



Musically Embodied
Machine Learning

Responsible AI and Music workshop

17/07/2024

Musically Embodied Machine Learning (MEML)

AHRC Fellowship Project - 18 Months

University of Sussex



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The artist at the centre of AI

With online, real-time AI embedded in musical practice

Signal processing, effects

Sound synthesis

Simple interfaces for complex tasks

Gesture mapping/processing

Co-creation, pattern generation

Make an instrument that learns
from/with you

Create/improvise/negotiate
with the machine

Tuneable Machine Learning

Musicians training ML models as part of their practice

The entire process of training and inference embedded within the instrument

Embedded Framework
for in-situ learning

ML models for on-line
learning



Interfaces providing the
right usability/aesthetics

Practices that productively
incorporate ML

Our questions

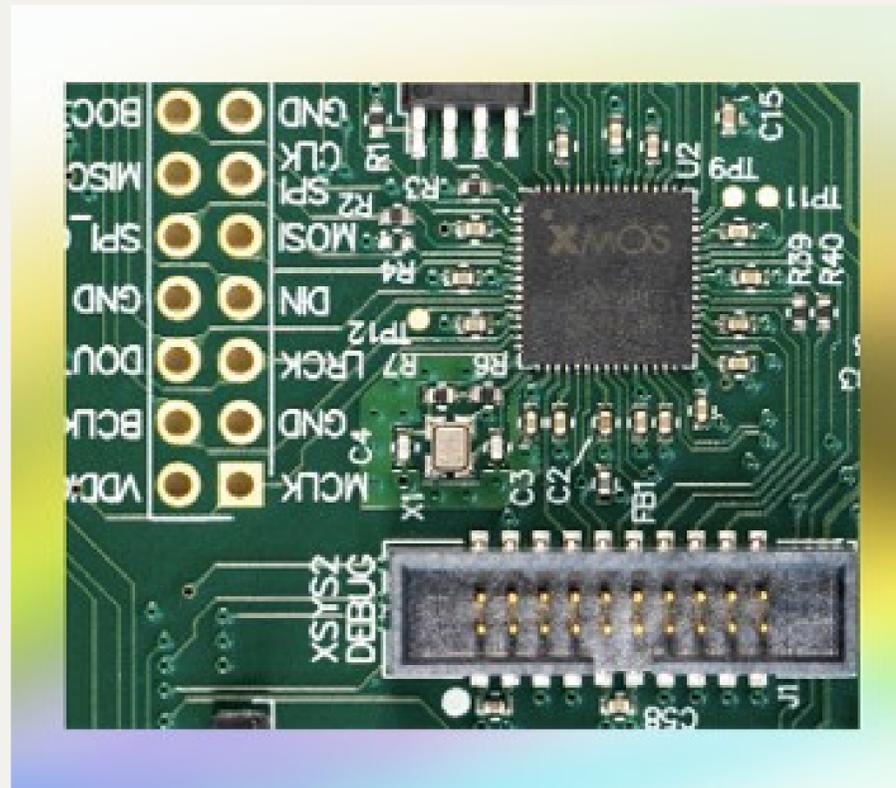
Interface: how do you “present” an AI model to a musician?

Practice: how does this system affect the musician?

Ethics: does artist-centred AI pose its own set of issues?

Framework

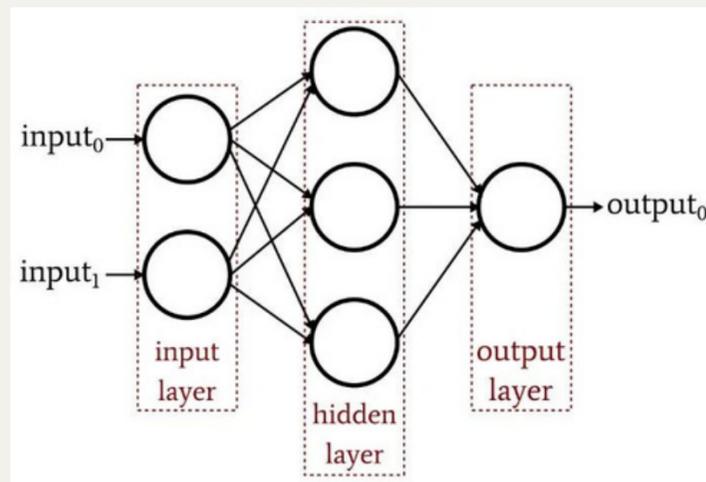
A bare-metal ML library for the XM0S platform
...and an open community around it



