

Opportunities for Independent Studies for Doctoral and Master Students In Spring 2003 Semester

Bring Multimedia Content To Mobile Devices

In the current knowledge-based new economy, it is critical to enable anytime, anywhere, and on-demand information/knowledge delivery. With the growth of bandwidth available in wireless network, it is feasible to stream rich multimedia content, such as audio/video, to mobile devices such as Palms and Pocket PCs. Mobile devices present new challenges for technical communication and content delivery, including limited bandwidth, channel fading, mobility, small display area, and limited input methods and storage. There are many interesting issues that can be explored in this area, such as wireless Internet services, multimedia streaming over the wireless network, and adaptive multimedia content delivery based on wireless network traffic.

Expectation:

- 1) A relatively comprehensive overview paper on state-of-the-art technologies in content delivery in wireless environments, **or**
- 2) Development of an approach to addressing a specific related issue. For example, how to deliver a video clip to a remote mobile device and play it immediately?

Data Mining In Finance and Marketing

The availability of large volume of data in finance and marketing, made possible by new information technology tools, has created opportunities as well as challenges for businesses to leverage the data and gain competitive advantage. Data mining, a process of searching and analyzing data in order to find implicit but potentially useful information, has been widely applied to many problems such as stock market prediction, portfolio management, fraud detection, and financial trend analysis. This study aims to investigate various data mining techniques in time-series data analysis for trend analysis.

Expectations: Write an overview paper **or** conduct a study by using an existing commercial software to predict stock market **or** propose a machine learning approach to a real-world problem.

In general, the first study is a relative new research area, still in its early stages, while the second one has great potentials to be applied in real-world applications. Both studies can possibly result in a publishable paper in a conference or a journal.

If you are interested in any of these topics, please send an email to Dr. Dongsong Zhang at zhangd@umbc.edu. Thanks.