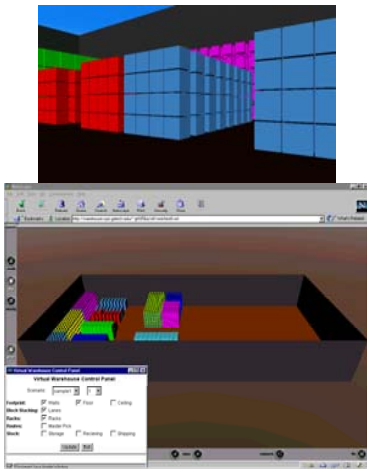


WADeS

Warehouse Analysis and Design System

for

Rapid Prototyping and Design of Warehousing Systems



Developed by

Keck Virtual Factory Lab

Georgia Institute of Technology

<http://factory.isye.gatech.edu>

Why Develop WADeS?

Warehousing is a critical component of the supply chain. As cost reduction has assumed more importance in today's market, industry interest in warehousing has increased. This interest has translated into opportunities for consulting firms to design new warehouses or redesign existing ones for performance improvement, as well as opportunities for third-party logistics providers to assume outsourced warehousing functions for profit.

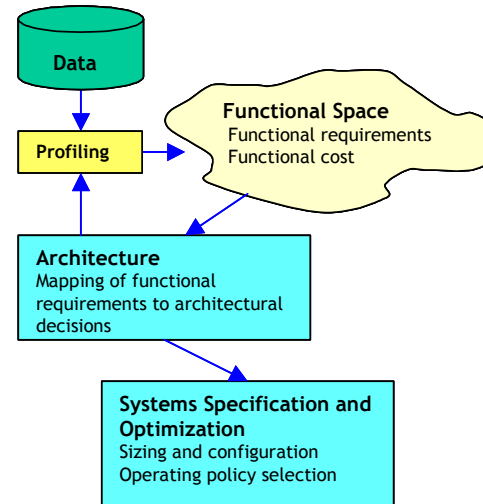
At the same time, warehousing continues to spur interest in the research community, which has created a broad array of specific analytic results. Yet today, very few of these results are used by industry practitioners. WADeS is our attempt to address this disconnect, by developing a comprehensive and scientific methodology for design of warehousing systems, and developing a computational platform to demonstrate new methods and integrate existing methods in a set of software tools to aid the designer.

WADeS will support such design functions as profiling order and activity analysis, rapid prototyping and evaluation of high-level design decisions (e.g., to have a pick-line or not), detailed analysis and optimization of lower-level design decisions (e.g., the size and configuration of a storage system), and standardized specification of a complete design.

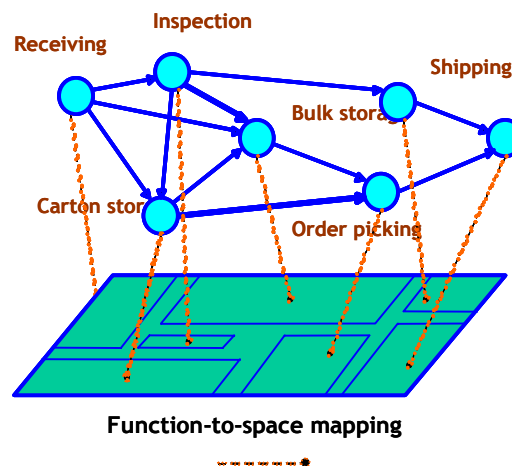
The goal of WADeS is to significantly improve the ability of warehouse analysts and designers to minimize discounted investment and operating cost over the appropriate time horizon, while still satisfying resource and service level constraints.

How Is WADeS New or Different?

- Comprehensive and scientific approach to warehouse design.



- Interaction with industry experts to incorporate their insights and techniques into the design methodology.
- Generic representation of warehouse components and their interactions for purpose of design decision-making.
- Object-oriented from the ground up, enabling disciplined extensions.
- Extensive use of databases to store input data, analysis results and designs-in-process.



WADeS Development

The WADeS development team has been working since 1999 to create a scientific and computational design procedure for warehousing systems. Such a procedure, when implemented in software as a design aid, will be web-based and will rely heavily on Java™ for programming, databases for storing warehouse design data and designs-in-process, optimization software for design decision-making, and CAD/VRML for design visualization.

The team consists of:

Faculty:

Dr. Leon F. McGinnis
Dr. Douglas A. Bodner
Dr. Marc Goetschalckx
Dr. T. Govindaraj
Dr. Gunter P. Sharp

Graduate students:

Mr. Wen-Chih Chen (Ph.D. student)
Mr. Jinxiang Gu (Ph.D. student)
Mr. Andrew Johnson (Ph.D. student)
Mr. Karthik Karathur (Ph.D. student)
Ms. Lei Tian (Ph.D. student)
Mr. Yen-Tai Wan (Ph.D. student)

In addition, a number of companies have been, and continue to be involved with the WADeS team, through colloquia at Georgia Tech, site visits, and projects.

Focused industry projects are a key element of the WADeS research program, and interested companies are encouraged to become involved.

WADeS Research Agenda

WADeS is a platform for research and application in the area of warehouse design. It supports R&D leading to:

- Development of a rigorous and scientific methodology for operational analysis and design of warehousing systems.
- Specification of a reference model to standardize representations of warehouse designs and all components of a design.
- Rapid prototyping and evaluation of high-level design decisions, enabling consideration of a larger number of alternative designs and/or decreasing the time needed to develop a design.
- Formalization of and incorporation of design approaches used by expert designers.
- Automated generation of three-dimensional renderings for walk-throughs of design alternatives.
- Proof-of-concept demonstrations of innovations in design approaches and results.

How Does Industry Benefit?

- University-based research team developing next-generation design technologies.
- Neutral site for testing new ideas and software prototypes.
- Strong interaction with industry partners, including expert design consultants, third party warehousing providers, and warehouse end-users.
- Cost-effective source for special projects and analyses.
- Source for highly qualified graduates with deep expertise in warehouse design, modeling and analysis.



Researching Tomorrow...

VIRTUAL FACTORY LABORATORY

Vision

We will create an organization and facility with its purpose to see that modeling technology is as widely deployed in manufacturing as spreadsheets and as frequently used as cellular phones and pagers.

Mission

- To bring engineering discipline to factory modeling
- To promote complete and integrated modeling of factory systems
- To document and disseminate modeling success stories
- To educate a new generation of modelers

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