UNIVERSITÀ DEGLI STUDI FIRENZE

FLORENCE center for DATA SCIENCE

ABSTRACTS

Seminar D^2 Seminar Series

Florence Center for Data Science 'Double' Seminar Series

Monica Bianchini - Department of Information Engineering and Mathematics, University of Siena

Title: A gentle introduction to Graph Neural Networks

Abstract: This talk will introduce Graph Neural Networks, which are a powerful deep learning tool for processing graphs in their entirety. Indeed, considering graphs as a whole allows to take into account the essential sub-symbolic information contained in the relationships described by the arcs (as well as the symbolic information collected in the node labels), also enabling alternative learning frameworks based on information diffusion. Some real-world applications, in which graphs are the most natural way to represent data, will be presented, ranging from image processing to the prediction of drug side-effects.

Giulio Bottazzi - Institute of Economics, Sant'Anna School of Advanced Studies of Pisa

Title: Persistence in firm growth: inference from conditional quantile transition matrices

Abstract: We propose a new methodology to assess the degree of persistence in firm growth, based on Conditional Quantile Transition Probability Matrices (CQTPMs) and well-known indexes of intra-distributional mobility. Improving upon previous studies, the method allows for exact statistical inference about TPMs properties, at the same time controlling for spurious sources of persistence due to confounding factors such as firm size, and sector-, country- and time-effects. We apply our methodology to study manufacturing firms in the UK and four major European economies over the period 2010-2017. The findings reveal that, despite we reject the null of fully independent firm growth process, growth patterns display considerable turbulence and large bouncing effects. We also document that productivity, openness to trade, and business dynamism are the primary sources of firm growth persistence across sectors. Our approach is flexible and suitable to wide applicability in firm empirics, beyond firm growth studies, as a tool to examine persistence in other dimensions of firm performance.