



MILC 2023: 3rd Workshop on Intelligent Music Interfaces for Listening and Creation

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ABSTRACT

The third edition of the Workshop on Intelligent Music Interfaces for Listening and Creation (MILC), held in collaboration with the 28th International Conference on Intelligent User Interfaces (IUI) features a half-day program addressing recent and future developments in human-centered music technology. The presented papers cover recommendation in sound libraries, the use of generative systems for composition in Digital Audio Workstations (DAWs), tools for richer means of interaction with music streaming platforms, and music personalization for Cochlear implant users.

ACM Reference Format:

Peter Knees and Alexander Lerch. 2023. MILC 2023: 3rd Workshop on Intelligent Music Interfaces for Listening and Creation. In *28th International Conference on Intelligent User Interfaces (IUI '23 Companion), March 27–31, 2023, Sydney, NSW, Australia*. ACM, New York, NY, USA, 2 pages. <https://doi.org/10.1145/3581754.3584164>

1 INTRODUCTION

Since its first edition held at IUI 2018¹ [2], the Workshop on Intelligent Music Interfaces for Listening and Creation (MILC) has provided a forum for discussing and presenting the latest trends in human-centered music technology. This followed the observations that all aspects of the “music ecosystem”—from recording to production to distribution to consumption—are permeated by digital technology and that so-called intelligent technologies and interfaces play a crucial role during all these steps, ultimately impacting the creative processes taking place. As the workshop title suggests, the two aspects of *music consumption* (i.e., listening) and *music creation*, are of particular interest in this context. This was already reflected in the received submissions and workshop program of the first edition, dealing with the personalization of systems for consumers and creators, interaction with intelligent music systems and user interfaces, and intelligent approaches to composition. In the second edition at IUI 2019² [3, 4], we could observe a broadening of the topics covered, now including aspects of music education, interactive sound generation, discovery of interesting sections in generated music, and web-based demonstration of musical machine learning.

¹<https://iui2018milc.github.io>, last accessed Feb 21, 2023

²<https://milc2019.github.io>, last accessed Feb 21, 2023

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IUI '23 Companion, March 27–31, 2023, Sydney, NSW, Australia

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ACM ISBN 979-8-4007-0107-8/23/03.

<https://doi.org/10.1145/3581754.3584164>

In the time since, these developments did not fade; on the contrary, we have witnessed data-driven and machine-learning-based approaches pushing forward the state of the art in virtually all areas of machine listening and music analysis (as, e.g., witnessed through the contributions to a special issue on “Machine Learning Applied to Music/Audio Signal Processing” edited by the workshop organizers [5]). Moreover, data-driven systems for music composition and sound generation have received massive attention, following the increasing use and visibility of generative systems in general. Similar to the text and image domains, these comprise systems allowing to produce music content in response to descriptive prompts, opening new paths for human-AI co-creation.

In this third edition of the MILC workshop,³ we see the breadth of this evolution: recommendation in sound libraries, the use of generative systems for composition in Digital Audio Workstations (DAWs), tools for richer means of interaction with music streaming platforms, as well as music personalization for Cochlear implant users. These topics, represented in the accepted contributions, are described in more detail in the next section.

2 WORKSHOP TOPICS AND CONTRIBUTIONS

The workshop features four original contributions, consisting of one full research paper [8] and three short vision/position papers [1, 6, 7]. In terms of the workshop themes, two papers are dealing with topics of music creation [1, 8], and two with topics of music listening [6, 7].

The paper “The Impact of Salient Musical Features in a Hybrid Recommendation System for a Sound Library” by Smith et al. [8] deals with multiple musical attributes for the recommendation engine of the EarSketch online learning environment for teaching coding and music concepts through sound creation and manipulation. For exploration and selection of sounds from the sound library, a recommendation component that incorporates acoustic similarity and collaborative filtering methods is used. In the presented paper, Smith et al. [8] aim to improve the given recommendations and present material with higher relevance in the creation process by including the musical dimensions of key and rhythm. An analysis of the effects caused shows an increased coverage of sounds within the library within the recommendations as well as among the sounds selected by users.

