed to also further demonstrate criteria 3 – 'applying the results of one's own scientific research'.

Chapter 2 – About Recommender Systems

Section 2.2.1 Method / Section 2.4 – Please include references and supporting explanatory diagrams for the choice of methods and tools used to plan, design and build your prototype.

For example, the Lean Business Model Canvas in order to provide context for the prototype design process and methodology. It would greatly enhance the clarity of the prototype design process if supporting diagrams could be included – such as competitor analysis table/chart highlighting critical review of key features and functionality, include dataset size and pricing range etc that were identified in existing solutions.

Section 2.4.1 – Recommender System ArtIST (Art-Innovative Systems for Value Tagging)

Is it possible to clarify further how this research was completed outside the Polish-Japanese Academy? Is it prior research and is this research study further building on this or was it merely a funding opportunity?

Is it possible to provide further clarity on which target audience the system is primarily aimed at?

It is described in terms of its potential applications and benefits to a range of stakeholders – which span used by artists themselves in order to price their own work, also art sellers and the general public. Is the system aimed at artists first in order to populate the datasets required for the recommender system to work? Is the system dependent on artists' input to provide the level of transparency for art pricing in the market?

It is unclear if the ArtIST prototype was tested with any stakeholders? If not why? If yes, what were the results and the evaluation etc? Please note this limitation and acknowledge it is planned for next steps, future research.

Chapter 3 – Computer Science Techniques Applied for Features Development

Please include a critical commentary or conclusions drawn from this chapter in relation to your research. For example – for recommender systems to move forward more accurately, are you suggesting that automatic tagging would occur once an artists' work/data is scanned/ingested using these techniques?

And/or will it be necessary to train artists to generate more information about their work and themselves in adherence with meta-tagging systems in order for their work to be evaluated correctly and fairly by such a system.

Chapter 4 – Developing Datasets and Constructing Features

Charts on pages 83–86 should be reproduced larger with clear label descriptors and figure captions to explain the analytics more clearly in order to ease the reader's burden of interpretation and understanding of the charts.

Chapter 5 – Generating Action Rules for Pricing Art and Final Conclusions

This chapter provides a detailed account of generating action rules for pricing art, but conclusions are not clear in the context of your research question.

Please include a critical commentary/conclusion section about what is the impact of the application of the action rules more generally for the design of recommender systems. The discussion here relates to the specific dataset used.

Is it possible to describe how this can be used by/for new artists and what they need to do/understand should they/their work be included in such a system?

Please can you also clarify who (which stakeholder) are setting/applying the action rules and what is the impact on transparency in the recommender system?

Chapter 6 – Art Experiment

The artistic practice and artworks discussed in this chapter demonstrate Anna's engagement with digital technologies and hybrid spatial environments and audience experiences. Malevich's Black Square is referred to as a key inspiration for Anna's art practice in terms of its avant-garde 'revolutionary spirit' to move art forward and for its association with identifying 'novelty' as a key driver of commercial value for art (as cited earlier in Chapter 1).

The description and discussion of Anna's artistic intent and process as an artist, through the development of works mediated through, with and delivered by digital technologies and screen media provides significant insights into her exploration of light, colour and space perception through hybrid environments.

I would like to see further concrete and critical links discussed between Anna's art practice (documented here) and its relationship to the recommender system.

For example, has Anna tried to estimate the value of these artworks using the system she has prototyped. Anna identifies significant novelty in her work, it also uses digital media and technologies and so there are questions about its reproduction.

How might artworks such as these be assessed for pricing and what data is required to include them in a recommender system? How do action rules apply here?

This PhD research is a story of two parts – the scientific methodology and prototyping of an art valuation/pricing and recommender system – and a body of artistic practice and process by the research that explores contemporary art and the audience experience.

Can these parts be further more closely reconciled or described within the context of the PhD?

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Finally, it is commendable that prototype recommender system was developed during this PhD research study. However, it is important to acknowledge the limitation within the research as it appears no user testing for feedback was reported from the identified range of stakeholders (artists, art auctioneers, consumers etc). This is an important limitation in scope and should be identified in the conclusions and next steps for the research.