Mozart in the box

Interacting with AI tools for music creation

Alex Palladini
AI AND MUSIC?
WHAT DO YOU EXPECT?
HUMAN TO AI INTERACTION

The user experience of humans interacting with system that leverage AI technology.
AI in COMPLEX SYSTEMS

Deployment of AI technology in complex systems and workflows.
FEAR of AUTOMATION

I'M SORRY, DAVE. I'M AFRAID I CAN'T DO THAT.
FEAR OF AUTOMATION

Tesla Model 3
FEAR OF AUTOMATION

James Locke @arctechinc
Replying to @elonmusk
so does this mean no heads up display in Model 3? How will Tesla handle speedometer and Instrument Cluster information?

Elon Musk
@elonmusk
The more autonomous a car is, the less dash info you need. How often do you look at the instrument panel when being driven in a taxi?
2:47 PM - Mar 24, 2017
735 people are talking about this
FEAR OF AUTOMATION

Grae_person74 @GRae_1974 · 2 Aug 2017
Replying to @elonmusk

Fred Janon @fjanon · 29 May 2017
Replying to @elonmusk @arctechinc
Depends on the taxi... In a Parisian taxi, my eyes are glued to the speedometer. HUD = zee man is feeling like a jet fighter pilot.

ValesAlex @Aleval111 · 30 May 2017
Replying to @elonmusk @arctechinc
actually im sorry to say this but it's one of the things i focus the most, i like to see how im driven no matter who

Jarjeh Fang @bluejayfang · 3 Apr 2017
Replying to @elonmusk @arctechinc
Constantly, in wide eyed terror.
PSYCHOLOGY OF COMPLEX SYSTEMS

Imagination is easy. Innovation is hard.
COMPLEX SYSTEMS ARE HARD TO INNOVATE

1. Designed by experts for experts.
2. Have many critical parameters and controls.
3. Require intense training and learning effort.
4. Mistakes and failures must be avoided at all costs.
5. Their users are extremely conservative.
ACTIVE USER PARADOX: PRODUCTION BIAS

It reduces user motivation to spend any time just learning about the system.

When situations appear that could be more effectively handled by new procedures, they are likely to stick with the procedures they already know, regardless of their efficacy.
ACTIVE USER PARADOX: ASSIMILATION BIAS

People apply what they already know to new situations. Irrelevant and misleading similarities between new and old information can blind learners to what they are actually experiencing, leading them to draw erroneous comparisons and conclusions.
WHY MUSIC?
COMPLEXITY

Behaviour of a system or model whose components interact in multiple ways and follow local rules.
EXPERIENCE

The knowledge of a subject gained through involvement and exposure to it.
MASTERY

Comprehensive knowledge or skill in a particular subject or activity.
FLOW

State of consciousness where people experience deep enjoyment, creativity, and total involvement.
CREATIVITY

The drive to create something new, surprising and that has value.
MUSIC DECONSTRUCTED

Composition | Performing/Recording | Mixing & Mastering
MIXING AND MASTERING
Midas To Launch The World’s First AI And Cloud Based Mixing Console Platform

Hollin Jones on Aug 30, 2019 in News 0 comments
FEAR OF AUTOMATION IN MUSIC

MIDAS
29 August at 20:00

A quick look at artificial intelligence on the Midas Heritage-D

YOUTUBE.COM
Midas Heritage-D AI
A quick look at artificial intelligence on the Midas Heritage-D.
FEAR OF AUTOMATION IN MUSIC

Steve
31 August at 03:30

Just saw the Ai thing. What a waste of r&d. Your allowing the console to do my job based on what? Does the console know that's an 808 and not a 22 inch DW? Does the console know I put a 121 Royer on a Bogner or does it think I'm using a 57 on a Marshall? This shit does not belong in a pro desk. I see desks with libraries of other peoples sounds. Never even listened to them, I do store my own libraries for when I'm running short on soundcheck time but never a preset from someone else. Can't we use our costly r&d on important shit we have to deal with every day that may make the console even more useful like an industry standard clear com input that works down your existing digital snake and allows you to rout it to your in ears, phones, que wedge or anywhere you want, give it it's own talk button that uses your shout mic or whatever, and can you have it flash some of the console lights when someone is calling. Sorry for the rant but I personally don't know anyone (and I know about a 150 pro touring guys) that spends $35k and up on a console and uses eq suggestions from the console. I'm not implying $35k is a lot, it's not for a pro desk. My daily desk costs 3 times that. I expect this from MI class gear, not this target market.
FEAR OF AUTOMATION IN MUSIC

Matt 🤖 Has anyone involved in the AI design actually mixed a few thousand shows?

Matt 🤖 All this AI thing is going to do is produce a crop of lousy engineers who have no idea how to achieve a desired result, or indeed, know if the AI result actually “sounds” good, preferring to simply BELIEVE that it does since the AI said so. Intentionally or not, this will further cut ears out of the equation.

Muso 🎵 Hi Steve,

I understand exactly where your coming from.

I think that sort of thing would have not been in the desk if it was solely a Midas company.

