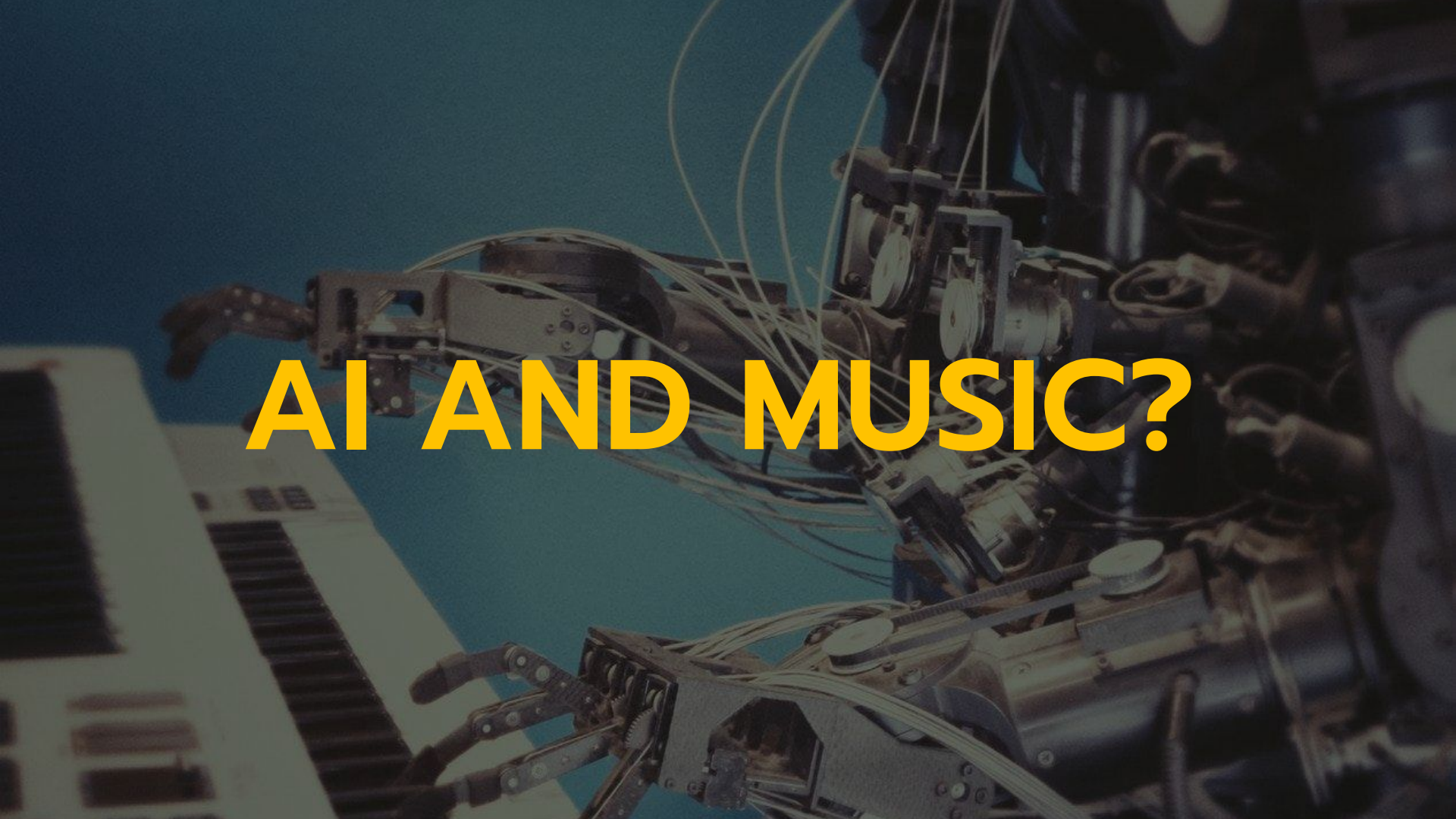
Mozart
in the box

Interacting with AI tools for music creation

Alex Palladini

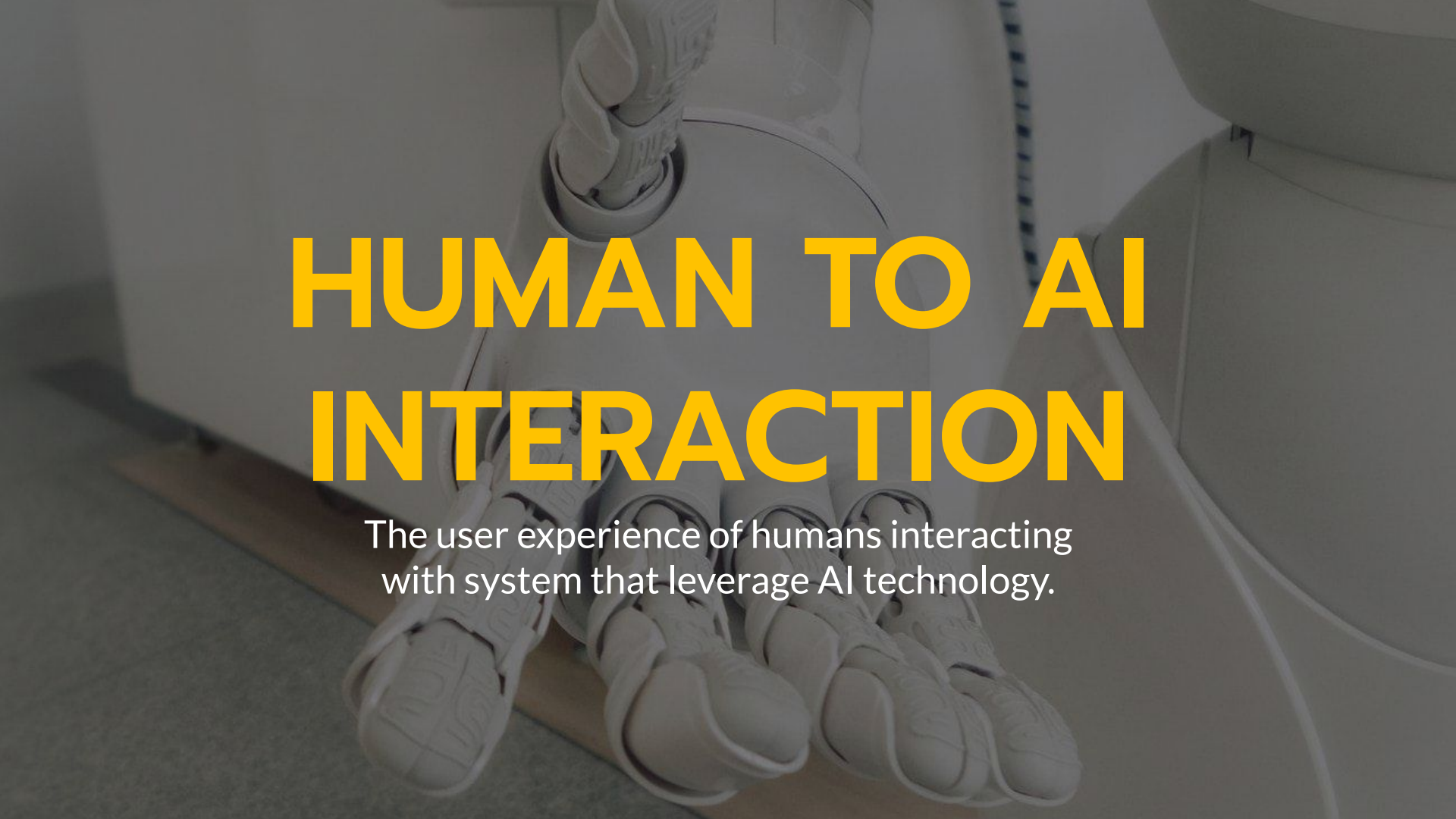
MIDAS MUSIC TRIBE

MIDAS MUS!C TRIBE



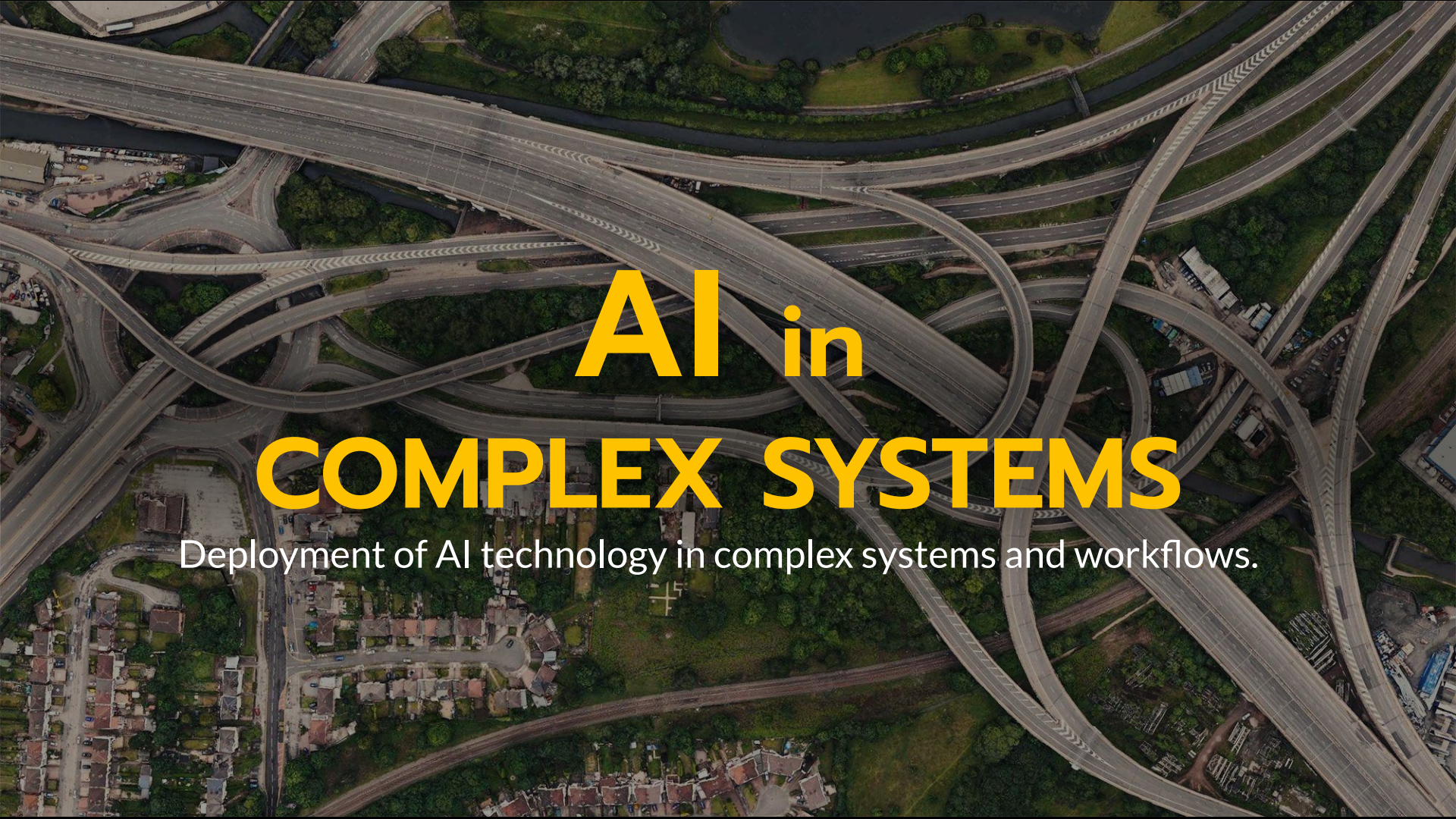
AI AND MUSIC?


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

FEAR OF AUTOMATION

Grae_person74 @GRae_1974 · 2 Aug 2017
Replying to @elonmusk
ALL THE TIME, no matter who is driving. Me. You. AI. Grandpa Simpson.

