

# Preface

Bursty dynamics is a common temporal property of various complex systems in nature but it also characterises the dynamics of human actions and interactions. At the phenomenological level, it is a feature of all systems that evolve heterogeneously over time by alternating between periods of low and high event frequencies. In such systems, bursts are identified as periods in which the events occur at a rapid pace within a short time-interval while these periods are separated by long periods of time with low frequency of events. As such dynamical patterns occur in a wide range of natural phenomena, their observation, characterisation and modelling have been a long-standing challenge in several fields of research. However, due to some recent developments in communication and data collection techniques, it has become possible to follow digital traces of actions and interactions of humans from the individual up to the societal level. This led to several new observations of bursty phenomena in the new but largely unexplored area of human dynamics, which called for the renaissance to study these systems using research concepts and methodologies, including data analytics and modelling. As a result, a large amount of new insight and knowledge as well as innovations have been accumulated in the field, which provided us a timely opportunity to write this brief monograph to make an up-to-date review and summary of the observations, appropriate measures, modelling and applications of heterogeneous bursty patterns occurring in the dynamics of human behaviour.

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Márton Karsai  
Hang-Hyun Jo  
Kimmo Kaski

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Karsai, M.; Jo, H.-H.; Kaski, K.

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