Human-machine Sensemaking of Large Graphs

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CoRE A 301

Abstract

At the Polo Club of Data Science, we innovate at the intersection of data mining and human-computer interaction (HCI), combining the best from both worlds to synthesize scalable interactive tools for making sense of million- and billion-edge graphs. I will present some of our latest work:

(1) Visage: an interactive visual graph querying approach that empowers users to construct expressive queries, without writing complex code (e.g., finding money laundering rings of bankers and business owners).

(2) Facets & Carina: combine machine inference and visualization to guide the user to interactively explore large graphs. The user gives examples of relevant nodes, and the systems recommend interesting and surprising areas the user may want to see next.

(3) MMap & M3: a minimalist approach that leverages virtual memory to power billion-scale computation and interaction on a single PC (and iPad!) at a speed that outperforms state-of-the-art techniques.

Bio

Duen Horng (Polo) Chau is an Assistant Professor at Georgia Tech’s School of Computational Science and Engineering, and an Associate Director of the MS Analytics program. He holds a PhD in Machine Learning and a Masters in human-computer interaction (HCI). His PhD thesis won Carnegie Mel-lons Computer Science Dissertation Award, Honorable Mention. His research group bridges data mining and HCI – innovates at their intersection – to synthesize scalable, interactive tools that help people understand and interact with big data. His group have created novel detection technologies for malware (patented with Symantec, protects 120M+ people), auction fraud (WSJ, CNN, MSN), comment spam (patented & deployed with Yahoo), fake reviews (SDM14 Best Student Paper), insider trading (SEC), unauthorized mobile device access (Wired, Engadget); and fire risk prediction (KDD16 Best Student Paper, runner up). He received faculty awards from Google, Yahoo,
and LexisNexis. He also received the Raytheon Faculty Fellowship, Edenfield Faculty Fellowship, Outstanding Junior Faculty Award. He is the only two-time Symantec fellow.

Faculty Host: James Abello