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 @Alevale111 · 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

Jarjieh 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.

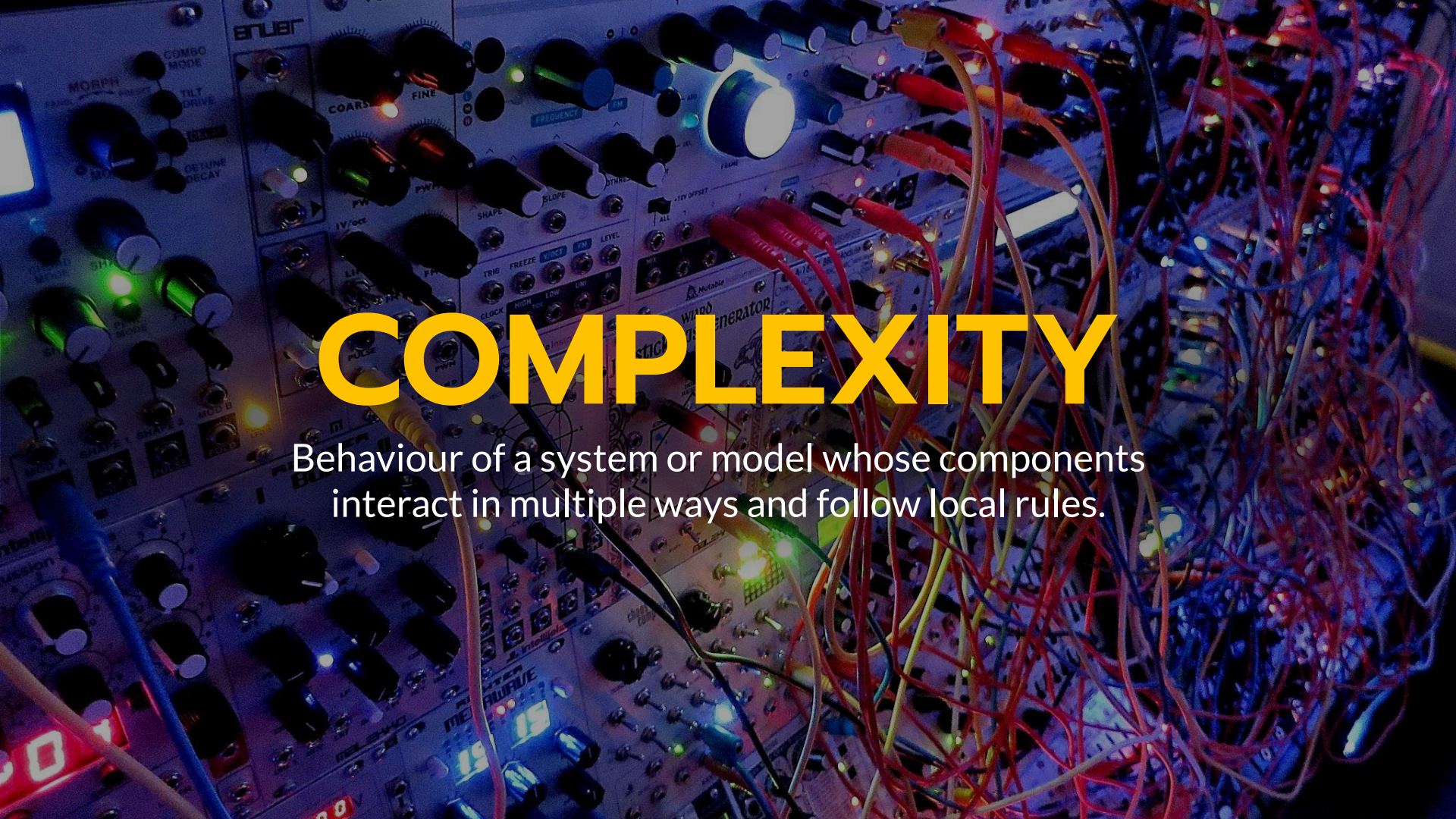
ACTIVE USER PARADOX:

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

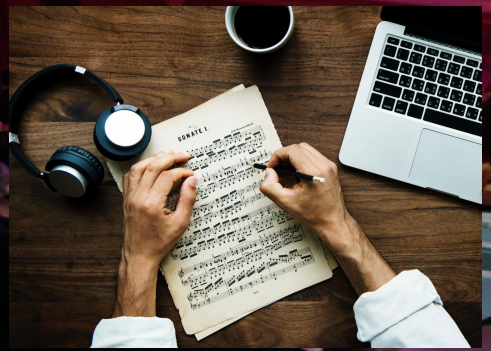
State of consciousness where people experience deep enjoyment, creativity, and total involvement.

