
Dinner Meeting Presentation
February 15, 2012 (Wednesday)

“How to optimize your P6 Schedules under practical resource availability and calendar constraints?”

Presented by

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Nowadays, construction project managers need to cope with resource constraints in their daily work such as skills crunch, labor shortage, equipment availability, space conflict, or material delay. The absence of a valid resource-constrained critical path method (CPM) not only hampers the widespread use of mainstream project scheduling software in construction management practice, but also destabilizes the very foundation of any sophisticated, CPM-based time or cost analysis in construction scheduling research. This has motivated us into developing an innovative, fully-automated solution to resource-constrained critical path method (CPM) called the *Simplified Simulation-based Scheduling* system (short as *S3*). *S3* takes advantage of the simplified discrete-event simulation approach (SDESA) and the evolutionary optimization technique called Particle Swarm Optimizer (PSO) to automate the formulation of a resource-constrained schedule with the shortest total project duration. In this talk we clarify basic issues of resource scheduling. In order to introduce *S3* to construction schedulers, we also reference the relevant functionalities and features of *P3* and *MS Project*, which are applied alongside *S3* in two case studies. The first case is a classic textbook example while the second case is based on a real drainage project. In both cases, *S3* eclipses the current CPM software with respect of (1) shortening the total project duration; (2) optimizing provisions of resources of various types; and (3) producing valid total float values to guide schedule implementation. The current version of *S3* can directly import the P3/P6 data from underlying SQL databases to invoke quick resource scheduling optimization analysis. With regards to construction project scheduling, we will share our ongoing collaborative research with industry partners, including challenges and opportunities in the context of industrial construction and maintenance planning and control, integration of scheduling with a 3D design environment and as-built photogrammetry modeling. In the last part of this talk, we will demonstrate how to apply the *S3* scheduling system to enhance analysis of existing P3/P6 schedules.

Dr. Ming Lu is currently Associate Professor of Construction Engineering and Management in the Department of Civil and Environmental Engineering at University of Alberta. Dr. Lu obtained his PhD in Construction Engineering and Management at U of A in 2000. He taught and researched at Hong Kong Polytechnic University from 2000 to 2010. Dr. Lu has forty journal publications to his credit in areas of construction engineering and project management; and is well known for his research contributions in construction project scheduling and construction surveying integration.

Mr. Francis Siu is currently a PhD student in the Department of Civil and Environmental Engineering at University of Alberta. He was certified as Project Management Professional (PMP)® in 2010 and awarded the M.Phil degree in the Department of Civil and Structural Engineering at the Hong Kong Polytechnic University in 2011. His M.Phil thesis is titled as “Study of Time Extensions and the Cost Implications in Construction Project Scheduling”. His current research interests are in applied photogrammetry and project scheduling to advance knowledge and practice of industrial construction/maintenance project planning and control.

DATE: Wednesday, February 15, 2012

*LOCATION: University of Alberta Faculty Club
11435 Saskatchewan Drive, Edmonton, AB T6G 2C9*

Cocktails & Registration - 5:30

Dinner - 6:30

Presentation - 7:30

Closing Remarks - 8:30

Student Members - \$10.00

Student Non-members- \$15.00

AACE & CSCE Members - \$25.00

Non-members - \$30.00

For Reservation or Inquiries

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