

and social change. Recent technological advancements have placed human creativity in a precarious position, potentially undermining this essential human function. This has significant implications for musicians and artists and serves as a catalyst for redefining our understanding of aesthetics.

The surge in AI research in recent years has led to the development of numerous tools capable of automatically generating new music, as part of a field known as computational creativity. These sophisticated AI technologies can create complete musical pieces across various genres. However, many of these tools lack a human-centered approach, failing to accommodate for meaningful contributions from musicians or artists and limiting the potential for productive and fulfilling creative experiences. They also tend to focus primarily on the creative product rather than the creative process.

This thesis aims to address this gap by investigating, through a series of experiments, the impact of integrating functionalities into these tools that are more aligned with the mechanics of human musical creativity. By understanding and modeling the traits of human creativity more accurately, we can develop tools that better serve artists, culture, and society. This research will contribute to a deeper understanding of musical creativity and contribute to the development of AI tools that augment, rather than replace, human creative endeavors.

Contribution to the Workshop: For this workshop, I would like to share my experiences and insights from developing and performing with an experimental Max/MSP performance system. This system utilizes a granular synthesizer as the core engine, complemented by a vocoder to produce a human-like or deliberately pseudo-human sound. MIDI information, trained on various songs through the **ml.markov** tool, guides the system.

The use of Markov chains, though a classical AI technique, has proven to be a valuable tool in my exploration of musical creativity. My project embodies the fusion of technical and creative practices, aligning with the workshop's focus on the diverse social and cultural impact of AI and ML technologies in musical contexts.

Personal Experience and Practice

During the Cork Midsummer Festival, I had the opportunity to perform with this system, which allowed me to reflect on the nuances of interacting with AI in real-time. The performance highlighted both the potential and limitations of current AI tools in creating a fruitful and dynamic co-creative environment.

A Still from live performance below:



Critical Reflections and Future Directions

In line with the workshop's emphasis on first- and second-person methods, I will present my personal narrative on the design and use of this system. I will discuss how the Markov object could be improved. It could be dynamically trained during a performance based on various data inputs. The most compelling of which could be the humans using it or different live variables in the performance environment. Development of a physical interface using Arduino or similar technologies would be worthwhile, in a codesign context. Moreover, I am interested in incorporating more sophisticated machine learning techniques but crucially in a user-friendly way to improve the system's capabilities.

Broader Implications

Through my participation, I aim to contribute to critical discussions about the integration of AI/ML in musical interfaces, highlighting the importance of human-centric design and the need to focus on the creative process rather than just the final product. My work seeks to challenge and expand the current discourse surrounding AI in music, proposing new interaction strategies and design implications that prioritize the artist's role and experience.

I look forward to the opportunity to share my journey and engage with fellow artists, researchers, and technologists in this enriching workshop.

Acknowledgements

This publication has emanated from research conducted with the financial support of Science Foundation Ireland under Grant number 18/CRT/6222. For the purpose of Open Access, the author has applied a CC BY public copyright licence to any Author Accepted Manuscript version arising from this submission.

Attachments:

- Abstract of the research proposal (included above)
- Short video demo of the performance system in action (linked at the top)
- Pictorial documentation of the Max/MSP patch and performance setup (see above)

Thanks!!

Eric Browne