

AMR A. OLOUFA, Ph. D., P. E .

Professor & Associate Chair
University of Central Florida
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EDUCATION

- Ph.D. in Civil Engineering, University of California, Berkeley. April 1988.
- M.S. in Civil Engineering, Columbia University, New York. April 1984.
- B.S. in Civil Engineering, Cairo University, Egypt. May 1980.

RESEARCH AREAS

Construction Automation.	Solid Modeling in Construction and Design.
Geographic Information Systems (GIS).	Sensors in Construction & Transportation
Simulation of Construction Operations.	Global Positioning (GPS) System Applications.

TEACHING

University of Central Florida

CCE 4003: Introduction to Construction Engineering
CCE 4004: Construction Methods
CCE 4034: Construction Estimating and Scheduling
CCE 4402: Construction Equipment and Productivity
CCE 4810: Construction Engineering Design
EGN 1006: Introduction to Engineering Profession

Penn State University

AE 597C: Computer Tools for Project Management
AE 597G: Computer Graphics In Engineering Applications
AE 475: Building Construction I
AE 476: Building Construction II
AE 372: Introduction to Building Construction

University of Hawaii

- CE 601 : Computer Graphics In Engineering
- CE 602 : Project Scheduling and Reporting
- CE 674 : Advanced Construction Estimating
- CE 472 : Construction Management
- CE 491 : Computer Scheduling of Construction Operations
- CE 270 : Applied Mechanics I
- CE 113 : Introduction To Computers and Design

University of California, Berkeley

- CE 167 : Engineering Economics

Cairo University

- CE 3: Design of Reinforced Concrete Structures I
- CE 4: Design of Reinforced Concrete Structures II

PUBLICATIONS

Refereed Journal Publications

1. Oloufa, A. A.. 1990. *Object Oriented Simulation of Earthmoving Operations*. Mechatronic Systems Journal . Vol. 1: pp 175 - 182.
2. Oloufa, A. A.. 1991. *Triangulation Applications in Volume Calculation*. ASCE Journal of Computing. January. Vol. 5, No. 1: pp 103 - 121.
3. Oloufa, A. A., C.S. Papacostas and R. Espino. 1992. *Construction Applications Of Relational Databases In Three Dimensional GIS*. ASCE Journal of Computing. January. Vol. 6: pp 72-84.
4. Oloufa, A. A., C.S. Papacostas and H. Hamada. 1992. *Relating Structural Failures to Subsurface Conditions Using GIS*. Building and Environment Journal. April. Vol. 27, No. 2: pp 257 - 266.
5. Oloufa, A. A. and K.C. Crandall. 1992. *Feedback Mechanisms For Operational Simulation*. ASCE Journal of Computing. April. pp 161-177.
6. Oloufa, A. A.. 1993. *Modeling Operational Activities In Object Oriented Simulation*. ASCE Journal of Computing. January. Vol. 7, No. 1: pp 94 - 106.
7. Oloufa, A. A.. 1993. *Modeling and Simulation of Construction Operations*. Journal of Automation In Construction. March. Vol. 1 No.4: pp 351 - 359.
8. Oloufa, A. 1994. *Construction Simulation of Buildings with a User-Oriented Approach*. Microcomputers in Civil Engineering. #9.: pp 425-433.

