SFB 680

MOLECULAR BASIS OF
EVOLUTIONARY INNOVATIONS

Dmitry Kobak

Bernstein Center Freiburg

Structure learning in human motor control

After extensive practice with motor tasks sharing structural similarities (e.g. different dancing movements, or different sword techniques), new tasks of the same type can be learnt faster. According to the structure learning hypothesis, such rapid generalisation of related motor skills relies on learning the dynamic and kinematic relationships shared by this set of skills. As a consequence, motor adaptation becomes constrained, effectively leading to a dimensionality reduction of the learning problem; at the same time, adaptation to tasks lying outside the structure becomes biased towards the structure. We tested these predictions by investigating how previously learnt structures influence subsequent motor adaptation and found that after extensive training with both kinematic or dynamic perturbations, adaptation to unpractised, diagonal, perturbations happened along the previously learnt structure (vertical or horizontal), and resulting adaptation trajectories were curved. Additionally,I will present a series of experiments on path tracking, where subjects develop a skill of path tracking in the absence of any external perturbations, and discuss its relationship to structure learning.

November 29, 11:00

Institute for Genetics, Zülpicher Str. 47a, Lecture Hall, 4th Floor

Host: Michael Lässig and Björn Schumacher

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