Master of Science in E-Commerce (Technologies Programme)

The Chinese University of Hong Kong

Guide for Projects in E-Commerce Technologies

Course Coordinator: Helen Meng, Jan 7, 2004

I. Objective and Scope
Projects in E-Commerce Technologies aims to provide an opportunity for our students to develop and demonstrate their ability to conduct and document a comprehensive project requiring creative and analytical thinking as well as hands-on engineering. A project may involve (though not restricted to) the following:

1. Design of a system related to E-commerce, development, test and evaluation.
2. Development and/or application of a theory or model to understand or analyze a system or a process.
3. Case study of a real application or process.
4. Simulation of a system or process based on an analytical or computational model.
5. The Field Study Option (see Section VII below)

II. Project Team
It is recommended that the project be a team effort, though individual projects may be entertained with permission of the faculty supervisor. Recommended team size is between 2 to 4 members. The faculty supervisor will be evaluating the project based on each individual team member’s contribution, a final presentation and the project writeup. The writeup should provide a clear statement of the problem, a description of previous and current work, new findings in the project, conclusions and citations.

III. Time Allocation
The scope of the project should also by set by the project group, such that it is feasible to complete within one semester in the time allocation equivalent to one regular course. Please note that you should select this Project Course either the fall semester, or in the spring semester, but not both (except for the conditioned specified in Section VII).
IV. Project Supervisor

The project team should consult with the participating faculty members to identify the appropriate supervisor for each project. The list of participating faculty members and their research interests are provided in Appendix I.

V. Course Administrator

This course is administered by Professor Helen Meng. Questions about policies and procedures should be addressed to her. This project course corresponds to 3 Course Units in the M.Sc. program.

VI. Brief Calendar

(based on a 13-week semester)

Week 1-3: form team, identify faculty advisor (see Appendix 1), submit a proposal;
Week 4-6: phase one of project work;
Week 7: midterm review (project reports/updates);
Week 8-10: phase two of project work;
Week 11: prepare final report;
Week 12: presentation;
Week 13: final report due.

VII. The Field Study Option

To be announced

Please note: Students may choose to conduct a field study in the fall, or conduct a regular study in the spring semester, or BOTH. However, students are NOT allowed to conduct two field studies, or two regular studies.
**Participating Faculty**

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Programme Director, MSc in E-Commerce (Business Programme)

Lai, Vincent Siu King

BSSc (CUHK), MBA (Ohio), MSc (Arizona), PhD (Texas, at Arlington)
Associate Professor, Department of Decision Sciences and Managerial Economics
Research Interests:
Information Technology Management, Database Design, Electronic Commerce, IT-Enabled Business Process Reengineering
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Programme Director, MSc in E-Commerce (Technologies Programme)

Yao, David D.

MSc, PhD (University of Toronto), FIEEE
Professor of Systems Engineering and Engineering Management
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Research Interests:
Stochastic models, Queues and queueing networks, Internet performance analysis and optimization,
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Ahlstrom, David

BA, Mphil, PhD (New York), MBA (Hawaii)
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Cai, Xiaoqiang

BEng (Harbin Shipbuilding Engineering Institute), MEng, DEng (Tsinghua University)
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Chan, Samuel W.K.
BSc (CUHK), MSc (U. of Manchester, Dip. Ed.), MPhil (CUHK), PhD (New South Wales)
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R&D Opportunities in the Great China Area.
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Suggested Projects for ECT7150/ECT7250: e-Global Logistics Solutions: State of the Art and Perspectives

Brief description of project: While the dust from the docom debacle is settling, amid technology slowdown, the Internet continues to expand, which means an inevitable rise of e-commerce. Logistics is a major sector of HK economy, and to keep its competitiveness, it is critical for the industry to possess e-global logistics capabilities.

E-global logistics is loosely defined as Internet-based international logistics. This project is to investigate how the Internet can facilitate international trade and logistics between HK/China and the US and to explore business opportunities in this area with an emphasis on technologies.

The project will start with the industry-wide search and end with in-depth analysis of one or two market niches, with the aim of identifying business opportunities.

Prerequisites: Knowledge of the industry is not necessary. It is important for the members to have strong interest in the development of the industry, and ideally, they aspire to work in the related field.