9. Oloufa, A. A., A. Eltahan and C.S. Papacostas. 1994. *An Integrated GIS for Construction Site Investigation*. ASCE Journal of Construction Engineering and Management, March. Vol. 120:1. pp 211-222.
10. El-Kadi, A., Oloufa, A., Eltahan, A. and Malik, H. 1994. *Use of a Geographic Information System In Site-Specific Groundwater Modeling*. Ground Water Journal, July. Vol. 32. No. 4. pp 617-625.
11. Oloufa, A., and M. Ikeda. 1995. *An Automated Environment for Soils-Dependent Applications*. Journal of Automation in Construction. Vol. 4 #2, June. pp. 139-146.
12. Carpenter, C. and A. Oloufa. 1995. *Post Occupancy Evaluation of Buildings and Development of Facility Performance Criteria*. ASCE Journal of Arch. Eng. Vol. 1 No. 2. pp 77-81.
13. Oloufa, A., A. El-Kadi, A. Eltahan, and H. Malik. 1995. *An Analytical Groundwater Modeling Approach for Natural Resources Utilizing GIS*. Civil Engineering Systems. Vol. 12. pp 49-65.
14. Thomas, H. R. and A. A. Oloufa. 1995. *Labor Productivity, Disruptions, and the Ripple Effect*. Cost Engineering, No. 81-94. Dec. 1995.
15. Li, C., Oloufa, A. and Thomas, H. R. 1996. *A GIS-based System for Pavement Compaction*. Journal of Automation in Construction. Vol. 5. pp. 51-59. (Invited Paper) May 1996.
16. Thomas, H. R., Oloufa, A. A., and Hanna, A.. 1996. *A What to do Guide for Schedule Acceleration and Compression*. National Electrical Contractors Association NECA 1996. (Publication) 40 pages
17. Korka, J., A. Oloufa and H. Thomas. Sept. 1997. *Requirements for Computerized Maintenance Management Systems for Buildings*. ASCE Journal of Architectural Engineering. Vol. 3:3, pp. 118-124.
18. Oloufa A. A., Masaaki Ikeda, and Tang-Hung Nguyen, *Resource-Based Simulation Libraries for Construction*, Journal of Automation in Construction, 1998, U.S.A
19. Do, W. S., A. Oloufa and H. Thomas. 1999. *Evaluation of GPS devices for a Quality Control System for Compaction Operations*. Transportation Research Record # 1675 pp. 67-74.
20. Nguyen, H. & A. A. Oloufa: *Topology Applications for Design and Construction of Buildings*. ASCE Journal of Computing in Civil Engineering. October 2001, Vol. 15, No. 4, pages 268-274.
21. Nguyen, H. & A. A. Oloufa: *Spatial Information: Classification and Applications*. Computer-Aided Civil and Infrastructure Engineering. 2002, Vol. 17, pages 246-255.
22. Oloufa, A. A. "A GPS-based System Architecture for the Quality Control of Asphalt Compaction". IEEE Robotics and Automation Magazine. March 2002. Vol. 9, No.1, pages 29-35.
23. Oloufa, A. A., Ikeda, M., and Oda, H.: *Situational Awareness of Equipment using GPS, wireless, and web technologies*. Automation in Construction 12 (2003). Pages 737-748.

24. Oloufa, A., Hosni, Y., Fayez, M., and Axelsson, P.: *Using DSM for Modeling Information Flow in Construction Design Projects*. Accepted for publication in Civil Engineering & Environmental Systems. September 2003.
25. Oloufa, A., Mahgoub, H. and Ali, H.: *Infrared Thermography for Asphalt Crack Imaging & Automated Detection*. Transportation Research Record. No. 1889 pp. 126-133, 2004.
26. Nguyen, H. & A. Oloufa: "Algorithms for Automatically Deducing Topological Information", Journal of Automation in Construction, Vol. 14/1, pp. 59-70, 2004

Refereed Proceedings

1. Oloufa, A. A.: "A Framework for the Operational Simulation of Construction Projects", Technical Report #13, University of California in Berkeley, Mar. 1988.
2. Oloufa, A. A., Papacostas C. S. and Espino, R.: "GIS Applications in Geotechnical Engineering", Proceedings of the 8th National Conference on Microcomputers in Civil Engineering, Oct. 1990, Orlando, FL.
3. Oloufa, A. A.: "Intuitive Simulation Modeling Using Object Oriented Constructs". Proceedings of the 8th International Symposium on Automation and Robotics In Construction (ISARC), Stuttgart, Germany, June 1991.
4. Oloufa, A. A. and Eltahan, A. : "A GIS For Geotechnical Data Management". Proceedings of the CIB World Building Congress, Montreal 1992.
5. Oloufa, A. A.: "Visual Simulation Programming For Construction Operations". Proceedings of the 9th International Symposium on Automation and Robotics In Construction (ISARC), Tokyo, Japan, June 1992.
6. Oloufa, A. A., Riggs, H. R. and Hamada, H. S.: "CE 113: A Freshman Course In The Integration of Computers and Design", Proceedings of the ASEE-PSU, Oct. 1992, Los Angeles, CA.
7. Oloufa, A. A. and C. Carpenter. 1994. *A Framework for Post Occupancy Evaluation of Buildings*. 10th International Symp. of Cybernetics. Baden Baden, Germany. Invited paper
8. Smith, G., A. Oloufa, and J. Kranz: March 1999. "Electrical Contractor Safety Management Evaluation". 2nd International Conference on Implementation of Safety and Health on Construction Sites, Hawaii.
9. Oloufa, A.: January 2001. "Real-Time Tracking for Compaction of Superpave Mixes. First International Structural Engineering & Construction Conference". Honolulu, HI.
10. Fayez, M., Axelsson, P., Oloufa, A., and Hosni, Y., "DSM Versus CPM: Issues for Planning Design & Construction Activities", *ASCE Construction Congress*, Honolulu, HI, March 10-14 2003.
11. Mohamed Fayez, Pär Axelsson, Amr Oloufa, and Yasser Hosni. *Information Intensive Projects: Planning and optimizing using the Design Structure Matrix (DSM)*. IERC2003, IIE Annual Research Conference, May 2003, Portland, Oregon, May 18 - 20, 2003.

