I agree we need a top-down! Two thoughts:
 -- Yes, developing mapping circuit technology and then applying it to simple behaviors -- hard wired aversive stuff -- is indeed a way to go. As we plan out these mapping technologies, we're actually beginning experiments to map out these aversive things too. We are collaborating with many groups along these lines. We need to finish the fundamental technology building so that we can obtain maps at the right level, and then we can acquire datasets that are compatible with top-down theory, to be sure.
 -- Another way to think top-down is to work our way inwards, from the observables. We know that behavior -- movement, speech, other action
-- is observable; if a feeling or thought is prominent enough, it will be manifest through these channels as an observable. Thus we can also try to infer internal states by their effects on observables, and then to associate neural activity with these internal states and observables. In theory this should scale to arbitrarily complex internal states, not just simple aversive states.

Best,
Ed

On Thu, May 23, 2013 at 11:24 AM, Jeffrey Epstein <jeevacation@gmail.com> wrote:
> i think you need a top down as well as bottom up. as looking at my piano
> while being played, i can go string by string (not string theory
> strings). hammer by hammer, material of string , molecular interaction
> naturalvibration, harmonics, sympathtice vibration   but i would not hear
> or understand the melody or music being played.   I believe that each
> individual has its own encrpytion algorithm,   , as the neural net grows
> it encrypts some input signals. some are hard wired. so instead of
> emotion , movement, speech, etc, I think a proitable area of initail inquiry should
> be the hard wired   aversive stuff only.   smell of dead meat. . reaction
> to fire. i tihnk that aesthectics will be the greatest ration of output to
> input.   . or the least energy to decode. . dissonance, cannot be easily
> resolved so the energy to decode the information, is too high and becomes
> painful.   Does a dream state come upon us, or do we dream all the time
> and concious state relegates the dreams to behind the screen.   When sleep
> deprived the dreams begin to pop through the screen, as hallucinations.
> a breakdown of the screen , results in a form of schizphrenia, where
> they cann no longer distiguish between voices. dream produced while awake or the
> awake state angel on the shoulder whispering. . I am an avid funder of
> the bleeding edge in many fields. keep me up to date on what you are
> doing,   and hope to see you in your own habitat.
>
>
> On Thu, May 23, 2013 at 11:04 AM, Ed Boyden <▮▮▮▮▮▮▮▮▮▮ wrote:
>>
>> Hi Jeffrey,
>>

>> Yes, it was great chatting about all the ways neuroengineering is
>> going to go in the coming years, revealing both fundamental
>> mechanistic brain maps, and providing the control knobs for fixing
>> brain disorders and understanding complex phenomena like
>> consciousness. Would be great to talk about how then to make
>> mathematical sense of these maps and control knobs... arguably the
>> big stumbling block to date is the lack of good data, but that's
>> about to change, thanks to our current and future efforts! Then we
>> will have many things that require deep mathematics to understand!
>>
>> Ed
>>
>> On Thu, May 23, 2013 at 1:16 AM, Joi Ito ▮▮▮▮▮▮▮▮▮ wrote:
>> > Hi Jeffrey.
>> >
>> > Thanks for a really enjoyable conversation and your hospitality tonight.
>> > Look forward to connecting again and receiving you at the Media Lab
>> > on my turf. ;-)
>> >
>> > - Joi
>> >
>>
>>
>>
>> --
>> Ed Boyden, Ph. D.
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>> skype - ▮▮▮▮▮ web - http://syntheticneurobiology.org twitter -
>> http://twitter.com/eboyden3
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