No. of student to be involved in the project (recommended between 1-4): Flexible

Related Reading Materials: Ask Prof. Chen for details.
Cheng, Chun Hung
BSSc (CUHK), MSc, MBA, PhD (Iowa)
Associate Professor, Department of Systems Engineering and Engineering Management
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Information Systems, Operations Management
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Cheung, Wai Man
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Research Interests:
Issues in distributed databases, Replicated data, Data mining, Content-based retrieval in multimedia databases, Parallel and distributed systems
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Hsieh Charles
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King, Irwin Kuo Chin

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Information retrieval, multimedia databases, and neural networks.
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Suggested Projects for ECT7150/ECT7250:
1. Data Mining and Learning of Financial Information on the Internet
2. Graphical Visualization in Data Mining for E-Commerce Applications

Brief description of project:
1. Data Mining and Learning of Financial Information on the Internet
The Internet is a huge information repository which many classical algorithms for databases and graphs do not scale well. This project aims at using data mining techniques for knowledge discovery of financial information on the Internet. In particular, the project will examine some Internet linking characteristics about the financial communities on the web and then apply mining algorithms, e.g., high-dimensional clustering, page ranking, and hierarchy building, to seek out interesting facts about financial and e-commerce communities.

2. Graphical Visualization in Data Mining for E-Commerce Applications
When the data set has high dimensionalities and volume, it is often difficult to effectively visualize the desired result after data mining techniques have been applied. This project aims to design a set of libraries for dimensionality reduction of the data and also the visualization of the resulting data set. A good background knowledge with graphics and C++ programming will be useful.
http://www3.shore.net/~kht/text/dmviz/modelviz.shtml

Prerequisites: C or C++ programming

No. of student to be involved in the project (recommended between 1-4): 2 per project
Lam, Wai
BSc, MPhil (CUHK), PhD (Waterloo)
Associate Professor, Department of Systems Engineering and Engineering Management
Research Interests:
Data Mining and Machine Learning, Intelligent Information Retrieval, Decision Support Systems and
Expert Systems, Reasoning Under Uncertainty
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Suggested Projects for ECT7150/ECT7250: 1. CRM/data mining applications in banking, telecommunications, insurance, retail industry
2. Text Mining Application

Lee Tien Sheng
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Constraint Satisfaction, Multiagent Systems, Logic Programming.
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SB (Harvard), MA (Oxford), PhD (MIT)
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Leung, Lawrence Chi Kin
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Brief description of Each project: Voice provides a natural medium for human-computer communication. State-of-the-art technologies are crossing the threshold of practicality. With the rapid growth of the Web, miniaturization of computing devices, advancements in telecommunication technologies (especially for mobile communication e.g. 3G), etc., a plethora of applications and information services may be developed for public user. This project aims to study developments in technologies, products and services in voice-enabled E-Business. The project team may also propose a business model in voice-enabled e-business and test its potential and viability.

Suggested Projects for ECT7150/ECT7250: Voice Technologies in Container Terminal Operations

Brief description of Each project: Container terminal operator is planning to replace its IVR system to better serve the logistics community. There are 3 aspects we would like to study; in view of technology, we would like to evaluate the existing voice technology (speech to text, text to speech, chinese dialects, etc) and key vendors. In view of business process, we would like to identify areas of service enhancement (now we only serve trucks only, not other logistics players like barges or shippers). In view of IT project management, we could like to study how the new IVR system could be modularly designed so that it could be portable across different mainframe systems.

Prerequisites: Expertise in both technology and business
No. of students to be involved in each project (recommended between 1-4): 3 to 4
Related Reading Materials: Refer to Prof. Meng’s URL, or schedule an appointment with her.
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BSc (Manitoba), MSc, PhD (Toronto)
Senior Lecturer, Department of Computer Science and Engineering
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E-Commerce (security systems, smart card systems), Multimedia technology (image processing and its applications, computer education applications), Chinese computing (digital fonts)
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Expert and Knowledge Discovery Systems in Marketing, XML, Mining Large Market Databases
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Encryption, Information Security, Mobile Internet
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Yeung, Jeff Hoi Yan
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Suggested Projects for ECT7150/ECT7250: Data Mining for E-Commerce

Brief description of project: Data mining is a powerful technology being widely adopted to help decision makers focus on the most important nontrivial/predictive information/patterns that can be extracted from large amounts of data they continuously accumulate in their daily business operations or obtain from datafeeds or WWW on the Internet. These hidden interesting patterns are highly expected to maximize a certain objective function in a decision domain. In real applications, even with the same data set and in the same institute, different users may have different objectives, and therefore attempt to mine/monitor patterns that are likely to affect the values of parameters of their objective functions. The project is to analyze user requirements and find hidden rules for E-Commerce applications.

Prerequisites: Taken ECT7110 E-Commerce Data Mining Technique
No. of student to be involved in the project (recommended between 1-4): 1-4

Zhang, Shuzhong
BS (Fudan), PhD (Erasmus)
Associate Professor, Department of Systems Engineering and Engineering Management
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Continuous Optimization Methods, Combinatorial Optimization, Financial Decision Models
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