Digitalization in the Service of Society: Harnessing Big Vehicle Trajectory Data

Date and Time: May 3, 2023 (Wednesday) 5:00 PM to 6:00 PM

Venue: CPD-2.42, Centennial Campus, HKU

Abstract:
The ongoing, sweeping digitalization of societal processes yields massive volumes of data that capture the underlying processes at an unprecedented level of detail, in turn enabling us to better understand and improve those processes. Put differently, if harnessed properly, data holds the potential to enable value creation throughout society.

Considering primarily vehicle trajectory data, this talk puts focus on the important process of transportation: While we all depend on it for mobility, transportation has adverse effects on our productivity due to lack of predictability and congestion, on the climate due to greenhouse gas emissions, and our health and safety due to air and noise pollution and accidents. In sum, it makes sense to invent techniques capable of leveraging trajectory data for the improvement of transportation.

This talk will describe how the availability of massive trajectory data renders the traditional routing paradigm, where a road network is modeled as an edge-weighted graph, inadequate. Instead, new paradigms that thrive on massive trajectory data are called for. The talk will cover several such paradigms. As even massive volumes of trajectory data are sparse in these settings, the talk will also cover means of making good use of available data.

Speaker:
Christian S. Jensen is Professor of Computer Science at Aalborg University, Denmark. His research concerns analytics, including machine learning, data mining, and query processing, and data management, with a focus on temporal and spatio-temporal data. Christian is an ACM and IEEE Fellow, and he is a member of Academia Europaea, the Royal Danish Academy of Sciences and Letters, and the Danish Academy of Technical Sciences. He has received several awards, most recently the 2022 ACM SIGMOD Contributions Award and the 2019 IEEE TCDE Impact Award.