The vision paper “Composing with Generative Systems in the Digital Audio Workstation” by Clester and Freeman [1] presents LambDAW, a prototype to integrate generative music systems and algorithms into the music creation process within DAWs. LambDAW is demonstrated as an extension to REAPER and allows the user to put Python-based audio or MIDI generation code in the

³<https://milc2023.github.io>, last accessed Feb 21, 2023

timeline, mixing generative elements with static material in well-established workflows.

Dealing with the consumer's side, "EmoMusic: A New Fun and Interactive Way to Listen to Music" by Shukla and Xia [7] proposes to augment the user experience by extending the mode of interaction during listening. More specifically, Shukla and Xia [7] argue for an integration of emoticons to present music alongside a more nuanced representation of emotions as well as allowing users to provide feedback on their emotions on this level.

A path to personalization of music listening experiences for people using Cochlear implants is presented in the vision paper "Toward a Tool for Music Personalization for Cochlear Implant Users" by May et al. [6]. The authors present initial results of an exploratory study on context-specific audio mixing, involving expert listeners, i.e., users of Cochlear implants, and professional audio engineers, aimed to inform the creation of a web-based tool for music listening experience customization.

3 WORKSHOP ORGANIZATION AND COMMITTEES

Organizers and Program Chairs

Peter Knees is an Associate Professor of the Faculty of Informatics of TU Wien, UNESCO Chair on Digital Humanism, and coordinator of the SIG Digital Humanism of TU Wien's Center for Artificial Intelligence and Machine Learning (CAIML). In the past, he was a University Assistant at Johannes Kepler University Linz in Austria and a Visiting Assistant Professor at Georgia Institute of Technology in the United States. He holds a Master's degree in Computer Science from TU Wien and a PhD in the same field from JKU Linz. For almost two decades, he has been an active member of the Music Information Retrieval research community, reaching out to the related fields of multimedia and text information retrieval, recommender systems, and the digital arts. His research activities center on music search engines and interfaces as well as music recommender systems, and smart(er) tools for music creation. **Email:** peter.knees@tuwien.ac.at, **Web:** <https://www.ifs.tuwien.ac.at/~knees/>

Alexander Lerch is Associate Professor and Director of Graduate Studies at the School of Music, Georgia Institute of Technology. He received his "Diplom-Ingenieur" (EE) and his PhD (Audio Communications) from Technical University Berlin, Germany. His research focuses on audio content analysis and applied machine learning for music analysis and generation. His work is at the intersection of signal processing, machine learning, and music. He authored more than 50 peer-reviewed journal and conference papers, as well as the text book "An Introduction to Audio Content Analysis" (IEEE/Wiley). Before he joined Georgia Tech, he was Head of Research at his company *zplane.development*, an industry leader in music technology licensing. **Email:** alexander.lerch@gatech.edu, **Web:** <http://www.alexanderlerch.com>

Workshop Program Committee

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- Fabien Gouyon, Pandora Inc.
- Masataka Goto, AIST Japan
- Dietmar Jannach, AAU Klagenfurt

- Jason Smith, Georgia Tech
- Koray Tehiroğlu, Aalto University
- Ashvala Vinay, Georgia Tech

All submissions were reviewed by at least three members of the program committee.

Web and Technology Chairs

- Jason Smith, Georgia Tech
- Ashvala Vinay, Georgia Tech

ACKNOWLEDGMENTS

We thank IUI's workshop chairs Alison Renner and Paul Taele for their support in organizing the workshop at IUI'23. This research was funded in whole, or in part, by the Austrian Science Fund (FWF) [P33526]. For the purpose of open access, the author has applied a CC BY public copyright license to any Author Accepted Manuscript version arising from this submission.

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