CREATIVITY

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

MUSIC DECONSTRUCTED

Composition

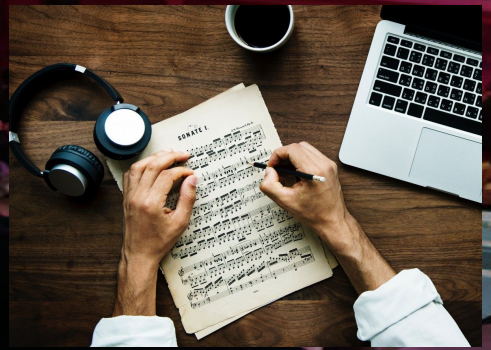


Performing/Recording

Mixing & Mastering

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

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 thats 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.

65 153 comments

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 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 · 15

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 · 7

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.

Like · Reply · 4d · 6

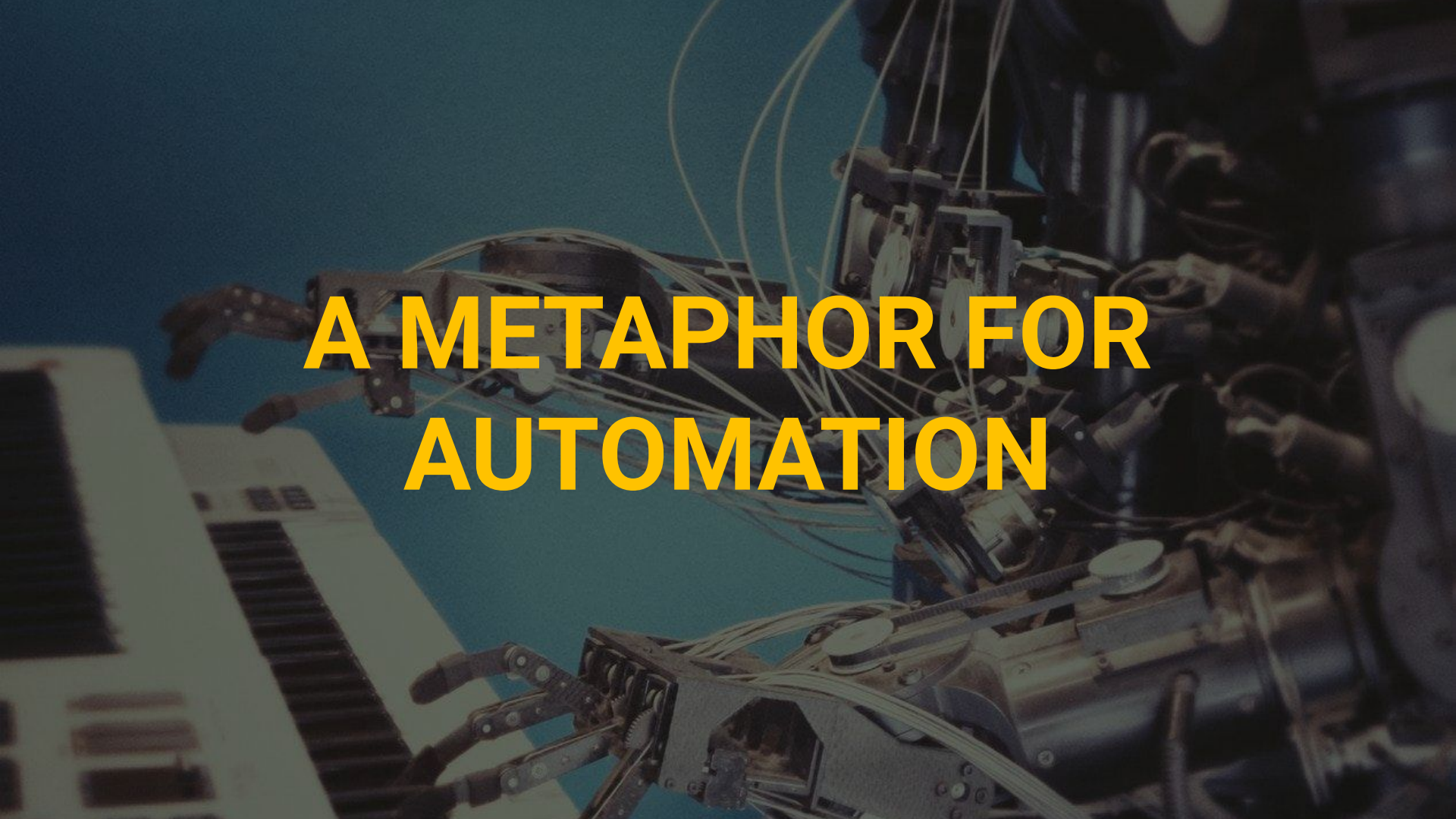
FEAR OF AUTOMATION IN MUSIC

#1

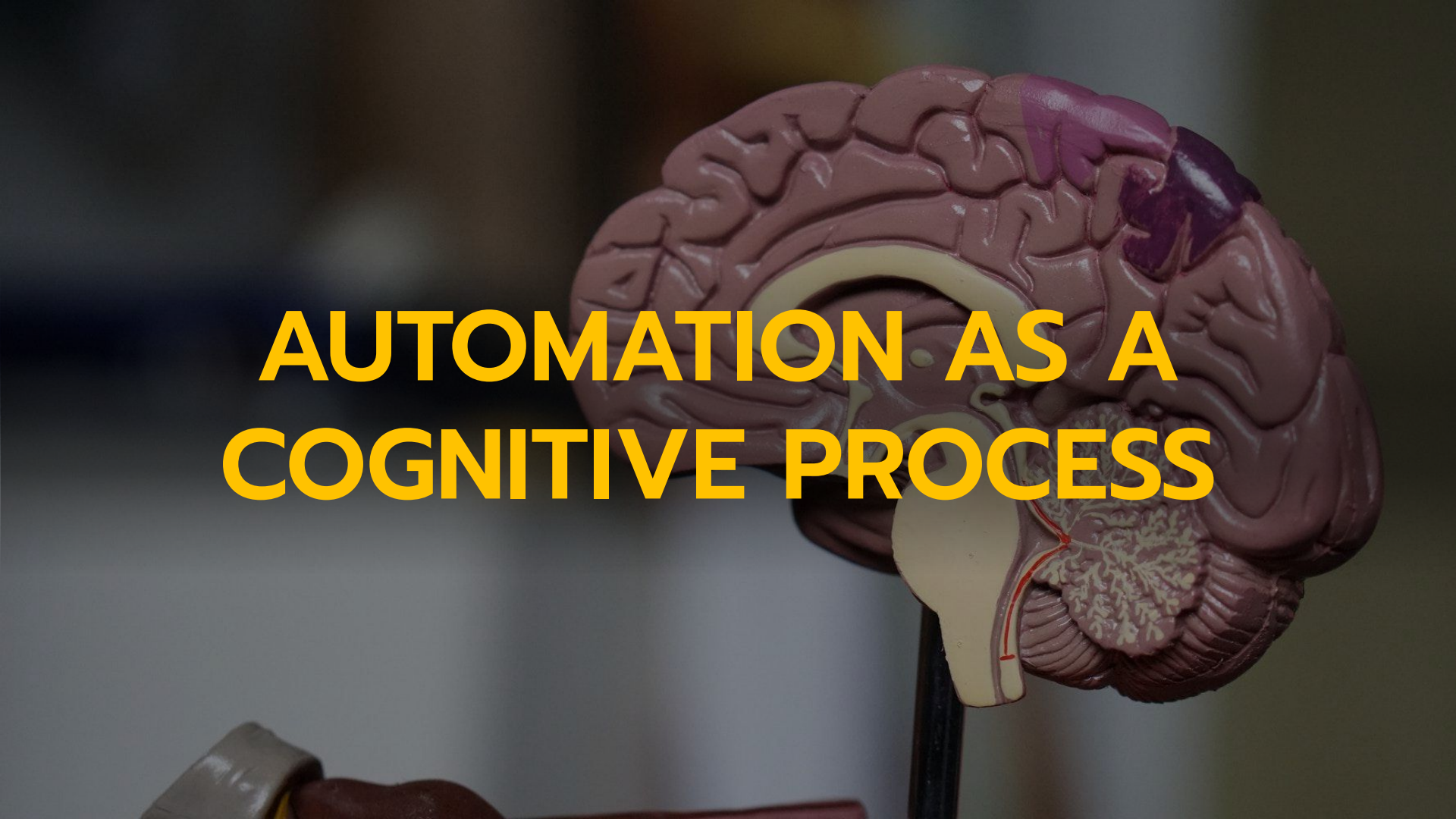
Explain the purpose of the Automation.

