

RE-learning Perception-Action In Rehabilitation from a Systems perspective-REPAIRS closing conference

28-30 August 2024, Groningen, the Netherlands



Oral and poster presentation titles

Oral presentations

A nonlinear dynamical model of the angle-of-approach effect in manual lateral interception

Danial Borooghani¹, Remy Casanova¹, Frank T.J.M. Zaal², Reinoud J. Bootsma¹

¹*Institut des Sciences du Mouvement, Aix-Marseille Université, CNRS, Marseille, France*

²*Department of Human Movement Sciences, University Medical Center, Groningen, Groningen, The Netherlands*

Probing other's Presence: Probabilistic Inference Across Brain Scales Reveals Enhanced Excitatory Synaptic Efficacy

Amirhossein Esmaeili¹, Marie Demolliens³, Marjolein Viersen⁴, Abolfazl Ziaemehr¹, Faical Isbaine⁵, Sylvain Takerkart², Pascal Huguet³, Frank Zaal⁴, Victor Jirsa¹, Driss Boussaoud¹, Meysam Hashemi¹

¹*Institute of Systems Neuroscience, Aix-Marseille University, Marseille, France*

²*Institute of Neuroscience in Timone, Aix Marseille Université, France*

³*Laboratory of Social and Cognitive Psychology, Clermont-Ferrand University, France*

⁴*Department for Human Movement Sciences, University of Groningen, Groningen, the Netherlands*

⁵*Departments of Neurosurgery, Emory University, Atlanta, United States*

From independent individuals to an interdependent team: learning to coordinate with others in a manual ball-and-beam task

Marijn S.J. Hafkamp, Remy Casanova, Reinoud J. Bootsma

Aix-Marseille Université, CNRS, Marseille, France

An original ACL rehabilitation game based on coordination to improve postural stability

Anaëlle Cheillan¹, João Milho², Pedro Passos³

¹*Faculdade de Motricidade Humana, Universidade de Lisboa, Portugal*

²*CIMOSM, Instituto Superior de Engenharia de Lisboa, Instituto Politécnico de Lisboa, Portugal*

³*CIPER, Faculdade de Motricidade Humana, Universidade de Lisboa, Portugal*

Influence of Variability in Search for New Movement Coordination Patterns

Anadi Mehta¹, Joanne Smith¹, David Travieso², Raoul M. Bongers¹

¹*Department of Human Movement Sciences, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands*

²*Facultad de Psicología, Universidad Autónoma de Madrid, Madrid, Spain*

The use of electronic aids by visually impaired individuals in unfamiliar environments: a qualitative study

Saroosh Bilal¹, Jorge Rebate², Verónica Sevillano¹, David M. Jacobs¹

¹*Universidad Autónoma de Madrid, Spain*

²*Fundacion ONCE, Madrid, Spain*

Can we perceive interceptability for oneself?

Samruddhi Damle¹, Reinoud Bootsma², Frank Zaal¹

¹*University Medical Centre Groningen (UMCG), the Netherlands*

²*Aix Marseilles University (AMU), France*

Investigating coordination of muscles during planar arm reaching movements

Wanxiong Cai, Lei Zhang, Gregor Schöner

Institut für Neuroinformatik, Ruhr-Universität Bochum, Germany

The Different Practice Effects on Reaching Tasks Involving Geometric and Dynamic Affordances

Giacomo Bressanello, Naomi A. Schreurs, Raoul M. Bongers, Joanne Smith

Department of Human Movement Science, University Medical Center Groningen, University of Groningen, the Netherlands

Socioeconomic Benefits of Medical Rehabilitation

Chiara Basaglia

MEDIAN Unternehmensgruppe, Germany

IMU Sensor-to-Segment Calibrations for Upper Limbs Joint Angle Estimation in Rehabilitation

Alessandro Bonfiglio^{1,2,3}, Elisabetta Farella³, Raoul M. Bongers⁴

¹*Department of Information Engineering and Computer Science (DISI), University of Trento, Trento, Italy*

²*Euleria Health srl, Rovereto, Italy*

³*Energy Efficient Embedded Digital Architectures (E3DA), Fondazione Bruno Kessler, Trento, Italy*

⁴*Department of Human Movement Sciences, University Medical Center Groningen, Groningen, The Netherlands*

Bringing the context back to life: Conceptual and practical reflections
on the systems perspective

Giulia Di Rienzo

University of Antwerp, Belgium

Poster presentations

Socioeconomic Benefits of Medical Rehabilitation

Chiara Basaglia

MEDIAN Unternehmensgruppe, Germany

The effects of practice conditions on task performance while using the sensory substitution glove

Saroosh Bilal¹, Raoul M. Bongers², David M. Jacobs¹

¹*Universidad Autónoma de Madrid, Spain*

²*University Medical Center Groningen, University of Groningen, The Netherlands*

Estimating the time structure of descending activation in fast reaching movements via optimal control

Lukas Bildheim, Rebecca Baldi, Lei Zhang, Gregor Schöner

Institut für Neuroinformatik, Ruhr-Universität Bochum, Germany

Self-Organizing Maps for the Estimation of Risk of Falling from a Pelvis-Mounted Accelerometer

Alessandro Bonfiglio¹²³, Sina David⁴

¹*Department of Information Engineering and Computer Science (DISI), University of Trento, Trento, Italy.*

