

國立交通大學應用數學系

學術演講公告

主講人：蘇黎博士(中央研究院資訊科技創新研究中心)

講題：Mining non-steady and overlapped periodicities from data streams:
applications in audio, music, and biomedical signal processing

時間：105 年 12 月 20 日(星期二) 下午 2:00 –3:00

地點：(光復校區) 科學一館 223 室

茶會：當天下午 1:30 (科學一館 205 室)

Abstract

How to recognize and model domain knowledge from data, and how to generate data representations comprehensive and helpful for experts and learners are challenging issues in combining artificial intelligence technology and expertise. Abundant information related to domain knowledge is usually interpreted and utilized in specific manners according to a small amount of observations, and the observation usually contains overlapped patterns and non-steady behaviors. Such tasks are hardly scalable because of the complexity of ground truth and the insufficiency of rigorously labeled datasets. Periodicity is arguably one of the most fundamental features in data streams. In particular, finding and extracting every oscillating component which has non-steady periods and oscillating patterns from multi-component data streams is still an open problem. In this talk, a newly proposed approach for mining non-steady periodicities is introduced. This approach includes the combined frequency and periodicity (CFP) method, the de-shaped short-time Fourier transform (STFT), together with an optimization approach for pattern extraction. The approach is reported useful and efficient in challenging problems including automatic music transcription for music information retrieval (MIR), motion artifact reduction in plethysmograph (PPG) signals, the separation of fetal electrocardiogram (ECG) signals, and other problems in future interdisciplinary technologies.

敬請公告 歡迎參加

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