2

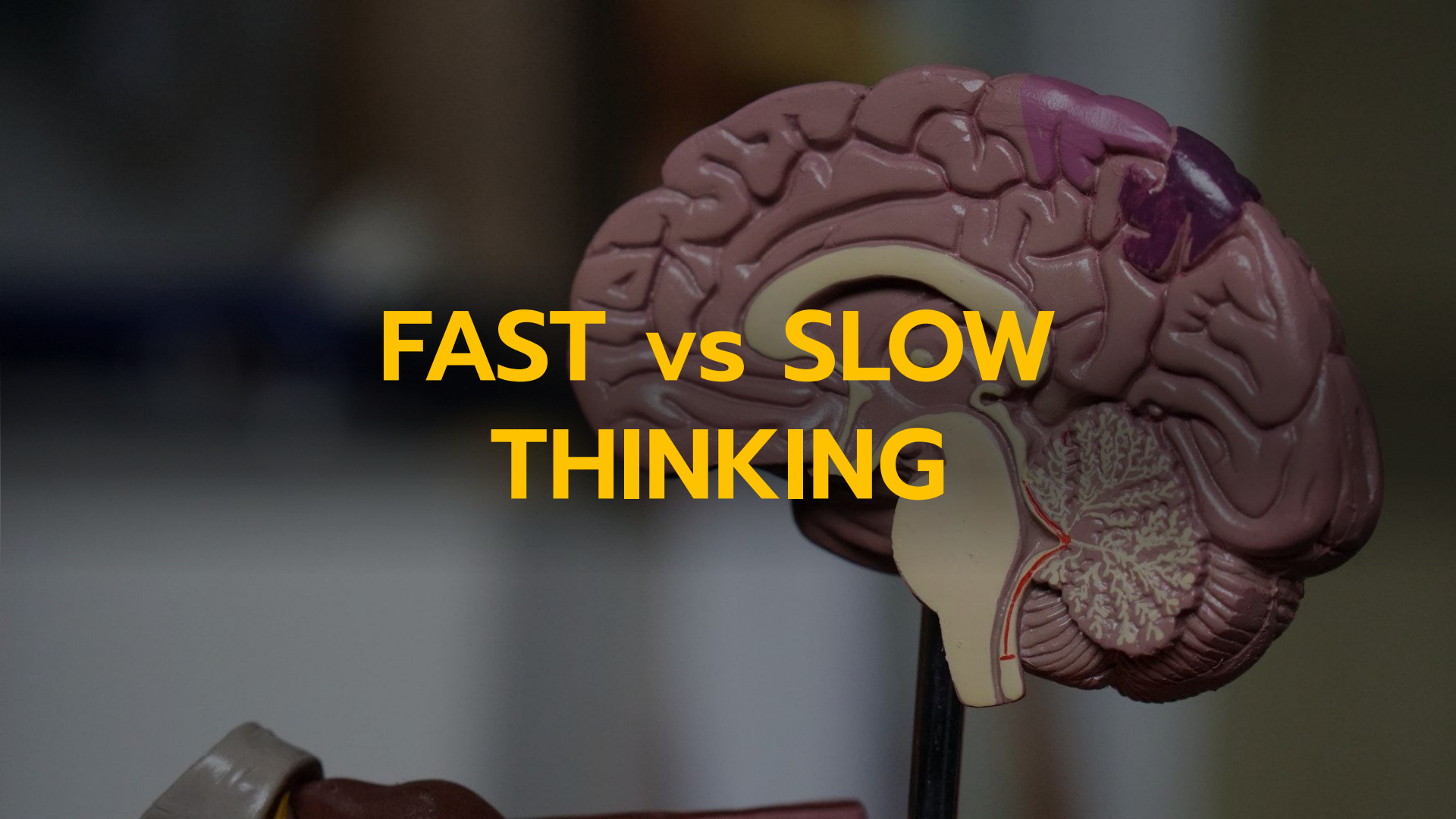
Make clear what the system can do and how well it can do it.

