

COLLOQUE DES DOCTORANTS DU JEUDI 22 NOVEMBRE 2018

A l'UFR STAPS de l'Université Paris-Sud, Bât 335, amphithéâtre

9h

Accueil - Café

9h30-10h40

Conférence plénière de Pr. D. Sternad (Northeastern University, Boston)



FROM SIMPLE MOVEMENTS TO COMPLEX SKILLS: A TASK-DYNAMIC APPROACH TO MOTOR LEARNING

Dagmar Sternad

Departments of Biology, Electrical and Computer Engineering and Physics
Center for the Interdisciplinary Research in Complex Systems

Northeastern University, Boston, USA

Résumé (abstract) de la conférence :

How do humans learn new motor skills or re-learn basic behaviors after injury, such as reaching to drink from a glass without spilling? Much of traditional and current research on motor control has analyzed highly simplified movements in tightly controlled experiments to permit quantitative analysis. The challenge is to obtain rigorous insights without compromising the challenges of realistic task performance. We have developed a task-dynamic approach that starts with analysis of how the task constrains and enables actions and their improvement with practice. Based on mathematical analyses of the modeled task, we study how humans develop strategies that meet complex demands. Using three exemplary tasks, throwing a ball, rhythmically bouncing a ball, and transporting a "cup of coffee", we show that humans develop skill by: 1) finding error-tolerant strategies and channeling noise into task-irrelevant dimensions, 2) exploiting solutions with dynamic stability, 3) optimizing predictability of object dynamics. Using these experimental platforms, we have developed interventions that assess or help restore functional behavior in patients with neurological disorders.

Short Biography of Dagmar Sternad received her BS in Movement Science and Linguistics from the Technical University and Ludwig Maximilians University of Munich and her PhD in Experimental Psychology from the University of Connecticut. From 1995 until 2008, she was Assistant, Associate, and Full Professor at the Pennsylvania State University in Integrative Biosciences and Kinesiology. Since 2008, she holds an interdisciplinary appointment as full professor in the departments of Biology, Electrical and Computer Engineering, and Physics at Northeastern University in Boston. She is member of the Center for Interdisciplinary Research on Complex Systems at Northeastern. Her research is documented in over peer-reviewed 100 publications, book chapters, and several books. She has had editorial appointments in several scientific journals and was regular member of an NIH study section. Her research has been continuously supported by the National Institute of Health, National Science Foundation, American Heart Association, Office of Naval Research, and others.

10h40 – 11h

Pause-café

11h – 12h

Session Posters (2A + 3A sauf ceux qui sont volontaires pour MT 180s)

12h – 13h

Ma thèse en 180s (MT 180)

13h – 14h

Buffet déjeunatoire

14h – 14h30

Intervention d'Isabelle Siegler auprès des doctorants et questions/réponses

14h30 – 16h30

Temps des doctorants