

# WALLIED ORABI

Department of Civil and Environmental Engineering  
University of Illinois at Urbana-Champaign  
Urbana, Illinois 61801  
Tel: (217) 265-5215, Fax: (217) 265-8039  
E-mail: [orabi@illinois.edu](mailto:orabi@illinois.edu)  
Webpage: <http://www.illinois.edu/~orabi>

## EDUCATION

**University of Illinois at Urbana-Champaign, Urbana, Illinois**

**Ph.D. in Civil Engineering** with Computational Science and Engineering Option, (Expected Graduation: May 2009).

- *Dissertation Title:* "Optimizing Highway Reconstruction and Rehabilitation Projects"
- *Dissertation Advisor:* Professor Khaled El-Rayes

**The American University in Cairo, Cairo, Egypt**

**M.Sc. in Construction Engineering, 2004**

- *Thesis Title:* "Risk Identification and Response Methods in the Egyptian Construction Industry: Views of Large Scale Contractors "
- *Thesis Advisor:* Professor Ahmed Samer Ezeldin

**Graduate Diploma in Construction Engineering, 2002**

**Cairo University, Cairo, Egypt**

**B.Sc. in Civil Engineering, 1996**

## WORK EXPERIENCE

**Graduate Research Assistant, 2005 to Date**

Department Civil and Environmental Engineering, University of Illinois at Urbana-Champaign

**Sargent and Lundy Pre-Doctoral Fellow, 2004 – 2005**

Department Civil and Environmental Engineering, University of Illinois at Urbana-Champaign

**Senior Project Controls Engineer, 2003 – 2004**

Technical Department, Canal Branch, Arab Contractors, Ismailia, Egypt

**Contract Administrator, 2003**

Suez Canal Container Terminal Project, Archirodon Construction (Overseas) Co., Port Said, Egypt

**Project Control Engineer, 2002 – 2003**

El Nour City Housing Project, Arab Contractors, Suez, Egypt

**Teaching Assistant, 2001 – 2002**

Interdisciplinary Engineering Department, American University in Cairo, Cairo, Egypt

**Project Control Engineer and Contract Administrator, 1997 – 2002**

Ayoun Moussa Power Plant Project, Arab Contractors, Ayoun Moussa, Suez, Egypt

**Estimator, 1996 – 1997**

Projects Department, Head Office, Ferrometalco (DSD Egypt), Cairo, Egypt

## AWARDS AND HONORS

### **Citation in Who's Who of Emerging Leaders**, 1st Edition, 2007

Marquis Who's Who, New Providence, New Jersey

### **Graduate Research Assistantship**, 2005 – Present

Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign

### **Citation in Who's Who in Science and Engineering**, 8th Edition, 2005 - 2006

Marquis Who's Who, New Providence, New Jersey

### **Citation in the Chancellor's List**, 2005

Annually honors outstanding graduate students for their academic achievements.

### **Sargent and Lundy Pre-Doctoral Fellowship**, 2004 – 2005

Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign

### **Laboratory Instruction Graduate Fellowships in Engineering**, 2001 – 2002

The American University in Cairo, Cairo, Egypt

A merit-based fellowship awarded to graduate students based on their academic achievements.

### **Osman Ahmed Osman Scholarship**, 1999

The American University in Cairo, Cairo, Egypt

A merit-based scholarship awarded to one applicant to the ASCE sponsored program of "Certified Construction Project Supervisor". The recipient is selected from a large pool of applicants who were graduated from national universities during a five years span prior to the application deadline.

## SELECTED PUBLICATIONS

### REFEREED JOURNALS

1. **Orabi, W.**, El-Rayes, K., Senouci, A., and Al-Derham, H. (2008). "Optimizing Post-Disaster Reconstruction Planning for Damaged Transportation Networks," *Journal of Construction Engineering and Management*, ASCE, *under review*.
2. **Orabi, W.**, El-Rayes, K., Senouci, A., and Al-Derham, H. (2008). "Optimizing Resource Utilization during the Recovery of Civil Infrastructure Systems," *Journal of Construction Engineering and Management*, ASCE, *in progress*.
3. **Orabi, W.**, El-Rayes, K., Senouci, A., and Al-Derham, H. (2008). "Planning Highway Construction under Lane Rental Contracts," *Journal of Construction Engineering and Management and Economics*, ASCE, *in progress*.
4. **Orabi, W.**, El-Rayes, K., Senouci, A., and Al-Derham, H. (2008). "A Framework for Planning Recovery Efforts of Damaged Transportation Networks after Natural Disasters," *Journal of Construction Engineering and Management and Economics*, ASCE, *in progress*.