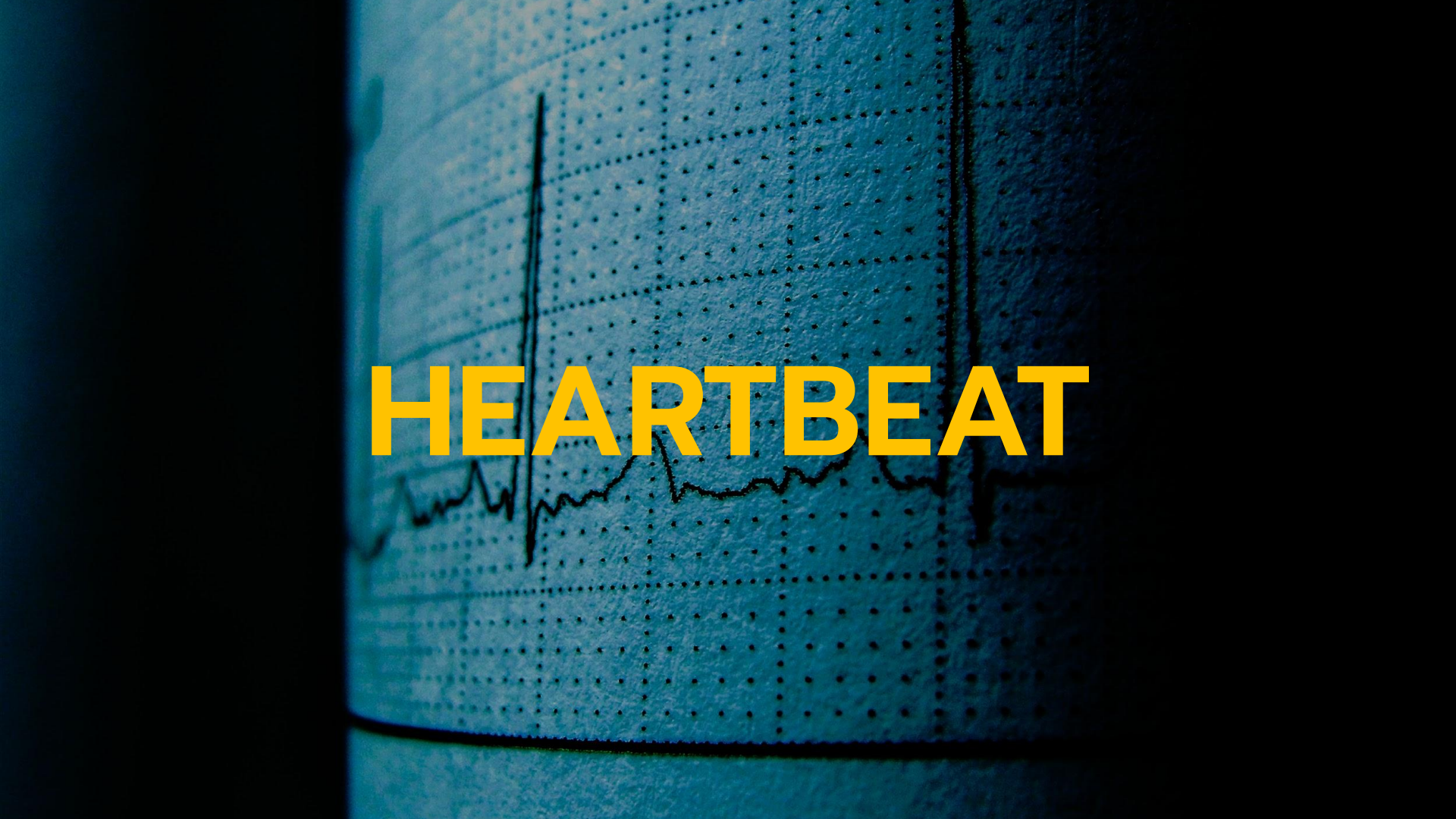


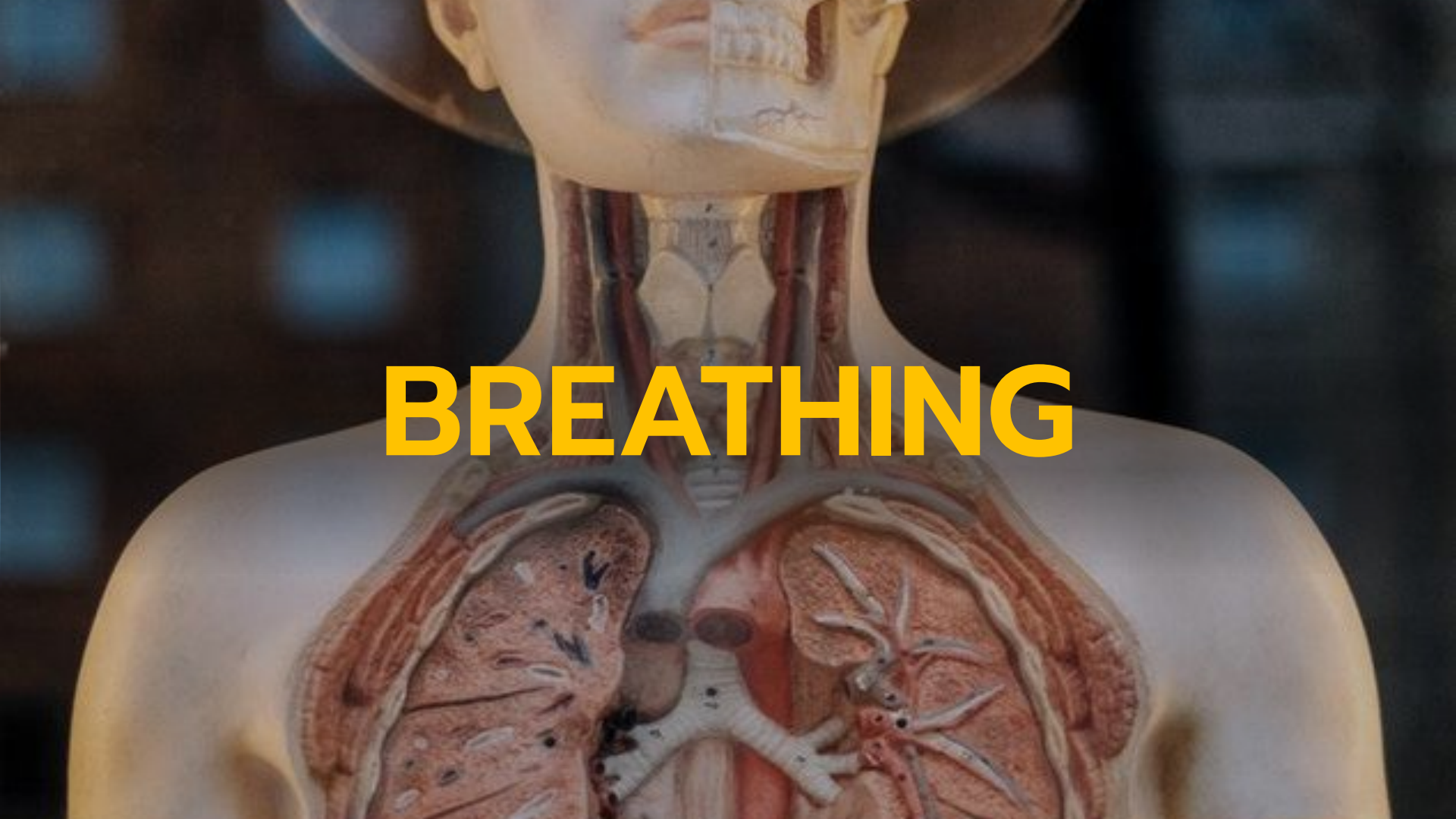
A METAPHOR FOR AUTOMATION



AUTOMATION AS A COGNITIVE PROCESS


FAST vs SLOW
THINKING


HEARTBEAT


BREATHING

LEARNED TASKS

TYPES OF AUTOMATION

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

Parasuraman et. al. "A model for Types and Levels of Human Interaction with Automation"
IEEE Trans. On Systems, Man and Cybernetics, 2000

