共催（Co-organized by）
Tohoku University RIEC Nation-wide Cooperative Study Group “Neural Mechanisms of Social Behavior"
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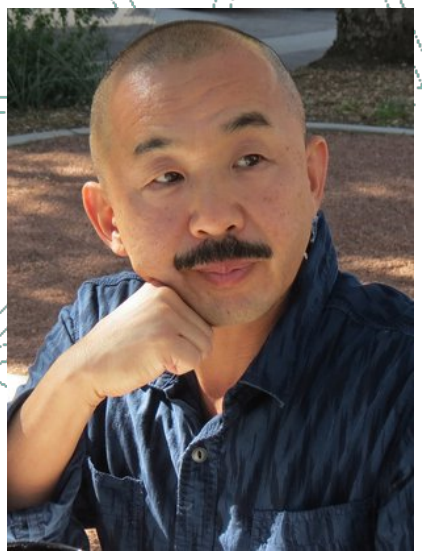
Tohoku University Brain Research Center, National Taiwan University NCSC

NEURO GLOBAL Seminar

Speaker



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Title

Pondering over individual differences in depth, and on surface- general principles, local rules, and cases in hyper-scan data.

Time/Venue

25 August, 2021 (Wednesday) 16:30-18:00 JST, **ONLINE**

Registration URL

https://zoom.us/meeting/register/tJYuc-mprzopHd2VU-nybfxiMFNusVqVOjt6

Profile

He is an experimental psychologist/cognitive neuroscientist, with a long-standing interest in visual and crossmodal psychophysics, and their application to decision making in the human. He earned a Master’s Degree in Experimental Psychology from the University Tokyo, and a PhD from the Massachusetts Institute of Technology. He is particularly interested in applying quantitative psychophysical techniques to understand human implicit processes underlying perception and behavior. As can be seen in his publication list, he and his colleagues have reported various new crossmodal illusions and adaptation/aftereffects, some of which were in high-impact journals, and frequently cited. More recent research focus has been on reward-related decision making and learning, face perception and preference formation in relation to developmental disorder. He has active ongoing projects with his graduate students and several external collaborators.

Related websites

http://www.biology.caltech.edu/people/shinsuke-shin-shimojo (Profile & Publications)
https://neuro.caltech.edu/ (Lab)

【[先進] 脳科学セミナーシリーズEx】【[Advanced] brain science seminar series Ex】1 point
【医学系研究科・医学履修課程】国際交流セミナー【Medical Science Doctoral Course】 International Interchange Seminar
【生命科学研究科・単位認定セミナー】【Credit-granted seminar】2 points

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NEURO GLOBAL
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Abstract

Individual difference had not become a central focus of interest in experimental psychology and cognitive neuroscience until very recently, for THE obvious reason - scientists have tried to identify cognitive functions and the underlying mechanisms which are *primarily common* across individuals. Thus, individual differences were basically treated as noises, against which statistically significant effects were claimed. The trend has changed in the last few decades, with more attention to diversity. In this context, I would like to tap onto three aspects at very different levels, as in the following.

1) What causes individual differences - "Personal History."

"Personal history" refers to cumulative and iterative interactions between genetics (or what is already established in a biological organism) and the environment. Annual rings of a tree would provide an excellent analogy to intuitively understand this concept, in that they reflect all the past of its history in the appearance of the current snapshot. Likewise, a percept at a moment reflects the entirety of the observer's past, starting from genetics to early sensory experiences, to the experience in the immediate past in the scale of several seconds. The concept provides the most cohesive framework to approach various issues such as nature vs. nurture, and brain-body-environmental interactions. Needless to say, this also provide a grand view on how individual differences at various levels are generated. Most notable cases of such can be viewed among those who are handicapped in sensory or motor functions, where seemingly similar damages lead to very different consequences in functions.

2) How could it be to understand individual differences (neuro-) scientifically?

The historical observations above (individual differences as noises) naturally leads to this neuro-philosophical question - How could it be *to explain* or *to understand* individual differences (neuro)scientifically? It may already sound self-contradictory, to the extent that scientific understanding (in any field, at any level) relies on *common*, *general* principles/mechanisms, not diversity among those. I argue that individual differences can be addressed with description of sub-types (taxonomy) and then still be accounted for by general principles/mechanisms, but typically at one-level lower (*i.e.* more micro, molecular, genetic). If the time allows, I will mention some prototypical studies in the fields to exemplify this statement.

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3) Neural correlates of Team flow - States vs. Traits.

One may also ask if personal traits are really fixed measures (such as one's body weight and height) independent of context, or rather a significant portion of them would be context-dependent (especially social). Along the line, I will provide our own findings on neural correlates of "team flow" (as opposed to "individual flow" or "mere (non-flow) social interaction.") Albeit very preliminary, we made some intriguing observations related to a distinction between states vs. traits. The linear discriminant analysis (LDA) revealed clear macro segregations among individuals (traits), as well as micro segregations across tasks (states).

All together, there are multiple promising approaches to individual differences even in the human cognitive faculties.

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References

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