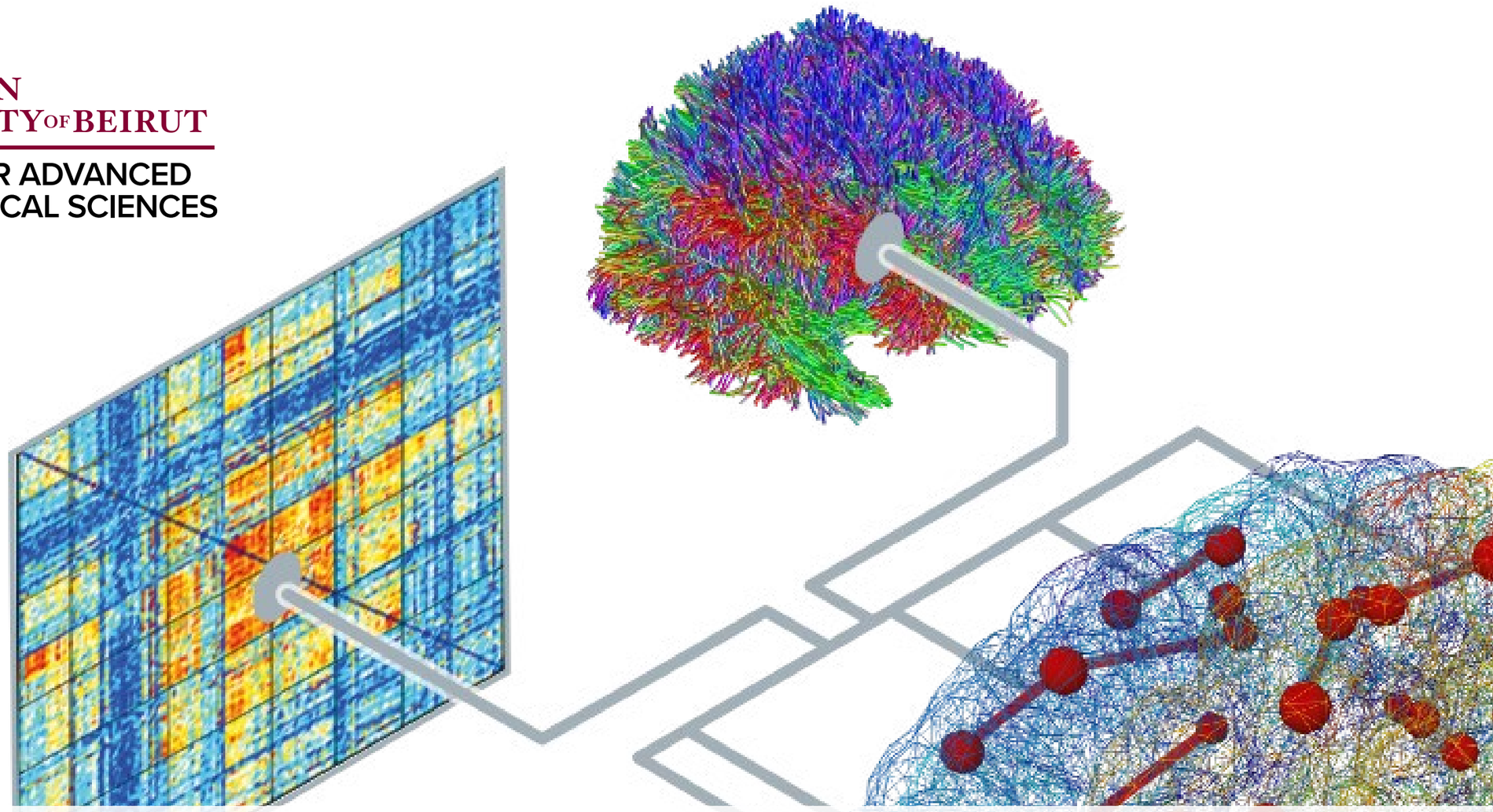
AMERICAN UNIVERSITY OF BEIRUT

CENTER FOR ADVANCED MATHEMATICAL SCIENCES



MATHEMATICAL BIOLOGY

THE VIRTUAL BRAIN

FROM DYNAMICAL SYSTEMS TO EPILEPSY SURGERY: DATA-DRIVEN PERSONALIZED BRAIN NETWORK MODELS FOR TRANSLATIONAL MEDICINE

WEDNESDAY, OCTOBER 12, 2022

5:00 pm (Beirut time) | **ONLINE**

The Virtual Brain is a neuroinformatics platform that combines subject-specific anatomical information of the human brain with reduced mathematical models of neuronal activity. The framework integrates these two seemingly orthogonal approaches to brain modeling and allows the building of biologically realistic models with predictive and explanatory power that surpasses that of each approach independently. In this talk, I will present the rationale and workflows underlying The Virtual Brain, along with how it's being applied to inform surgical strategy for drug-resistant epilepsy patients.

HIBA SHEHEITLI

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Hiba Sheheitli is a Computational Neuroscientist at Institut de Neurosciences des Systèmes (INS), Aix-Marseille University. She holds a PhD in Theoretical & Applied Mechanics from Cornell University with emphasis in Applied Mathematics. Before joining INS, she was an assistant professor in Mechanical Engineering at the Lebanese American University, where her research addressed novel nonlinear interactions in 3D rigid body (spinning top) dynamics. Her current research focuses on dynamical systems characterization and modeling of whole brain nonlinear dynamics in the context of brain disorders. She is an active member of the EU Human Brain Project and the EBRAINS research infrastructure.

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