LEVELS OF AUTOMATION

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

Parasuraman et. al. "A model for Types and Levels of Human Interaction with Automation"
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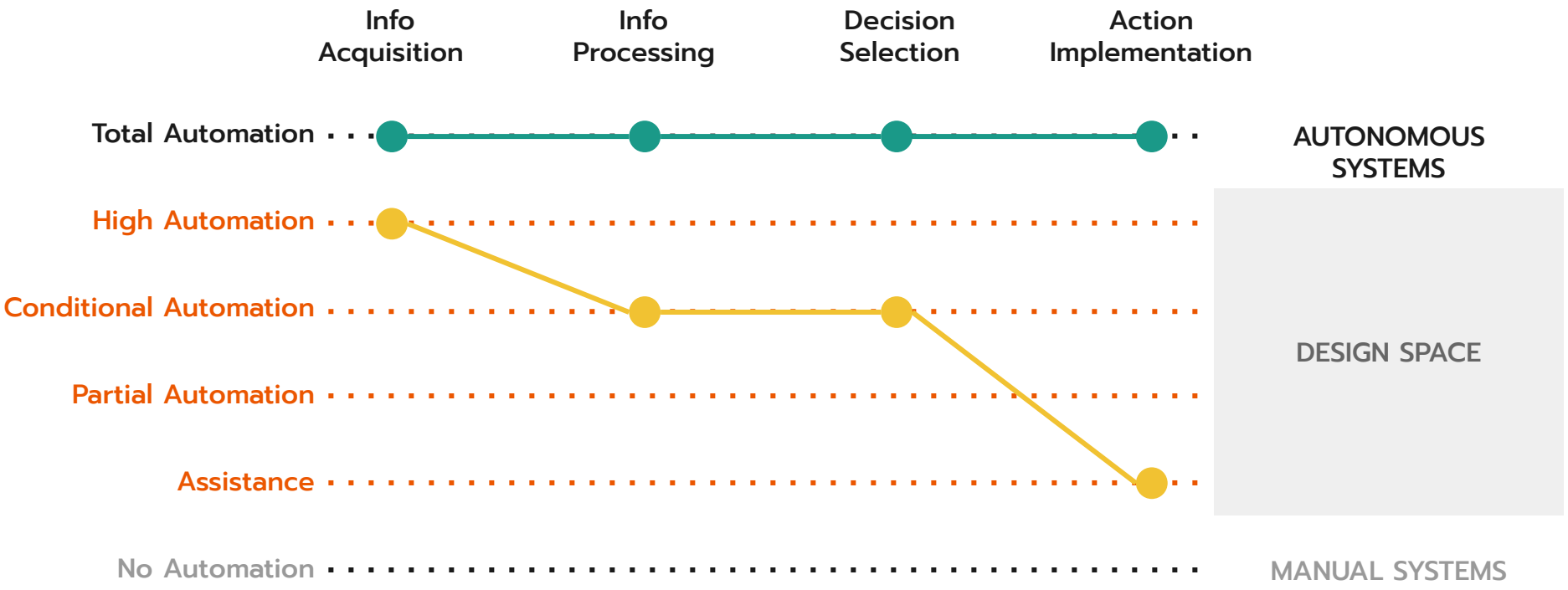
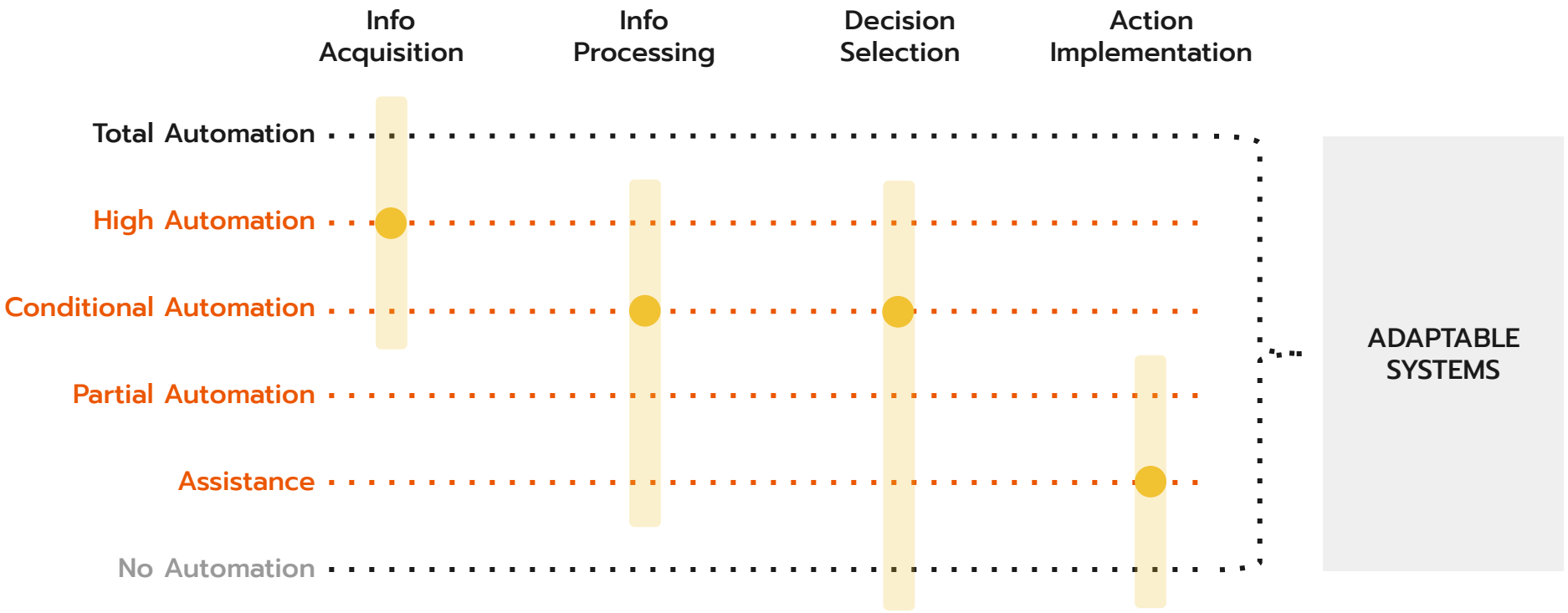
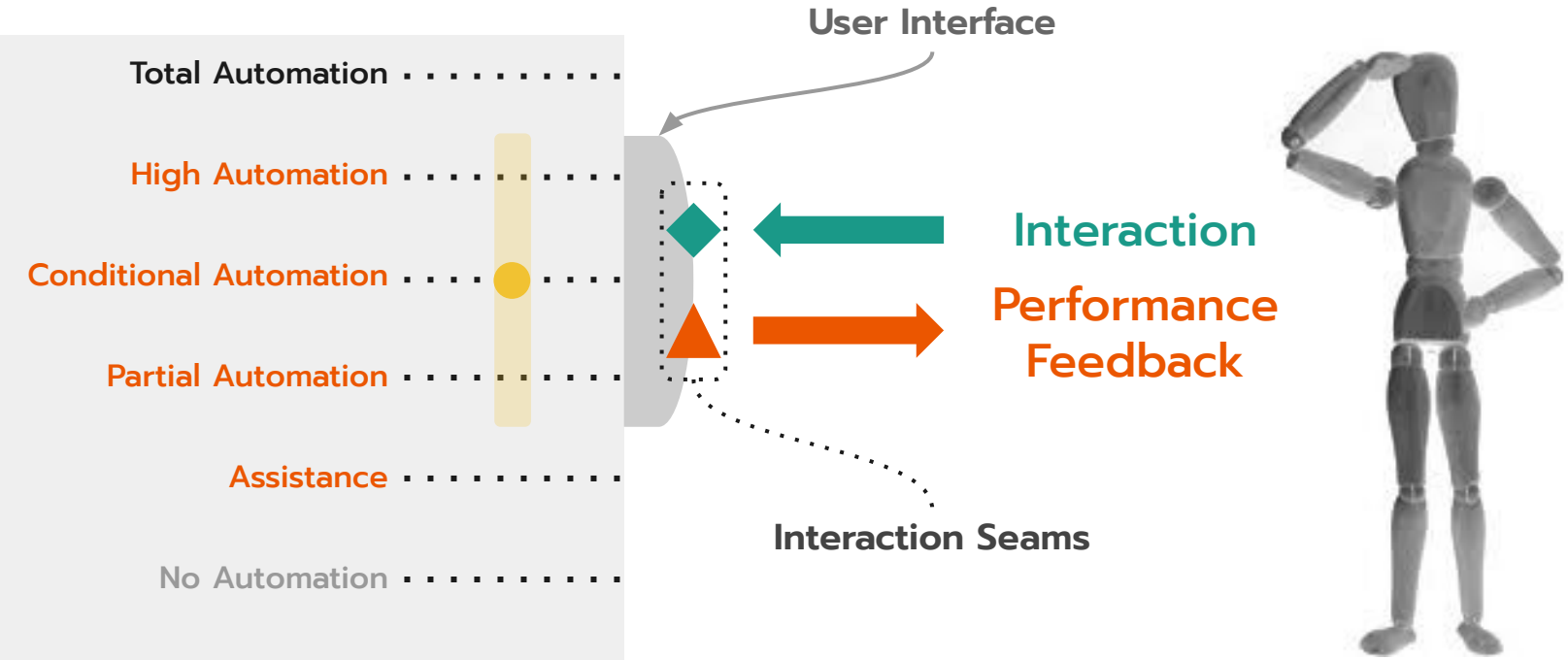
SYSTEM ANALYSIS



VARIABLE LEVELS OF AUTOMATION



ADAPTABLE AUTOMATION AND INTERACTION



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.

ADAPTABLE AI EVALUATION CANVAS

	Info Acquisition	Info Analysis	Decision Selection	Action Implementation
Automation Levels and Interactions				

AI Capabilities				

- ❑ Explain the purpose of the AI.
- ❑ Make clear what the system can do and how well it can do it.
- ❑ Show the performance of the system choosing appropriate feedback strategies.
- ❑ Show when the system is not confident.
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- ❑ Design clear transitions between the different levels of automation.
- ❑ Focus on UX from the early stages of algorithmic research.


