



**XXIX School of Physiology and Biophysics**

**COMPUTATIONAL APPROACHES IN SYSTEMS NEUROPHYSIOLOGY**



**June 16-18, 2026**

**University of Rome Tor Vergata, Via Lucullo 11 (piano IV, int.10), Rome**

**PROGRAM**

**Tuesday, June 16, 2026**

**13:00-13:45 Opening lecture**

Why we need computational approaches in systems neurophysiology – Francesco Lacquaniti

**13:45-14:15 Lecture 1**

Neurophysiological foundations of computational methods for investigating human locomotion –  
Francesca Sylos Labini

**14:15-14:45 Lecture 2**

Applications of computational methods to the locomotor function of children with Cerebral Palsy –  
Germana Cappellini

**14:35-15:45 Tutorial 1-2**

Surface electromyography to study human gait: from single muscles to spinal maps – Francesca  
Sylos-Labini, Germana Cappellini, Camilla Pera, Priscilla Avaltroni

**15:45-16:15 Coffee break**

**16:15-16:45 Lecture 3**

Muscular and kinematic synergies for motor control – Andrea d'Avella

**16:45-18:15 Tutorial 3**

Computational methods for the identification of muscular and kinematic synergies – Andrea d'Avella,  
Lucas Dal'Bello, Luca Falorsi

**Wednesday, June 17, 2026**

**9:00-9:30 Lecture 4**

The vestibular system as a computational machine – Francesco Lacquaniti

**9:30-10:15 Keynote lecture 1**

Neural coding of dyadic motor interactions in non-human primates – Alexandra Battaglia-Mayer

**10:15-10:45 Coffee break**

**10:45-11:30 Keynote lecture 2**

The physiology of cells, circuits and brains in multiscale brain models and digital twins – Egidio D'Angelo

**11:30-12:00 Lecture 5**

Structural and functional MRI of the vestibular system – Iole Indovina

**12:00-13:30 Tutorial 5**

Hands on MRI data analysis – Iole Indovina, Gianluca Paolucci

**13:30-14:45 Lunch**

**14:45-15:30 Keynote lecture 3**

Information transfer along the cortico-spinal tract: from neural oscillations in the cortex to muscle synergy formation – Andreas Daffertshofer

**15:30-16:00 Lecture 6**

Eye movements as a model for the study of motor control and attention – Gianfranco Bosco

**16:00-16:30 Coffee break**

**16:30-18:00 Tutorial 6**

Hands on eye tracking analysis – Gianfranco Bosco, Stefano Sacchetti

**20:30-22:30 Social dinner**

**Thursday, June 18, 2026**

**09:00-09:30 Lecture 7**

Introduction to data science for neuroscience and psychophysics – Alessandro Moscatelli

**09:30-10:30 Lecture 8**

Bayesian hierarchical models for fitting psychometric functions – Maura Mezzetti

**10:00-11:00 Tutorial 7-8**

The analysis of psychophysical data with R: examples from haptics – Alessandro Moscatelli, Priscilla Balestrucci

**11:00-11:30 Coffee break**

**11:30-12:15 Keynote lecture 4**

Integrating quantitative methods in neurology and neurorehabilitation: a multimodal neurophysiological approach to neurostimulation – Giacomo Koch

**12:15-13:00 Closing session**

Feedback from participants and closing remarks

**Organizing Committee**

Francesco Lacquaniti – University of Rome Tor Vergata (URTV)

Andrea d’Avella – URTV

Gianfranco Bosco – URTV

Germana Cappellini – URTV

Iole Indovina – URTV

Maura Mezzetti - URTV

Alessandro Moscatelli – URTV

Francesca Sylos-Labini – URTV

**Invited Speakers**

Alexandra Battaglia-Mayer – Sapienza University, Rome, Italy

Andreas Daffertshofer – Vrije Universiteit Amsterdam, The Netherlands

Egidio D’Angelo – University of Pavia, Italy

Giacomo Koch – University of Ferrara, Italy

**Tutors**

Priscilla Avaltroni – URTV

Priscilla Balestrucci – Fondazione Santa Lucia, IRCCS (FSL)

Lucas Dal’Bello – FSL

Luca Falorsi – FSL

Gianluca Paolucci – Università degli Studi di Messina, Italy

Camilla Pera - URTV

Stefano Sacchetti – URTV