12. Serag, E., T. Shaalan, H. Mahgoub, Y. Hosni, A. Oloufa. *Remotely-Operated Compliance Stations for Commercial Vehicles*. The 4th International Conference on WIM (ICWIM4), Feb. 20-22, 2005, Taipei, Taiwan.

Proceedings Refereed By Abstract

1. Oloufa, A. A.: "*Intelligent Automation of Simulation Modeling*", Proceedings of the 22nd Annual Pittsburgh Conference on Modeling and Simulation, Pittsburgh, May 1991.
2. Oloufa, A. A.: "*Design And Implementation of An Introductory Graduate Course In Graphics*". Proceedings of the ASEE, June 1991 Annual Conference, New Orleans, LA.
3. Oloufa, A. A.: "*Teaching Computer Graphics Courses In Construction Engineering Education*", Proceedings of the ASEE, Annual Conference, Toledo, OH, June 1992.
4. Oloufa, A. A. and Eltahan, A. : "*Geotechnical Data Management : A GIS -Based Approach*". Proceedings of the Eighth National Conference on Computing In Civil Engineering, Dallas, TX , June 1992.
5. Oloufa, A. A.: "*Modeling of Building Construction Activities Using Forms*". Proceedings of the 10th International Symposium on Automation and Robotics In Construction (ISARC), Houston, TX, May 1993.
6. Oloufa, A. A.: "*Bringing the Real World to the Classroom with Multimedia*", Proceedings of the ASEE, Annual Conference, Toledo, Canada, June 1994.
7. Oloufa, Amr A. and Ikeda, M.: 1994. *The Fujita Integrated Environment for Automation*, Proceedings of 11th International Symposium on Automation and Robotics in Construction, Bristol, England. May. pp. 539-546
8. Oloufa, A. and M. Ikeda. 1995. *Object-Oriented Simulation of Shield Tunneling*. International Conference in Computing in Civil & Building Engineering, ICCCB, July, Berlin. pp. 1315 - 1319.
9. Li, C., R. Thomas and A. Oloufa. 1995. *Development of an Automated Real Time Tracking System for Pavement Compaction*. International Symposium for Automation and Robotics in Construction, ISARC .Warsaw, Poland. pp. 49 - 54.
10. M. Ikeda, A. Oloufa, and S. Sekihara, June, 1996. *An Object Oriented Environment for the Construction Planning of High Rise Buildings*. International Symposium for Automation and Robotics in Construction, ISARC 96, June 1996.
11. Oloufa, A. and M. Ikeda. June 1997. Library-Based Simulation modeling in Construction. *Proceedings of the ASCE Computing Conference*. pp. 198-205.
12. Nguyen, H. and A. Oloufa. June 1997. Construction Planning of high Rise Buildings with an Object Oriented Solid Geometry Model. *Proceedings of the ASCE Computing Conference*. pp. 426-432.
13. Do, W. and A. Oloufa. August 1997. A GPS System for Tracking Pavement Compaction, *Proceedings of the ICCCB Conference*, Seoul, Korea. pp. 989-994.

