Choir in the Loop
Singer-Aware AI Composition Practice

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Abstract

This workshop explores the interaction between AI co-created choral composition and human performance through a live, participatory format: an open rehearsal by Café Latte, the Vrije Universiteit Brussel university choir. Via an open call, we invite contributors to submit SATB pieces curated with choral performability, dynamics and expressivity in mind. Selected works will be rehearsed publicly with the co-creators present, offering a unique opportunity to examine how amateur singers engage with AI-assisted composition. The workshop aims to move beyond evaluation paradigms such as the "Musical Turing Test", instead encouraging collaborative inquiry into how generative systems can meaningfully interact with vocal practice. By involving composers, performers, and audience members, this session explores the reality of AI music performance and contributes to the development of singer-aware generative models and practices.

1 Introduction

Choral music has been a long-standing interest of the AI music community. In particular, four-part Bach-style chorales were extensively used as a case study due to the readily available corpus and the well-formalised theory behind it (Agres et al., 2016).

However, this task has often been approached as an abstract generation task, overlooking the importance of expressive performance, which should already be considered during the (automatic) composition (Carnovalini and Rodà, 2019), as well as the interpretive role of the performers and the embodied nature of choral practice. Following the theme *The Artist in The Loop*, this workshop aims to shift the focus from symbolic output alone to the interpretation and performance of AI (co-)composed music.

In particular, we propose to investigate the peculiarities of humans performing AI choral music by inviting the Vrije Universiteit Choir *Café Latte* to show the conference participants an open rehearsal of AI compositions collected through an open call.

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1.1 Related Work

Our approach builds on the work of Sturm and Ben-Tal (2021), whose application of generative modelling to folk music focuses on co-creation, rather than emulation. They provide a framework for evaluating the usefulness and impact of music AI on real-world practitioners. This has been put to practice through several different media, including live performance, an album release, and online interactive tools. In Sturm and Ben-Tal (2017), they propose a multifaceted approach that, besides population statistics, model inspection, includes practice-level evaluation, co-creator reflection, and feedback from audiences and practitioners as complementary perspectives on the value of AI-generated music. Subsequent work (Sturm et al., 2019) stresses the importance of closing the loop between academic development of musical models and real-world use, to guide model development and research relevance.

In particular, Sturm et al. (2019) report the results of a concert showing AI co-composed music to the general public including human composers and performers, and similar events have been reported in the aforementioned papers and elsewhere. Our workshop continues this tradition, but also offers a more "intimate" view on the process of humanly performing AI music by showing the rehearsals behind the concert.

2 Proposed Activity

2.1 Preliminary work

The workshop will require some activities to be performed prior to the actual day of the event. We will prepare a call for contributions and circulate it upon acceptance, to invite researchers and composers to contribute to the workshop through AI co-composed pieces. The call will specify the characteristics of the desired pieces, most notably SATB choral pieces that are within the capabilities of the choir (which is mainly comprised of amateur singers who do not sight-read music) and provide examples of the current repertoire of the choir.

The call will also substantiate some desired features of the pieces: novel music that explores the interaction between the choir singers and between the choir and the AI system (possibly mediated by the composer); and/or that can provide interesting performative challenges where human singers can enrich the composition in ways that would be harder to achieve through computational means (e.g., by allowing room for interpretation). Although these requirements will be lax, they are meant to foster experimentation in the aspects we are most interested in, as substantiated in the introduction.

With the help of the workshop team, the choir director will be responsible for the final selection of pieces among the collected submissions. There will be no peer review, as the selection is based on practical considerations to try to ensure the best outcome of the workshop. Besides the overall difficulty, pieces will be selected based on the potential scientific interest in performing them. We expect to select two to three pieces.

Should there be not enough suitable submissions, the workshop team will provide additional ones by creating new compositions themselves with the help of available AI methods or by selecting already existing compositions made with the help of AI.

2.2 The Workshop

The workshop itself will be structured as an open rehearsal, followed by a brief concert. The choir will have already rehearsed the parts to ensure the performability of the pieces, but this rehearsal will specifically focus on the expressive and performative aspects of the piece.

The rehearsal will last two to three hours. The participants of the conference will be invited to participate in one of three ways:

1. As co-composers: the persons whose submissions were accepted for the workshop will be invited to explain the overall composition process and give performance suggestions. (max 3 proposals, possibly with multiple authors)

2. As performers: those who feel capable of joining the choir will be invited to do so, and will be provided the parts beforehand to prepare (this will be limited to a maximum of 20 persons to not overwhelm the choir).
3. As attendees: those that do not wish to actively join will be invited to attend nonetheless, and optionally provide comments on the activity through a brief questionnaire (this will only be limited by the size of the chosen room).

All attendees who provide data, both the compositions themselves and comments or judgements on the compositions, will be asked to sign an informed consent. The (co-)composers will also be asked to provide a Creative Commons license for their pieces, or another license that will allow the choir to perform the pieces at the conference and potentially at future concerts.

We will purposely not perform a "Musical Turing Test" (Sturm and Ben-Tal, 2021) but rather focus on the novel possibilities of collaboration between AI and humans, showing what AI compositions are not considering of the embodied nature of choral practices, and how humans can "take back" and enrich AI composition through performance. If feasible, selected pieces may enter the choir's active repertoire, sustaining human-in-the-loop engagement and further spreading their artistic and practical value.

The workshop will provide a stage for some researchers working on the (automatic) composition of choral music, and create an opportunity for fostering the creation of novel performer-aware music. The experience is also expected to foster fruitful discussions in the community in the role of the human performer in the creation of AI (co-)composed music, by showing the process behind the preparation of such a concert.

References

Agres, K., Forth, J., and Wiggins, G. A. (2016). Evaluation of musical creativity and musical metacreation systems. *Comput. Entertain.*, 14(3).

Carnovalini, F. and Rodà, A. (2019). A multilayered approach to automatic music generation and expressive performance. In *2019 international workshop on multilayer music representation and processing (MMRP)*, pages 41–48. IEEE.

Sturm, B. L. and Ben-Tal, O. (2017). Taking the models back to music practice: Evaluating generative transcription models built using deep learning. *Journal of Creative Music Systems*, 2:32–60.

Sturm, B. L. and Ben-Tal, O. (2021). Folk the algorithms:(mis) applying artificial intelligence to folk music. *Handbook of Artificial Intelligence for Music: Foundations, Advanced Approaches, and Developments for Creativity*, pages 423–454.

Sturm, B. L., Ben-Tal, O., Monaghan, Ú., Collins, N., Herremans, D., Chew, E., Hadjeres, G., Deruty, E., and Pachet, F. (2019). Machine learning research that matters for music creation: A case study. *Journal of New Music Research*, 48(1):36–55.