

FY2026 RIEC Cooperative Research Projects Seminar



NEURO GLOBAL Seminar

Date & Time

Friday, October 2, 2026
16:30 – 18:00

Speaker

David Whitney, PhD

Professor of Psychology,
University of California, Berkeley



Title

**The theoretical and practical consequences of
serial dependence in visual perception**

Venue

Open Seminar Room (M153), RIEC Main Building [G10] 1F,
Tohoku University Katahira campus

東北大学電気通信研究所本館 [G10] 1階 オープンセミナー室 (M153)
片平キャンパス

【MAP】 https://www.tohoku.ac.jp/map/ja/?f=KH_G10

Format On-site

【Neuro Global生・[先進]脳科学セミナーシリーズEx】 【NGP students, [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 1回分
【生命科学研究科・単位認定セミナー、イノベーションセミナー（留学生）】 【Credit-granted seminar, Innovation seminar】 2 points



NEURO GLOBAL Seminar

Title

The theoretical and practical consequences of serial dependence in visual perception

Abstract

Serial dependence, the influence of recent experience on current perception, is widespread in vision, decision-making, and memory. Meta-analytic work shows that it is systematically tuned in time, space, feature similarity, and attention, consistent with spatiotemporal integration mechanisms termed Continuity Fields. By integrating current input with the recent past, serial dependence can stabilize perception, reduce sensory noise, and promote perceptual continuity. This smoothing is well suited to the natural world, where visual information is temporally autocorrelated and usually changes gradually. Indeed, the timescale of serial dependence can mirror the temporal statistics of natural stimuli. However, the same mechanism can become maladaptive when sequential stimuli are unrelated. In medical imaging, airport screening, and other high-stakes visual tasks, judgments about the current case may therefore be biased toward preceding cases. We have observed such effects across radiology, mammography, and dermatology. Serial dependence thus reflects a fundamental tradeoff: mechanisms that ordinarily promote perceptual stability and efficiency can generate systematic errors when environmental statistics change.

Profile

David Whitney, Ph.D. (Harvard), is Professor of Psychology and Neuroscience and Director of the Cognitive Science Program at UC Berkeley. A leading authority on how the brain constructs perceptual experience, he bridges fundamental visual neuroscience with emerging technologies, applying his research to improve AI reliability and enhance clinical diagnostics in radiology and dermatology. Supported by over \$10 million in federal and private grants for his widely cited work (h-index 63), his honors include accolades from the IEEE, the British Psychological Society, and the Vision Sciences Society, alongside election to the World Academy of Artificial Consciousness. An Associate Editor for the *Journal of Vision* and an award-winning educator at Harvard, UC Davis, and UC Berkeley (where he is a two-time Distinguished Teaching Award recipient), Whitney's research regularly appears in major media outlets including *The New York Times*, NPR, CNN, and *Nature*.