**Preface**

# Digital Innovations for Learning and Neurodevelopmental Disorders

We are pleased to present the proceedings of the international scientific workshop "Digital Innovations for Learning and Neurodevelopmental Disorders" (DILeND), held on 24 and 25 May 2024, at the Università degli Studi Internazionali di Roma. The objective of this workshop was to cultivate proficiency in the utilisation of novel technologies to facilitate the learning of individuals with neurodevelopmental disorders. It offered a distinctive forum for the interdisciplinary exchange of knowledge among experts in technology, computer science, and psychology.

The workshop was structured around two principal thematic sessions. "Digital Innovation and Autism Spectrum Disorder " Thematic sessions included "New Technologies to Support Learning in ASD" and "Digital Innovation and Attention-Deficit/Hyperactivity Disorder (ADHD)". "New Technologies to Support Learning in ADHD." Each session explored the potential of digital technologies to enrich educational experiences and therapeutic support, reflecting the increasing necessity for tailored solutions to address the distinctive challenges associated with each disorder.

A total of 14 paper submissions were received for this workshop, of which 10 were accepted following a rigorous peer-review process. The selected papers represent a diverse and comprehensive range of current research in the application of digital technologies to support learning in individuals with neurodevelopmental disorders.

 The accepted papers in our collection represent a diverse range of research exploring the application of digital technologies to neurodevelopmental disorders and learning. A significant area of investigation is the potential of artificial intelligence in the treatment and diagnosis of autism spectrum disorder and attention deficit hyperactivity disorder. This is discussed in detail in a paper that provides a comprehensive narrative review of this technology. Artificial intelligence, virtual reality and serious games represent the most extensively researched technologies in both fields, demonstrating their affordability and utility in the creation of personalised and adaptive treatment plans. Artificial intelligence employs machine learning algorithms to monitor symptoms and suggest interventions. Serious games have been shown to improve attention and behavioural control. Virtual reality has been demonstrated to enhance metacognition and attention management. These technologies, with their own distinctive characteristics, serve as engaging therapeutic tools that can supplement traditional treatments. They have been shown to have significant potential in enhancing learning outcomes. These technological solutions facilitate improved interaction and social integration, thereby demonstrating the broader implications of digital innovations beyond the scope of ASD, ADHD and intellectual disabilities. Another innovative approach is the integration of social robots into therapeutic interventions, as detailed in our proceedings. These robots have been designed to improve social interactions for individuals with ASD, and have demonstrated efficacy in enhancing social communication skills, thereby offering new avenues for support.

We would like to express our gratitude to all the authors who submitted their work and to the reviewers for their dedication to ensuring the high quality of the accepted papers. We would like to extend our gratitude to all participants and speakers whose contributions, enthusiasm and expertise were instrumental to the success of this event. Furthermore, we would like to express our sincerest gratitude to the Program Committee for their invaluable support and guidance. In particular, we would like to express our gratitude to:

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The DILeND workshop provided a forum for discussing the latest findings and innovations in neurodevelopmental disorders, as well as a moment of collective reflection on how technology can be harnessed to enhance learning and support for individuals with neurodevelopmental disorders. We hope that these proceedings will inspire further research and interdisciplinary collaborations, contributing to a future where every individual has access to the tools they need to reach their full potential.

With gratitude,
On behalf of the organisers of the DILeND Workshop