### REFEREED CONFERENCE PROCEEDINGS

5. Ezeldin, A. S., and **Orabi, W.** (2006). "Risk Identification and Response Methods: Views of Large Scale Contractors Working in Developing Countries." *Proceedings of the International Conference on Advances in Engineering Structures, Mechanics and Construction*, Ontario, Canada, May 14-17, 2006.

6. **Orabi, W.**, El-Rayes, K., Senouci, A., and Al-Derham, H. (2009). "Planning Post-Disaster Reconstruction Efforts of Damaged Transportation Networks." Proceedings of the 2009 Construction Research Congress, ASCE, Seattle, Washington, April 5-7, 2009.

## PRESENTATIONS

7. **Orabi, W.** (2008). "Optimizing the Reconstruction Efforts for Damaged Transportation Networks in the Aftermath of Natural Disasters." Poster Presentation, Construction Research Congress Meeting, ASCE, Chicago, Illinois, June 10, 2008.

## RESEARCH INTERESTS

My research interests focus on optimizing the building and restoration of failing civil infrastructure systems, and investigating the environmental aspects of these building and restoring processes. First, I am interested in developing multi-objective decision support systems for post-disaster reconstruction and pre-disaster rehabilitation of failing civil infrastructure systems, including highways, energy supply, railways, dams, drinking water systems, waste water systems, and solid waste management. These decision support systems are envisioned to consider the inter- and intra-dependencies between the different failing civil engineering systems and their vulnerability to cascading failure. Second, I am interested in analyzing the impact of infrastructure construction decision making on the environment. This includes developing planning models for building and restoring civil infrastructure systems with the objective of minimizing the impact of construction decision making on the environmental performance of these systems. These models are envisioned to analyze the impact of construction processes and decisions in building and restoration of civil infrastructure systems on the quality of air and water, and energy conservation. These construction decisions include resource utilization; material use, reuse and recycling; management of solid and hazardous wastes; energy consumption; and life-cycle planning and evaluation.

## RESEARCH PROJECTS

1. **Optimizing Highway Reconstruction and Rehabilitation Projects:** This project is supported by the Qatar National Research Fund. The main objective of this project is to develop multi-objective decision support systems for post-disaster reconstruction and pre-disaster rehabilitation of failing transportation networks. These systems seek to optimize the resource utilization in highway reconstruction/rehabilitation projects with the objective of simultaneously minimizing public expenditures on construction efforts and the level of service disruption experienced by travelers. These systems included newly developed models for sharing limited resources among competing reconstruction/rehabilitation projects and evaluating the functional performance of failing transportation networks during construction. These research developments integrated advanced technologies from several disciplines, including transportation engineering, evolutionary computations, information technology and object-oriented modeling.
2. **Web-Based Management of Multiple Interdisciplinary and Geographically Distributed Research Projects:** This project was supported by the National Science Foundation through Mid-America Earthquake Center of the University of Illinois at Urbana-Champaign. The main objective of this project is to develop a robust IT-based management system for engineering research centers to ensure the accomplishment of their research and educational and outreach goals on time and within budget. To this end, a web-based system is being developed to enable remote and effective management of multiple interdisciplinary research projects that are located in different geographic regions.

3. **Risk Identification and Response Methods in the Egyptian Construction Industry:** This project was supported by the American University in Cairo. The objectives of this research were to: (1) identify the most critical risks related to the Egyptian construction industry and their perceived criticality from the perspective of the large scale contractors; (2) identify the risk response methods currently employed by the contractors working in the Egyptian construction industry and their effectiveness; (3) compare the nature of construction risks encountered in the Egyptian construction industry to data extracted from the literature for other international construction markets; and (4) develop an advanced spreadsheet that summarizes the findings of this research, which could help contractors in their preparation of effective risk management process for new projects.

## **REVIEW OF JOURNALS AND CONFERENCE PROCEEDINGS**

- **Reviewer**, Journal of Construction Engineering and Management, ASCE, 2007 to present.
- **Reviewer**, Journal of Construction Management and Economics, UK, 2005 to present.
- **Reviewer**, Construction Management and Economics 25<sup>th</sup> Anniversary Conference, Reading, UK, July 16-18, 2007.

