

# ER<sup>2</sup>SCHOOL

EUROPEAN ROBOTIC REHABILITATION SCHOOL

Third edition: April 19/24, 2021  
KOS Santo Stefano Rehabilitation Hospital  
Porto Potenza Picena (MC), Italy

*Draft program\**

**Monday, Day 1 (Porto Potenza Picena facility)**

**PRESENTATION OF THE THIRD EDITION OF THE ER<sup>2</sup> SCHOOL**

- 08.30 a.m. Registrations
- 09.00 a.m. **Opening: ESPRM/UEMS Section and Board Perspectives, clinical and educational aims**
- 09.30 a.m. **Pediatric rehabilitation**  
Epidemiology, analyzing frequent problems and emerging ones.  
Disabled person becoming adult
- 10.00 a.m. **Changes in expectations and approaches**  
From conventional aids to advanced technologies and compensative/dispensative tools in child growth
- 10.30 a.m. **Covid and after Covid in European Pediatric Rehabilitation.**
- 11.00 a.m. *Coffee break*
- 11.20 a.m. **Robotic Rehabilitation - Educational needs and training programs for Health professionals**
- 12.00 a.m. **Centre for rehabilitation engineering and science RESC – Zurich University Experiences and perspectives**
- 12.40 a.m. *Discussion*
- 1.20 p.m. *Lunch break*

## **PRACTICAL SESSION**

- 02.30 p.m. **Gait analysis as an outcome assessment** used for the pediatric rehabilitation: experiences based on specific pathologies
- 03.00 p.m. **Practice and training - The role of the Movement Analysis Laboratory: equipments, crawling and data processing**
- 03.30 p.m. **Movement Analysis: clinical role and experiences**
- 04.30 p.m. Discussion - Pro/Contra
- 05.30 p.m. Conclusions

# ER<sup>2</sup>SCHOOL

**Tuesday, Day 2 (San Benedetto facility)**

## **VIRTUAL AND AUGMENTED REALITY FOR MOTOR REHABILITATION**

- 08.30 a.m. Registrations
- 09.00 a.m. **A bottom-up approach: from a physical to a cognitive level**  
Standing, walking and brain reorganization during developmental age
- 10.00 a.m. **Robot-integrated rehabilitation: assessment of new technologies in terms of setting, investments and outcomes**
- 11.00 a.m. **A wide-ranging experience: Bambino Gesù Children's Hospital (Rome, Italy)**  
Theoretical-practical approach to innovative technologies aimed at motor and cognitive recovery
- 12.00 a.m. **Reporting using Re-walk, in-motion Arm, Wrist, Hirob and Lokomat**
- 01.00 p.m. *Lunch break*

## **PRACTICAL SESSION**

- 02.00 p.m. Practice and training: Lokomat  
*Experiences by ER<sup>2</sup> Community Group*  
*Device/Company: Hocoma*
- 03.30 p.m. Re-Walk, in-motion Arm, Wrist
- 05.00 p.m. Discussion - Pro/Contra
- 05.30 p.m. Conclusions

## Wednesday, Day 3 (Jesi facility)

### MOTOR REHABILITATION

- 08.30 a.m. Registrations
- 09.00 a.m. **Virtual reality: basics, evidences and perspectives. Applications in National Rehabilitation Services**
- 10.00 a.m. **Children motor rehabilitation through virtual reality tools**
- 11.00 a.m. **Study of human-machine interface systems for interaction in virtual environments**
- 12.00 a.m. **A wide-ranging experience: the GRAIL in Italy, for walking and balance ability improvements in engaging Virtual reality environments**
- 12.30 a.m. **Robotic rehabilitation with support of virtual reality**
- 01.00 p.m. *Lunch break*

### PRACTICAL SESSION

- 02.00 p.m. Practice and training - Experiences by the ER2 Community Group
- 03.30 p.m. Experiences for the upper limb rehabilitation by the ER2 Community Group
- 05.00 p.m. Discussion - Pro/Contra
- 05.30 p.m. Conclusions

**Thursday, Day 4 (Jesi facility)**

## **COMMUNICATION**

### ***Communication disorders***

08.30 a.m. Registrations

09.00 a.m. **Neurodevelopment disorders**

Epidemiology, the global patient take-charge (engagement and territory), ICF (activity and participation). Which rehabilitation program

09.45 a.m. **Communication and learning in autism spectrum disorders**

Access to reading-writing skills in children with complex communication disorders

10.20 a.m. **Software helpful to improve participation in activities and learning works, in case of motor and neurosensorial disabilities**

11.10 a.m. **Technological and visual aids to support sight**

12.00 a.m. **Augmentative communication devices: availability in Europe**

01.00 p.m. *Lunch break*

## **PRACTICAL SESSION**

02.00 p.m. Practice and training - Augmentative communication: experiences

03.30 p.m. Limix (a glove that translate signs into voice)

*Device/Company: **Limix Srl***

05.00 p.m. Discussion - Pro/Contra

05.30 p.m. Conclusions

# ER<sup>2</sup>SCHOOL

**Friday, Day 5 (Porto Potenza facility)**

**TECHNOLOGIES FOR ENSURING CONTINUITY OF CARE AND PATIENT EMPOWERMENT -  
TELEREHABILITATION**

- 08.30 a.m. Registrations
- 09.00 a.m. **Advantages and disadvantages of the telerehabilitation; scientific evidences**
- 10.00 a.m. **Planning experiences and prototype development for the child's telerehabilitation**
- 11.00 a.m. **Clinical assessment in order to set up a project of telerehabilitation  
Devices, software and sensors; users' point of view about usability in order to project an  
independent life**
- 12.00 a.m. **Artificial or increased intelligence in pediatric rehabilitation?**
- 01.00 p.m. *Lunch break*

## **PRACTICAL SESSION**

- 02.00 p.m. Practice and training - Experiences by the ER2 Community Group  
(VRRS tablet Khymeia)  
*Device/Company: **Khymeia Group***
- 03.30 p.m. Experience with wearable devices and sensors  
Niurion  
*Device/Company: **Technomedical***
- 05.00 p.m. Discussion - Pro/Contra
- 05.30 p.m. Conclusions

# ER<sup>2</sup>SCHOOL

**Day 6 - Saturday, October 17 (Porto Potenza facility)**

**TECHNOLOGIES FOR ENSURING CONTINUITY OF CARE AND PATIENT EMPOWERMENT -  
TELEREHABILITATION**

- 08.30 a.m. Registrations
- 09.00 a.m. **Teleconsultation, Telecare, Telerehabilitation within a community network  
New methodology and new training contents and outcomes**
- 10.00 a.m. **Practice and training - First experiences in Italy**
- 11.00 a.m. **Domestic life: home automation**  
Visit to the Smart House
- 12.00 a.m. **Research perspectives. General discussion**  
**Take home message**
- 13.00 a.m. ECM certification and closing remarks

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Each speech includes a final moment for questions and discussion.

Each practice session will be “on site” and if necessary by interactive video-demonstrations.

## **Organization:**

**Prof. Alessandro Giustini**  
ESPRM Robotic SICS -RRSS

Cristina Gamberini  
Santo Stefano Kos ERRS Secretary

**Prof. Enrico Castelli**  
Bambino Gesù Children's Hospital

**Dr. Massimo Vallasciani**  
L.A.M.PO. (Movement Analysis  
Laboratory)

Antonio Ruggiero,  
Bioengineer - Training Tutor

Francesca Tombolini  
Bioengineer - Training Tutor

Francesco Spigarelli  
Data Scientist