Dottorato di Ricerca in Informatica e Matematica

AVVISO DI SEMINARIO

Prof. ssa Linda ANTONUCCI

Università degli Studi di Bari
Mercoledì 21 Giugno, ore 15:00 – Sala Consiglio - Dipartimento di Informatica

Applications of multimodal machine learning techniques to the identification of disease markers in psychiatry and clinical psychology: the case of schizophrenia

Notwithstanding decades of clinical, genetic, environmental and neuroscientific research on schizophrenia, diagnosis is often ambiguous, prognosis is unpredictable, and response to treatment is uncertain. This uncertainty extent may be due to the fact that schizophrenia risk pathways are heterogeneous and multi-factorial. Indeed, the pathophysiological architecture of the disorder is characterized by complex gene-by-developmental interactions which may be associated with deviations in structural and functional brain maturation. Ultimately, these brain alterations may determine the substrate for the onset of cognitive deficits and for increased susceptibility to schizophrenia. In other words, the multitude of risk domains and factors, their reciprocal influences and modulations, as well as the phenotypic uncertainty of schizophrenia, make the picture extremely complex and difficult to disentangle. This seminar aims to shed light on how cutting edge, state-of-the-art machine learning-based methodological applications within schizophrenia research may facilitate a shift from group-level phenotypic description to single-subject-level biomarker identification. Furthermore, it aims at giving the audience a clear picture about how these methodological advances may potentially provide key instruments for the translation of research insights into concrete and effective early identification and intervention strategies, therefore allowing to move towards precise and individualized psychiatric care.

Linda A. Antonucci is affiliated to Department of Translational Biomedicine and Neuroscience at University of Bari Aldo Moro as Tenure-Track Assistant Professor in Clinical Psychology, and to the Section for Neurodiagnostic Applications of the Ludwig-Maximilians University in Munich as guest researcher. During her PhD and postdoctoral fellowship in Italy, she built strong expertise in fMRI data acquisition, processing and analysis and in the development of functional connectivity techniques. During her postdoctoral fellowship in Munich, she complemented this methodological expertise through the training and the use of machine learning and deep learning techniques applied to multimodal data sources. She is interested in applying machine learning techniques to clinical, cognitive and neuroimaging data for prediction of functional outcome, transition to psychosis and symptoms remission in individuals at risk or at the first episode of psychosis. The ultimate aim is to provide clinical practice with effective early identification models that could serve as a target for disease monitoring or treatment outcome within psychosis spectrum disorders. She is author of more than 50 international publications, team member of several internationally and nationally funded research projects, and has held more than 20 invited presentations in national and international conferences in the field of psychiatry and clinical psychology.