## **TEACHING EXPERIENCE**

### **TEACHING POSITIONS**

**Grader**, 2004 – Present

Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign

**Teaching Assistant**, 2001 – 2002

Interdisciplinary Engineering Department, American University in Cairo, Cairo, Egypt

### **COURSES TAUGHT AS TEACHING ASSISTANT OR GRADER**

- **Construction Planning**, University of Illinois
- **Construction Cost Analysis**, University of Illinois
- **Descriptive Geometry and Engineering Drawing**, The American University in Cairo
- **Drawing for Construction Engineering and Architecture**, The American University in Cairo
- **Engineering Analysis and Computation I**, The American University in Cairo
- **Engineering Economy**, The American University in Cairo
- **Methods and Equipment for Construction I**, The American University in Cairo

## **INDUSTRY EXPERIENCE**

**Senior Project Control Engineer**, 2003 – 2004

Technical Department, Canal Branch, Arab Contractors, Ismailia, Egypt

- Monitored progress of key ongoing projects and recommended preventive and/or corrective actions to higher management.
- Reviewed and negotiated contracts for newly acquired projects in collaboration with other concerned departments.
- Examined and interpreted specific contract clauses for project manager on request basis.
- Identified, prepared and negotiated several types of claims.
- Participated in setting annual and quarterly goals for ongoing projects.

- Examined and analyzed the performance of completed projects in terms of adherence to planned schedule and budget.
- Participated in preparation of bid proposals for different types of construction projects including planning construction methods, developing baseline schedules and calculating direct and indirect cost.

#### **Contract Administrator, 2003**

Suez Canal Container Terminal Project, Archirodon Construction (Overseas) Co., Port Said, Egypt

- Reported discrepancies and variations from main contract to owner and project manager.
- Examined and interpreted specific contract clauses for project management staff.
- Prepared and submitted monthly progress bills to owner and monitored collection of payments.
- Drafted and negotiated contracts with subcontractors and suppliers in collaboration with other project management staff and head office.
- Participated in preparation and negotiation of contracts for other projects.

#### **Project Control Engineer, 2002 – 2003**

El Nour City Housing Project, Arab Contractors, Suez, Egypt

- Controlled and handled all scheduling tasks including preparing baseline schedules, setting periodic targets, monitoring progress, updating project schedule and reporting to project management and regional office.
- Coordinated with subcontractors and suppliers to ensure timely delivery and effective utilization of key construction materials and resources.
- Prepared and submitted monthly progress bills to owner and monitored collection of payments.

#### **Project Control Engineer and Contract Administrator, 1997 – 2002**

Ayoun Moussa Power Plant Project, Arab Contractors, Ayoun Moussa, Suez, Egypt

- Developed baseline schedules for various types of construction activities.
- Planned for effective utilization of key construction crews in collaboration with the construction manager.
- Set periodic targets for construction crews, monitored progress and updated the project schedule accordingly.
- Analyzed project cost and schedule performances and promptly reported to project management and regional and head offices.
- Prepared and submitted monthly progress bills to owner and monitored collection of payments.
- Handled all tasks related to mutual debit notes for services with consortium partner including preparation of outgoing notes, examination and approval of incoming notes, and balancing outgoing and incoming notes.
- Administered the project contracts with the owner, consortium partner and select subcontractors.
- Participated in the preparation and negotiation of claims to the owner and evaluating the impact of change orders on the project's schedule and cost.
- Participated in the closeout phase of the project and the preparation of the as-built documents in collaboration with the consortium partner.

#### **Estimator, 1996 – 1997**

Projects Department, Head Office, Ferrometalco (DSD Egypt), Cairo, Egypt

- Prepared quantity takeoffs of structural steel works for commercial, residential and industrial buildings.
- Participated in pricing construction activities and preparing bid proposals.
- Aided the project management of ongoing projects to coordinate with the workshop.

## **UNIVERSITY SERVICE**

- **Member**, Academic Affairs Committee, Illinois Student Senate, University of Illinois, 2007-2008
- **Webmaster**, Academic Programs Committee, Engineering Council, University of Illinois, 2007-2008
- **Internet Chair**, American Society of Civil Engineers Student Chapter, University of Illinois, 2007

## **PROFESSIONAL MEMBERSHIPS AND ACTIVITIES**

- The American Society of Civil Engineers (ASCE), 1999 – Present
- The American Society for Engineering Education (ASEE), 2006 – Present
- Project Management Institute, 2006 – Present
- American Concrete Institute, 2006 – 2007
- Egyptian Engineering Syndicate, 1996 – Present

## **PROFESSIONAL CERTIFICATIONS**

**Certified Construction Project Supervisor**, 1999

The American Society of Civil Engineers (ASCE)