Global Tap Tempo: 120.0 bpm (500.0 ms)
HERITAGE-D 96-24
FPS = 25.56 | Free RAM = 1244MB | Uptime = 14d 23h 54m 55s | CPU Load = 2.78 2.68 2.96
test
14:35:37
HOME
Channel View
Console View
Manchino
Automation
Navigation
Patching
Groups
Naming
Flip
MCA Flip
Virtual Sound
No show is currently open
MENU
Navigation
Pop Groups Navigation
Flip Target
Fader Flip OFF
Overview
Tags & Pops
Bus Setup
Meter Bridge
Inputs 1-96
Inputs 97-144
Auxes 1-96
Matrices & Masters
IN 1-8
IN 9-16
IN 17-24
IN 25-32
IN 33-40
IN 41-48
IN 49-56
IN 57-64
IN 65-72
IN 73-80
IN 81-88
IN 89-96
VCAs 1-12
VCAs 13-24
Pops 1-12
VCA 1
VCA 2
VCA 3
VCA 4
VCA 5
VCA 6
VCA 7
VCA 8
VCA 9
VCA 10
VCA 11
VCA 12
Auxes 1-24
Auxes 25-48
Auxes 49-72
Auxes 73-96
Aux 1
Aux 2
Aux 3
Aux 4
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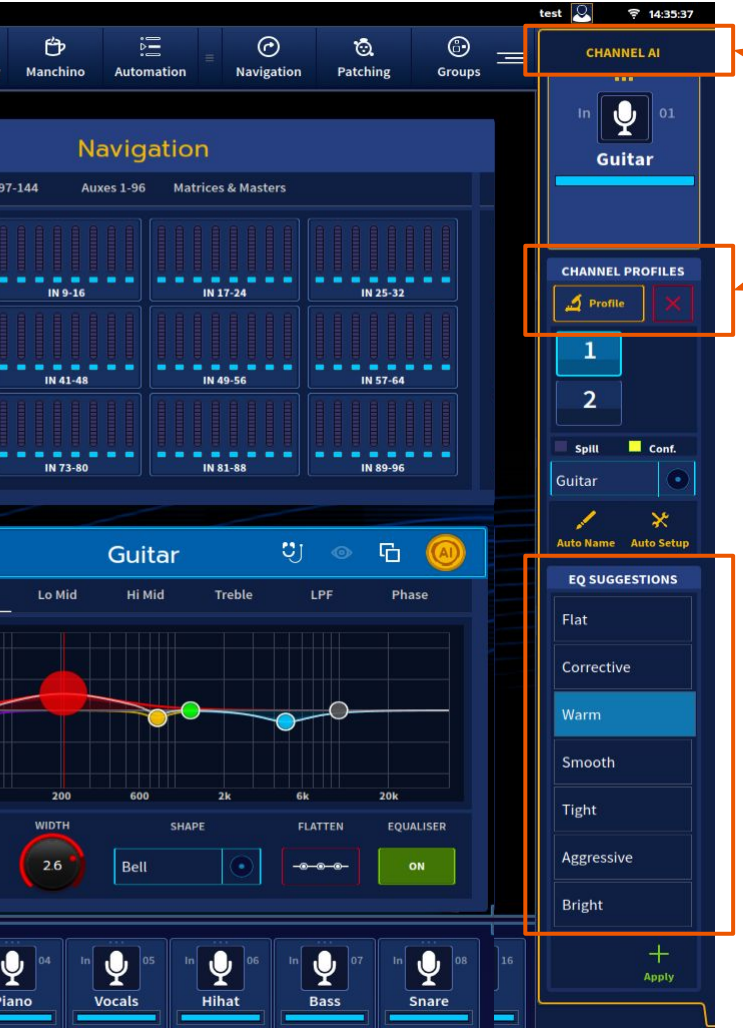
Aux 12
Aux 13
Aux 14
Aux 15
Aux 16
Aux 17
Aux 18
Aux 19
Aux 20
Aux 21
Aux 22
Aux 23
Aux 24
In 01
Guitar
Configuration
Equaliser
Gate
Compressor
Effects
Sends
HPF
Bass
Lo Mid
Hi Mid
Treble
LPF
Phase
16
8
0
-8
-16
20
60
200
600
2k
6k
20k
GAIN
4.3 dB
FREQ
210 Hz
WIDTH
2.6
SHAPE
Bell
FLATTEN
EQUALISER
ON
Aux 13
Configuration
Linking & Stereo
Patching
Direct Input
Options
Oscill
Bus Level
Talk
ON
TRIM
0.0 dB
Delay
DELAY
0.0 ms
Config
0.0 ms
m
ON
Talk Bus
GROUP MODE
FLEXI AUX
ON
ON
Main Bus
Send Pans Follow
Stereo Bus
MONO LEVEL
-inf dB
Solo B
Mono Bus
SIS
In 01 Guitar
In 02 Kick
In 03 Kick
In 04 Piano
In 05 Vocals
In 06 Hihat
In 07 Bass
In 08 Snare
In 09 In 9
In 10 In 10
In 11 In 11
In 12 In 12
In 13 In 13
In 14 In 14
In 15 In 15
In 16 In 16
CHANNEL AI
In 01
Guitar
CHANNEL PROFILES
Profile
1
2
Spill
Conf.
Guitar
Auto Name
Auto Setup
EQ SUGGESTIONS
Flat
Corrective
Warm
Smooth
Tight
Aggressive
Bright
Apply

MAIN WORKFLOW

AI



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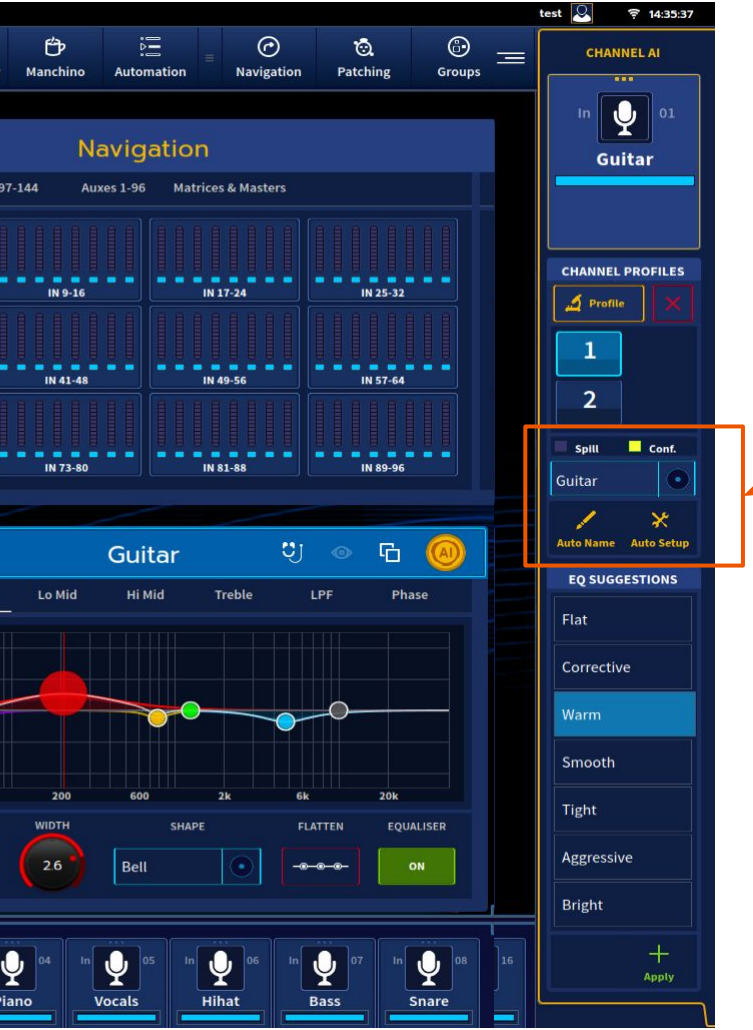

