Seminar Information

Nitech Frontier Research Institute For Information Science

April 25th (Tue),2017

①Dr. Hiroshi Motoda13:00-14:30 / ②Dr. Mark Klein 14:40-16:20

@Nitech Hall

Dr. Hiroshi Motoda

Osaka University

Title:
Which is More Influential, ``Who'' or ``When'' for a User to Rate in Online Review Site?

Abstract:

At its heart the act of reviewing is very subjective, but in reality many factors influence user's decision. This can be called social influence bias. We pick two factors, ``Who'' and ``When'' and discuss which factor is more influential when a user posts his/her own rate after reading the past review scores in an online review system. We show that a simple model can learn the factor metric quite efficiently from a vast amount of data that is available in many online review systems and clarify that there is no universal solution and the influential factor depends on each dataset. We use a weighted multinomial generative model that takes account of each user's influence over other users. We consider two kinds of users: real and virtual, in accordance with the two factors, and assign an influence metric to each. In the former each user has its own metric, but in the latter the metric is assigned to the order of review posting actions (rating). Both metrics are learnable quite efficiently with a few tens of iterations by log-likelihood maximization. Goodness of metric is evaluated by the generalization capability. The proposed method was evaluated and confirmed effective by five review datasets. Different datasets give different results. Some dataset clearly indicates that user influence is more dominant than the order influence while the results are the other way around for some other dataset, and yet other dataset indicates that both factors are not relevant. The third one indicates that the decision is very subjective, i.e., independent of others' review. We tried to characterize the datasets, but were only partially successful. For datasets where user influence is dominant, we often observe that high metric users have strong positive correlations with three more basic metrics: 1) the number of reviews a user made, 2) the number of the user's followers who rate the same item, 3) the number of the user's followers who gave the similar rate, but this is not always true. We also observe that the majority of users is normal (average) and there are two small groups of users, each with high metric value and low metric value. Early adopters are not necessarily influential.
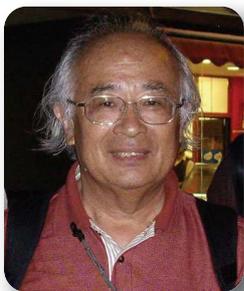
Biography:

Dr. Hiroshi Motoda is a Professor Emeritus of Osaka University, Guest Professor of the Institute of Scientific and Industrial Research (ISIR) of Osaka University and Adjunct Professor, School of Computing and Information Systems, University of Tasmania. He was a professor in the division of Intelligent Systems Science at ISIR of Osaka University since 1996 until March, 2006. Before joining the university, he had been with Hitachi since 1967, participated in research on nuclear reactor core management, control and design of nuclear power reactors, expert systems for nuclear power plant diagnosis at the Central Research Laboratory (1967-1971), the Atomic Energy Research laboratory (1971-1978) and the Energy Research Laboratory (1978-1985), and on artificial intelligence, machine learning, knowledge acquisition, qualitative reasoning and diagrammatic reasoning at the Advanced Research Laboratory (1985-1995). He continued to work on machine learning and knowledge acquisition, and has extended his research to scientific knowledge discovery and data mining. Recently he has been working on social network analysis while managing several projects. He has been the principal investigator of the active mining project funded by the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) that involved about 20 universities and research institutes. He received his Bs, Ms and PhD degrees in nuclear engineering from the University of Tokyo. He was on the board of trustee of the Japan Society of Software Science and Technology (JSSST), the Japanese Society for Artificial Intelligence (JSAI) and the Japanese Cognitive Science Society (JCSS) and on the scientific advisory board of Alberta Ingenuity Center of Machine Learning. He was the chair of SIG-KBS and SIG-FAI of JSAI, the chair of the steering committee of Pacific Asian Conference of Knowledge Discovery and Data Mining, the chair of the steering committee of Discovery Science Conference, the chair of the steering committee of Asian Conference on Machine Learning, and on the editorial board of JSAI, JCSS and Knowledge Acquisition (Academic Press), IEEE Expert, Knowledge and Information Systems: An International Journal (Springer), Advanced Engineering Informatics (Elsevier), International Journal of Human-Computer Studies (Elsevier) and Intelligent Data Analysis: An International Journal (IOS Press). He is now an honorary member of the steering committee of Pacific Rim International Conference of Artificial Intelligence, a life long member of the steering committee of Pacific Asian Conference of Knowledge Discovery and Data Mining, an honorary member of the steering committee of Asian Conference on Machine Learning, a member of the steering committee of Discovery Science Conference and a member of the steering committee of IEEE Data Science and Advanced Analytics. He received the best paper awards twice from Atomic Energy Society of Japan (1977, 1984), three times from JSAI (1989, 1992, 2001), the best research paper award for DSAA2014 (2014), the outstanding achievement awards from JSAI (2000), the distinguished contribution award for PAKDD (2006), the outstanding contribution award from Web Intelligence Consortium (2008) and the distinguished contribution award for PRICAI (2014). He wrote/edited four books on feature selection/extraction/construction. His book ``Fundamentals of Data Mining'' was awarded the 2007 Okawa Publishing Prize. He was a member of AESJ, ANS, AAAI, IEEE, JCSS, IPSJ and is a member of JSAI (Fellow).

Dr. Mark Klein

Massachusetts Institute of Technology

Title:
New Directions in Crowd Computing

Abstract:

This presentation will describe some promising new research directions for crowd computing, focusing on ways that technology can help crowds develop and filter ideas more effectively. We will, in particular, discuss the "Bag of Lemons" idea filtering techniques, as well as the Deliberatorium system for large-scale deliberation mapping.

Biography:

Dr. Mark Klein is a Principal Research Scientist at the Massachusetts Institute of Technology, where he was worked for 20 years. He is now a visiting professor in Nagoya Institute of Technology until the end of April. His research lies at the intersection of social computing and artificial intelligence, and draws from such fields as data science, economics, operations-research, and complexity science in order to develop and evaluate computer technologies that enable greater 'collective intelligence' in large groups faced with complex decisions.
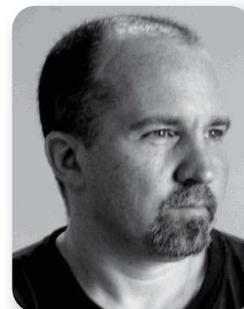
** セミナーは下記の授業として行います **
（博士前期）
- 材料・エネルギー特別演習１，２
- 情報・社会特別演習１，２
（博士後期）
- 材料・エネルギー先進特別演習１，２
- 情報・社会先進特別演習１，２