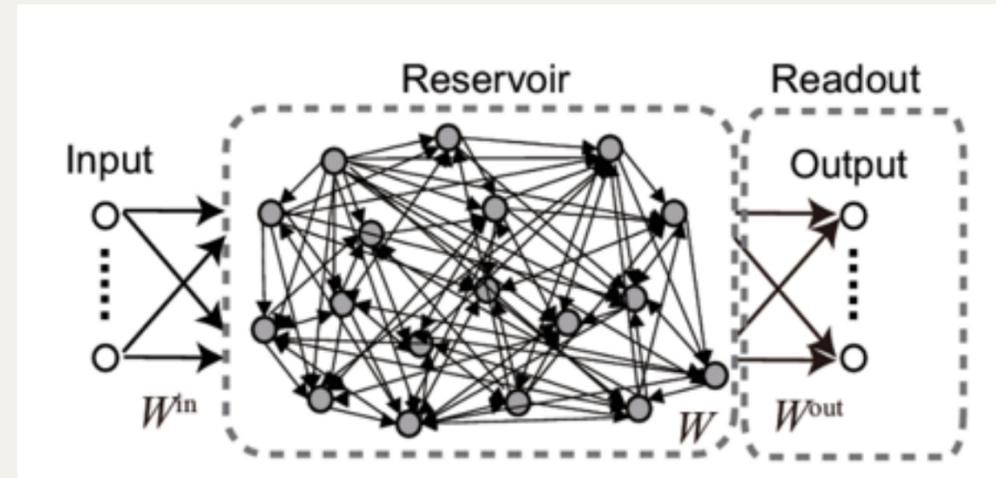
github.com/MusicallyEmbodiedML

Models

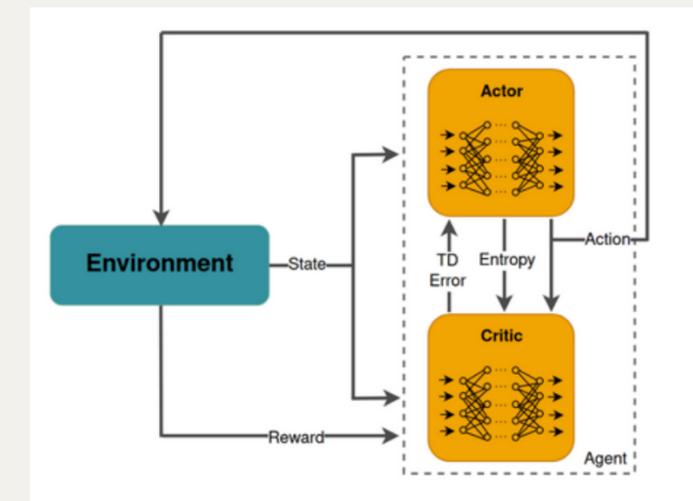
Simple MLP



Echo State Network/ Reservoir Computing

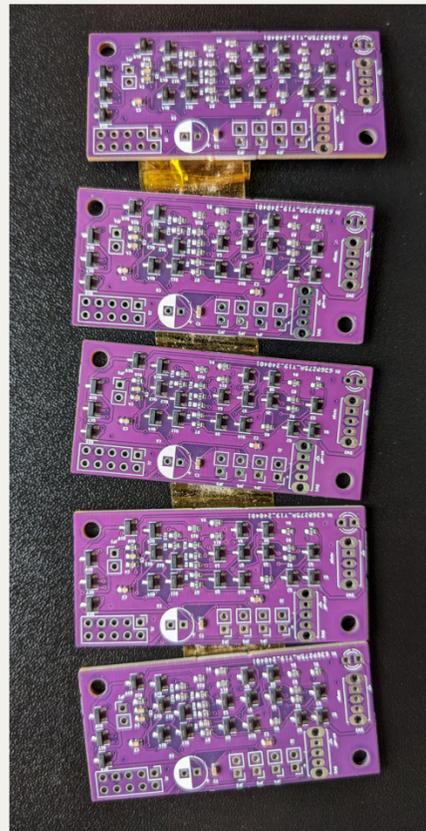


Soft Actor Critic



Interfaces

Probe instruments



Participatory design

2 musicians

9 months

Longitudinal study
+ concerts



Thank you!

github.com/MusicallyEmbodiedML

