UCL-Tohoku University Neuroscience Collaborative Seminar

NEURO GLOBAL Seminar

Speaker

Parashkev Nachev

Professor of Neurology at the UCL
Queen Square Institute of Neurology
and Honorary Consultant Neurologist
at the National Hospital for Neurology
and Neurosurgery

Title

Challenges in foundational modelling of the human brain

Date

January 23 (Thu) 10:00-11:30 (JST) (including Q&A time)

Venue

Middle Auditorium, Clinical Lecture Building [A21] 2F, Seiryo Campus
[MAP] https://www.tohoku.ac.jp/map/en/?f=SR_A21

Format

Hybrid (On-site & Online)

Registration

Send a message to NGP Office (neuroglobal@grp.tohoku.ac.jp)

●Neuro Globalプログラム生(Neuro Global Program Students)
【脳科学セミナーシリーズEx】/【先進脳科学セミナーシリーズEx】セミナー 1ポイント
【Brain Science Seminar Series Ex】/【Advanced brain science seminar series Ex】 1 point
●医学系研究科(Graduate School of Medicine)
【医学履修課程】国際交流セミナー (アドバンスド講義科目)」 出席1回分
【Medical Science Doctoral Course】 International Interchange Seminar (Advanced Lecture course)
1 attendance
●生命科学研究科(Graduate School of Life Sciences)
【単位認定セミナー】【イノベーションセミナー（留学生対象）】2ポイント
【Credit-granted seminar】【Innovation seminar (For international students)】 2 points

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Summary: Prof. Nachev's research programme is guided by the widely resisted idea that the human brain is too complex to be rendered either intelligible or actionable by the parsimonious, low-dimensional models dominant in the field. If clinical translation is the ultimate objective, this position compels a two-pronged approach at either extremes of data-scale: single-subject studies employing individually adaptive models and interventions, and large-scale studies employing high-dimensional inference powered by machine learning.

It also compels a methodological flexibility, targeting clinical, scientific, or operational objectives as the fastest route to impact dictates.

Though the nervous system is the most complex, the structuring pressure on its organisation is arguably highest, and its accessibility to generative models of the right expressivity therefore greatest. Prof. Nachev examines the challenges and potential rewards of developing multi-modal, >3D deep generative models of the brain, drawing on analyses involving >10^6 individual brain volume images across >10^5 distinct patients powered by >5 petaFLOPS of compute, in the context of an array of representational, predictive, and prescriptive tasks

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