²*Euleria Health srl, Rovereto, Italy*

³*Energy Efficient Embedded Digital Architectures (E3DA), Fondazione Bruno Kessler, Trento, Italy*

⁴*Department of Human Movement Sciences, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands*

A nonlinear dynamical model of the angle-of-approach effect in manual lateral interception

Danial Borooghani¹, Remy Casanova¹, Frank T.J.M. Zaal², Reinoud J. Bootsma¹

¹*Institut des Sciences du Mouvement, Aix-Marseille Université, CNRS, Marseille, France*

²*Department of Human Movement Sciences, University Medical Center, Groningen, Groningen, The Netherlands*

Practice Effects and Movement Kinematics in a Reaching Tasks: Geometric vs. Dynamic Affordances

Giacomo Bressanello, Naomi A. Schreurs, Raoul M. Bongers, Joanne Smith

Department of Human Movement Science, University Medical Center Groningen, University of Groningen, The Netherlands

A method for uncontrolled manifold analysis of muscle activation patterns producing joint torques

Wanxiong Cai, Lei Zhang, Gregor Schöner

Institut für Neuroinformatik, Ruhr-Universität Bochum, Germany

Learning trajectories in informational spaces: new insights for our ACL rehabilitation game based on coordination

Anaëlle Cheillan¹, David Jacobs², Pedro Passos³

¹*Faculdade de Motricidade Humana, Universidade de Lisboa, Portugal*

²*Facultad de Psicología, Universidad Autónoma de Madrid, Spain*

³*CIPER, Faculdade de Motricidade Humana, Universidade de Lisboa, Portugal*

Can we perceive for another? Affordance of interceptability for others considered

Samruddhi Damle¹, Reinoud Bootsma², Frank Zaal¹

¹*University Medical Centre Groningen (UMCG), the Netherlands*

²*Aix Marseilles University (AMU), France*

Temporalizing Behavior Settings

Giulia Di Rienzo

University of Antwerp, Belgium

Probing other's Presence: Probabilistic Inference Across Brain Scales Reveals Enhanced Excitatory Synaptic Efficacy

Amirhossein Esmaeili¹, Marie Demolliens³, Marjolein Viersen⁴, Abolfazl Ziaemehr¹, Faical Isbaine⁵, Sylvain Takerkart², Pascal Huguet³, Frank Zaal⁴, Victor Jirsa¹, Driss Boussaoud¹, Meysam Hashemi¹

¹*Institute of Systems Neuroscience, Aix-Marseille University, Marseille, France*

²*Institute of Neuroscience in Timone, Aix Marseille Université, France*

³*Laboratory of Social and Cognitive Psychology, Clermont-Ferrand University, France*

⁴*Department for Human Movement Sciences, University of Groningen, Groningen, the Netherlands*

⁵*Departments of Neurosurgery, Emory University, Atlanta, United States*

Functional adaptations in the timing of motion in a manual ball-and-beam task

Marijn S.J. Hafkamp, Remy Casanova, Reinoud J. Bootsma

Aix-Marseille Université, CNRS, Marseille, France

Antagonistic coupling and lead-lag patterns in top-level between-agent coordination

Marco Kohlbrugge, Harjo De Poel

Department of Human Movement Sciences, University Medical Center Groningen (UMCG), Groningen, the Netherlands

Impact of Object Weight and Participant Age on the Dynamics of Human-to-Human Object Handovers

Lena Kopnarski, Julian Rudisch, Dieter F. Kutz, Claudia Voelcker-Rehage

Department of Neuromotor Behavior and Exercise, Institute of Sport and Exercise Sciences, University of Münster, Germany

Intra-Trial Search in Joint Space during Learning a New Coordination Pattern

Anadi Mehta¹, Joanne Smith¹, David Travieso², Raoul M. Bongers¹

¹Department of Human Movement Sciences, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands

²Facultad de Psicología, Universidad Autónoma de Madrid, Madrid, Spain

Is it an obstacle or simply an object? The use of proactive gaze allocation during route selection through dynamic environments

Marieke P.E. Pijnenburg, Rob A. den Otter

University of Groningen, University Medical Center Groningen, Dept of Human Movement Sciences, Groningen, Netherlands

Rocking against each other: Dynamics of between-agent interactional opposition

Harjo De Poel¹, Luís Gómez-Jordana², Pedro Passos²

¹Department of Human Movement Sciences, University Medical Center Groningen (UMCG), Groningen, the Netherlands

²CIPER, Faculdade de Motricidade Humana, Universidade de Lisboa, Portugal

Moving larger to (re-)stabilize coordination

Harjo De Poel, Marco Kohlbrugge, M van Sterkenburg, Maarten te Vaarwek, Martin Volkers

Department of Human Movement Sciences, University Medical Center Groningen (UMCG), Groningen, the Netherlands

Performance and Kinematics of Interceptive Behavior for Catchable and Uncatchable Targets in Low and High Textured Environments

Dees Postma

University of Twente, the Netherlands

Coordinative structures exploit co-activation and co-variation of muscles

Iris Slooter¹, Morten B. Kristoffersen^{2,3}, Raoul M. Bongers¹

¹*University of Groningen, University Medical Center Groningen, Dept of Human Movement Sciences, Groningen, the Netherlands*

²*Center for Bionics & Pain Research, Sweden*

³*University of Gothenburg, Institute of Clinical Sciences, Dept of Orthopaedics, Sweden*