When you are owned & have r&d by a Mi company that core income is the MI market, you will inevitably get non-pro contamination's into their products!!!
FEAR OF AUTOMATION IN MUSIC

Josh: I’m a pro touring guy here... pretty excited for the AI. Demoed it a few months ago and it’s going to be able to replace one of my must have Waves chains. Did you hear about the new Yamaha AI? It can intelligently gate a vocal and reduce bleed. When I tried this on HD and it worked I was so happy... thank you Midas for developing awesome features.

Like · Reply · 5d

Josep: Please do not be retrograde and look to the future of the new generation of consoles. MIDAS is offering a step forward, it is your decision to get on the train of the future. Bravo MIDAS, for bravery.

Like · Reply · 5d · Edited

Raphael: Machine learning will be the dominating factor in our lives during the next 10 to 20 years. That’s just how it is. You don’t have to like it. Regardless of where you look, it’s close to useless right now, gimmicky stuff, but it’s absolutely clear that this stuff has come to stay and will expand and thrive. Peter Sadler was pretty open about the fact that this is work in progress and this is more a matter of “it’s there, once the world is ready for it”. At that point, it will transform into what every you need it to be. That’s the whole idea of AI.
Fear of Automation in Music

#1
Explain the purpose of the Automation.

#2
Make clear what the system can do and how well it can do it.
A METAPHOR FOR AUTOMATION
AUTOMATION AS A COGNITIVE PROCESS
FAST vs SLOW THINKING
BREATHING
LEARNED TASKS
TYPES OF AUTOMATION

1. Information acquisition
2. Information analysis
3. Decision selection
4. Action implementation

LEVELS OF AUTOMATION

0. No Automation
1. Assistance
2. Partial Automation
3. Conditional Automation
4. High Automation
5. Total Automation

SYSTEM ANALYSIS

- **Info Acquisition**
- **Info Processing**
- **Decision Selection**
- **Action Implementation**

- **Total Automation**
- **High Automation**
- **Conditional Automation**
- **Partial Automation**
- **Assistance**
- **No Automation**

AUTONOMOUS SYSTEMS

DESIGN SPACE

MANUAL SYSTEMS
VARIABLE LEVELS OF AUTOMATION

- **Total Automation**
- **High Automation**
- **Conditional Automation**
- **Partial Automation**
- **Assistance**
- **No Automation**

**Info Acquisition**, **Info Processing**, **Decision Selection**, **Action Implementation**

ADAPTABLE SYSTEMS
ADAPTABLE AUTOMATION AND INTERACTION

User Interface

Total Automation
High Automation
Conditional Automation
Partial Automation
Assistance
No Automation

Interaction
Performance Feedback
Interaction Seams
PERFORMANCE FEEDBACK STRATEGIES

1. Optimistic
   Show everything as if it was correct

2. Pessimistic
   Show only what is known to be correct

3. Cautious
   Show the uncertainty of the system

4. Opportunistic
   Exploit uncertainty to improve the system (active learning)
OUR VISION
Intelligent audio machines & augmented creativity.
DESIGN STRATEGIES: PURPOSE

1. Explain the purpose of the AI.
2. Make clear what the system can do and how well it can do it.
3. Show the performance of the system choosing appropriate feedback strategies.
4. Show when the system is not confident.
5. Design for appropriate trust, not for higher trust.
DESIGN STRATEGIES: INTERACTION

6. Minimize the impact on the existing workflow
7. Support efficient invocation.
8. Support efficient correction.
9. Support efficient dismissal.
10. Make the level of automation adaptable.
11. Design clear transitions between the different levels.
12. Focus on UX from the early stages of algorithmic research.
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<th>Info Analysis</th>
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- Make the level of automation adaptable.
- Design clear transitions between the different levels of automation.
- Focus on UX from the early stages of algorithmic research.
MAIN WORKFLOW
Purpose

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CURRENT LEVELS OF AUTOMATION

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1. Assistance
2. Partial Automation
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4. High Automation
5. Total Automation
## Channel AI: Current System Evaluation

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<td>0 - Channel selection</td>
<td></td>
<td>5 - Feature Extraction</td>
<td>3 - Channel name</td>
<td>0 - Name Channel</td>
</tr>
<tr>
<td>0 - Profile creation</td>
<td></td>
<td>5 - Noise Detection</td>
<td>3 - Setting selection</td>
<td>0 - Invoke autosetup</td>
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<td></td>
<td></td>
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<td>3 - Setting generation</td>
<td>0 - Audition Settings</td>
</tr>
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<td></td>
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<td>3 - Instrument Detection</td>
<td>0 - Profile selection</td>
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<td>3 - Audio Analysis</td>
<td>0 - Profile retention</td>
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## Channel AI: Possible Evolution

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CONCLUSIONS

1. Psychology of experts is very important.
2. Applying AI to complex and creative workflows is challenging.
3. State of the art research on UX of complex system has been evaluated.
4. A framework for the evaluation of automation introduced by AI has been developed.
5. This framework can be used to design, assess and improve a system.
Mozart in the box: Interacting with AI tools for music creation

Alessandro Palladini (Music Tribe)
1:45pm–2:25pm Thursday, September 12, 2019
Location: LL21 C/D
Interacting with AI

RATE THIS SESSION