
From: jeffrey E. <jeevacation@gmail.com>
Sent: Sunday, July 10, 2016 5:07 PM
To: Ed Boyden
Subject: Re:

i would ask you to think about music and melody, =A0 i will send you a copy of what i sent to chomsky =A0 i think the concept of harmonies, inter and intra-actions ,=of a ensemble of elements is a complex problem. a melody=is more than a collection of notes. it has an inter relation b=sed on key, rhythms, and progesions as well as variations on a them=. A series of notes like a series of neurons= firings wont tell much, it needs to be combined into a =oherent shape. it is easy for a novice to pick out=a wrong note in a melody heard for the first time. a disjointe=ness. . the smooth shapes have spikes that dont belong.=C2 . its the ensemble of neurons , firing rates=times and interactions that may be able to be mapped , I have =o idea, . algebraic geometry, algebrai=toplogy, (surfaces rather than shapes), skype =nytime you like

today I conducted an experiment e=couraged by Noam's wholly justified aggressive and detailed dire=tives to joscha. . joshcha foc=sed on layers being developed in the brain . the timing for the deve=opment of each layer being different per species .

I postulate that music might be a frosted window into that structure. symphonies begin with their first "=layer " a theme. in fact , there might be more than one theme in the first layer , =A0 , the second part of symphonic form is the complex development stage= where those themes are inverted, deconstructed , reconstructed =tc ,and the development stage takes the most time . in =the conclusion of the symphonic form the recapitulation of all that has come b=fore it forms a " phenenoma of the piece " a whole ,made up of its smaller concepts . =C2 As opposed to listening to music to record which neuron is firing, as mo=t musciolists attempt . I propose that the music may be the audible result =f those neurons firing, made possible by a select few who would attempt=20 to notate those neuronal firings. Beethoven f=r example.

The experiment . I mashed all o= the four symphonies together , playing recordings= of the 3rd 5th 6th 7th all overlayed on each other, playing at the same time. - the way a brain mig=t develop. I expected an ordered noise but to the surprising cont=ary , IT WAS AMAZING. . you can hear new =A0 "concepts " forming,

il wonder whether in the mind of a blind child , the "=music" would be created even without the visual ref=rencial. but created none the less. later when the visual c=an be tied to concepts , the anatomy may be hijacked to produce sounds . that someh=w relate to the concepts. .

I tried to mix mu=ic from different cultures- it didn't work. African =oes not work with western europe,- chinese works with neither of the other two. but within the same cultu=al music (the brain of the local species) the mash ups are=20 beautiful.

I would note that computers engage in "parallel processing" only in orde= to take a hard problem and break it into its component parts , working on each component separately, , here each problem Interacts =and the their resolutions interact in remarkable ways.

On Sun, Jul 10, 2016 at 12:52 PM, Ed Boyden, ██████████<mailto:████████> =span dir="ltr">> ██████████<mailto:████████> wrote:

Want to continue to discuss how we might model brain =ircuits in mathematically meaningful ways? Sounds like there could be some good<=r> synergies here (especially since I'm going to be spending my Fall focused on learning the necessary mathematics, hopefully to the point where I'll have creative new ideas about how we can model the structure and function of the brain, and make a contribution)!

Ed

On Wed, Jun 29, 2016 at 4:34 PM, Ed Boyden, ██████████<mailto:████████> ██████████=om <mailto:████████> wrote:
> Ok, adding you now!
>
> Ed
>
> On Wed, Jun 29, 2016 at 4:33 PM, jeffrey E. <jeevacation@gmail.com <mailto:jeevacation@gmail.com>> wrote: >> tried your phone my skype is jeevacation
>>
>>
>> On Wed, Jun 29, 2016 at 12:24 PM, Ed Boyden, esb@media.mit.edu <mailto:esb@media.mit.edu>
>> <████████><mailto:████████> wrote:
>>>
>>> Great! Just call me at ██████████ <tel:650%20468%205625> .
>>>
>>> Ed
>>>
>>> On Wed, Jun 29, 2016 at 12:13 PM, jeffrey E. <jeevacation@gmail.com>=br>>> wrote:
>>> > as i will be in the car. lets phone instead o= skype at 430 if that
>>> > works.
>>> .
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