OIST OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY
沖縄科学技術大学院大学

VISITING PROGRAM

TSVP TALK

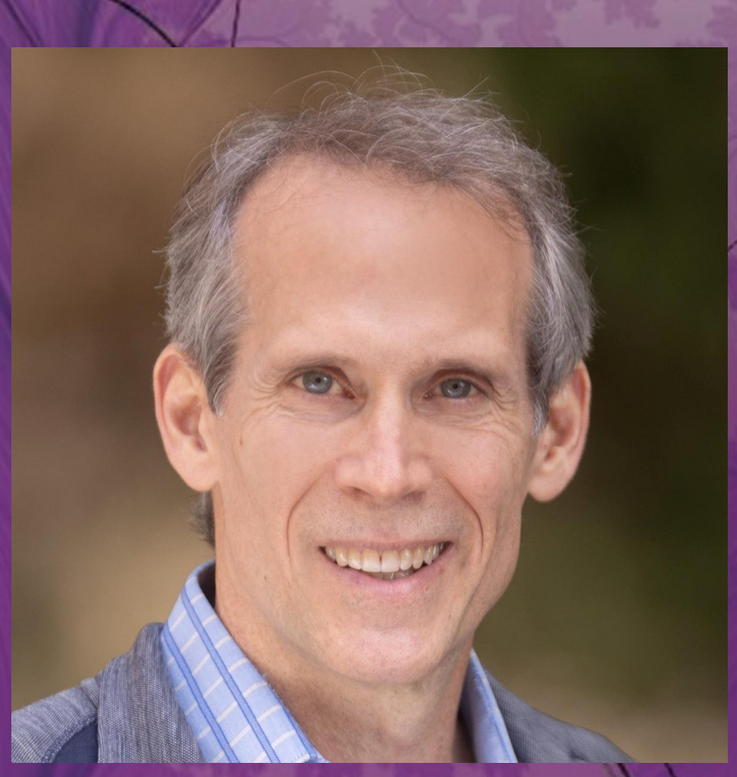
Models of the Ventral Visual Pathway, From Neurobiology To Artificial Networks

2025 FRI. Jul. 18

14:00–15:00

HYBRID L5D23, ZOOM

For zoom and other details scan QR code or visit oist.jp/visiting-program



Neuroscientists have studied the physiological properties of single neurons in the brains of highly visual organisms yo understand the circuits and computations that underlie our ability to effortlessly interpret complex scenes and rapidly recognize objects in challenging visual conditions. Much progress has been made in outlining the general principles of organization in the retina and at the first stages of the visual cortex, but it has proven far more challenging to understand, and to model, the middle and higher levels of cortical visual processing. Yet, the past decade has seen a revolution in artificial visual systems arising from machine learning, and now deep artificial neural networks (ANNs) show human-level performance on many vision tasks. This offers a great challenge and a great opportunity for neuroscientists to take advantage of these ANNs to study visual representation. I will compare models created by neuroscientists to those arising from machine learning, and will demonstrate how ANNs can be leveraged by neurophysiologists to better understand the primate visual cortex. At the same time, insights from neurophysiology may be important to guide the next generation of artificial vision systems

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Wyeth Bair

Wyeth Bair received a bachelor’s degree in Computer Science from Penn State and a PhD in Computation and Neural Systems from Caltech, focusing on visual cortex modeling, neural coding, and analog VLSI circuits. Since 2011 he is at the University of Washington, where he runs a 2- and 3-photon imaging rig for primate research. His work includes mid-level form processing and “Artiphysiology” and functional connectomic studies of the primate visual cortex (in collaboration with the Allen Institute).

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