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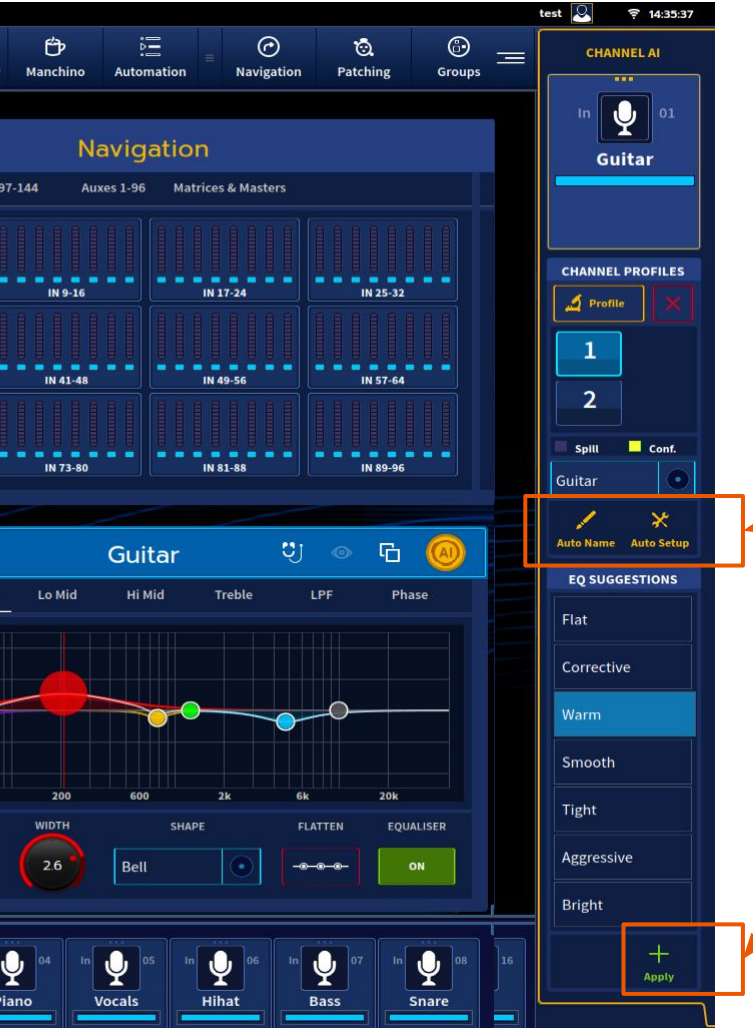

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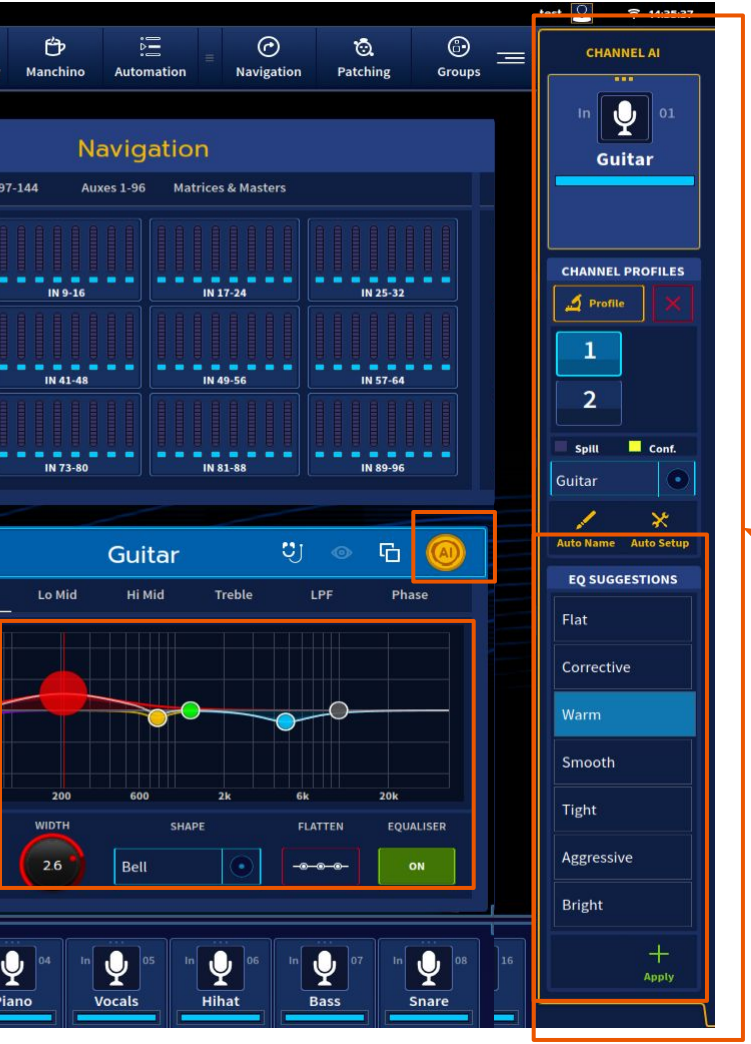

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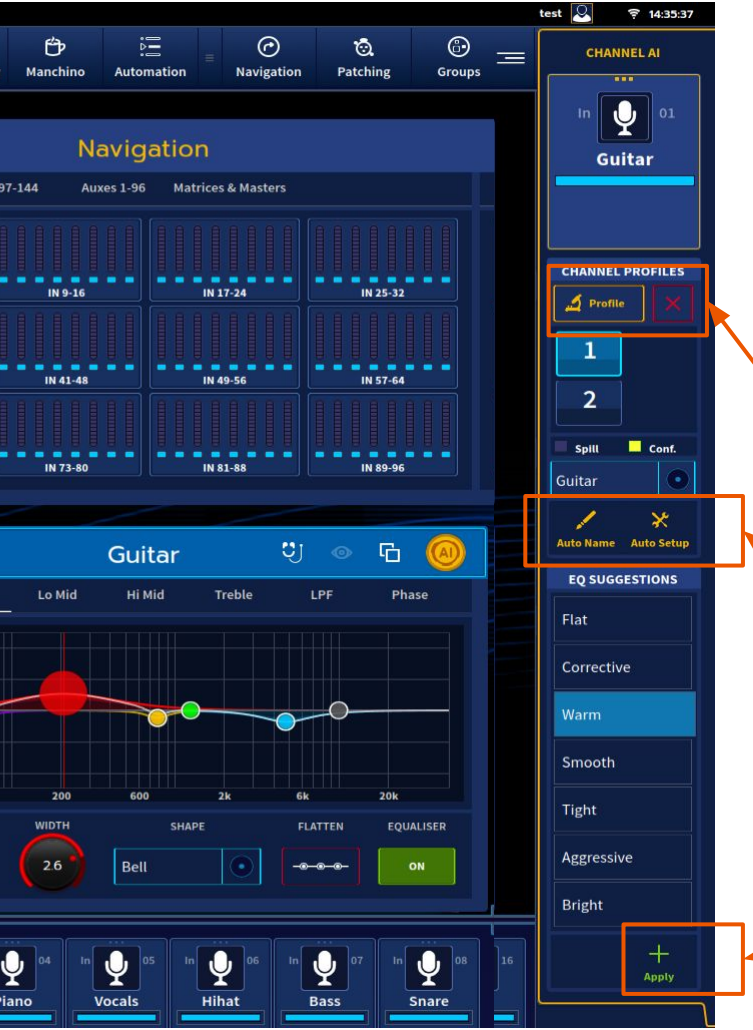

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CURRENT LEVELS OF AUTOMATION

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

Channel AI: Current System Evaluation

	Info Acquisition	Info Analysis	Decision Selection	Action Implementation
Automation Levels and Interactions	**0** - Channel selection **0** - Profile creation	**5** - Feature Extraction **5** - Noise Detection **5** - Quality Assessment **3** - Instrument Detection **3** - Audio Analysis	**3** - Channel name **3** - Setting selection **3** - Setting generation **0** - Profile selection **0** - Profile retention	**0** - Name Channel **0** - Invoke autosetup **0** - Audition Settings **0** - Apply setting **0** - Override settings
AI Capabilities		Bayesian Inference Instrument Detection Unsupervised audio analysis	Settings generation Channels comparison	

Channel AI: Possible Evolution

	Info Acquisition	Info Analysis	Decision Selection	Action Implementation
Automation Levels and Interactions	5 - Room Profiling 5 - Dynamic Profiling 0 - Channel selection 0 - Profile creation	5 - Feature Extraction 5 - Noise Detection 5 - Quality Assessment 3 - Instrument Detection 3 - Audio Analysis	5 - Sets Personalization 3 - Channel name 3 - Setting selection 3 - Setting generation 0 - Profile selection 0 - Profile retention	3 - Auto Correction 0 - Name Channel 0 - Invoke autosetup 0 - Audition Settings 0 - Apply setting 0 - Override settings

AI Capabilities	Deviation Tracking Environment Sensing	Bayesian Inference Instrument Detection Unsupervised audio analysis	Reinforcement Learning Settings generation Channels comparison	Correction trigger

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.

Alex Palladini

@alexpalladini

alexpalladini

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