14. Nguyen, H. and A. Oloufa. August 1997. OOSE: A Proposed Object Oriented Solid Geometric Model for AEC, *Proceedings of the ICCCBCE Conference*, Seoul, Korea. pp. 615-620.
15. Oloufa, A., W. Do and R. Thomas, Oct. 1997. Automated Monitoring Compaction Using GPS, *Proceedings of the ASCE Annual Convention and Construction Congress*. pp. 1004-1011.
16. Do, W., A. Oloufa and H. Thomas. Evaluation of GPS devices for a Quality Control System for Compaction Operations. *Proceedings of the Transportation Research Board (TRB) Conference*, January 1999.
17. A. Oloufa, Do, W., and H. Thomas. An Automated System for Quality Control of Compaction Operations: Receiver Test & Algorithms. Sep. 1999. *International Symposium for Automation and Robotics in Construction (ISARC)*, Spain. pp. 67-71.
18. Nguyen, H. and A. Oloufa. March 1999. An Automated Building Design System with Topological Information. *Construction Congress 2000*.
19. Nguyen, H. and A. Oloufa. September 2000. Topology Applications for Design and Construction of Buildings. *Seventeenth Annual Symposium on Automation and Robotics in Construction. (ISARC)*.
20. A. A. Oloufa, February 2001. A Crash Reporting System on Palmpilots. *International Conference on Industry, Engineering, and Management Systems (IEMS 2001)*. Cocoa Beach, FL.
21. A. A. Oloufa, and Radwan, A. E. September 2001. Server-Based Collision Avoidance using DGPS. *8th World Congress on Intelligent Transportation Systems*. Sydney, Australia.
22. Mohamed Fayez, Pär Axelsson, Amr Oloufa, and Yasser Hosni. On the Optimization of Information Intensive Projects: Case of Construction Design. *Fourth MIT-DSM conference*, Cambridge, Massachusetts, October 7-8, 2002.
23. F.A. Moslehy, A.A. Oloufa. February 2004. Laser-based Vibration Technique for Weight Measurement of Commercial Vehicles. Society for Experimental Mechanics. Detroit. MI.
24. A. A. Oloufa, August 2003. Virtual Commercial Vehicle Inspection Stations. *National Rural ITS Conference 2003 (NRITS)*, Palm Harbor, FL.
25. A. A. Oloufa, December 2003. Virtual Weigh Stations: Issues & Technologies. *Florida Department of Transportation – ITS Annual Meeting*. Deerfield Beach, FL.
26. A. A. Oloufa, February 2004. Virtual Commercial Vehicle Inspection Stations. *First International Conference on Virtual & Remote Weigh Stations*, Orlando, FL.

FUNDED RESEARCH PROJECTS

Application of Triangulation and GIS in Construction

Aug. 1990 - May 1991

University Research Council

\$4,950 (Co-P.I.)

Application of GIS to Geotechnical Engineering

August 1990 -May 1992

Dames and Moore

\$23,500 (P.I.)

Applications of Vector Processing In Volume Calculations of Earthmoving Operations.

August 1990 -May 1992

IBM (Hardware Grant)

\$85,000 (Co-P.I.)

A DBMS for Oahu's Groundwater System, A Pilot Study

Aug. 1991- May 1992

Water Resources Research Center

\$27,000 (Co-P.I.)

An Automated Environment for Soils & Terrain - Dependent Applications

Aug. 1993 - June 1994

Fujita Corporation

\$15,000 (P.I.)

Discrete Event Simulation of Shield Tunneling Operations

June 1994 - Aug. 1995

Fujita Corporation

\$30,000 (P.I.)

A GIS for Planning and Construction

March 1993 - March 1994

Penn State Office of Physical Plant

\$6,000 (P.I.) (Hardware Grant)

A Framework for Post-Occupancy Evaluation.

March 1993 - May 1995

Consortium for the Advancement of Building Sciences

\$25,000 (P.I.)

Impact of Overmanning on Productivity

March 1994 - Oct. 1995

National Electrical Contractors Association

\$70,000 (Co-P.I.)

A Multimedia Project for Fiber Reinforced Concrete

Feb. 1995 - Nov. 1995

Mitchell Fiber

\$7,000 (Co-P.I.)

Evaluation of Real-Time Density Measurement for Compactors

June 1996 - July 1996

Rexworks Corp.

\$7,500 (Co-P.I.)

A Pilot Project for Object-Oriented Representation of Buildings

Oct. 1995 - March 1996

Fujita Corp.

\$30,000 (P.I.)

Constructability Analysis of Buildings Using Solid Modeling

Sept. 1996 - May 1997

Fujita Corp.

\$4,000 (P.I.)

Development of a Real Time Tracking System and Density Meter Based on Vibratory Responses

February 1997 - November 1997

Ingersoll Rand and Ben Franklin Partnership

\$72,000 (Co P.I.)

Development of a Real-Time Tracking System. Phase 2

August 1997 - May 1998

Ingersoll-Rand and Ben Franklin Partnership

\$106,000 (Co P.I.)

Development of Guideline for Presenting Loss of Productivity Claims

January 1998 - December 1998

National Electrical Contractors Association

\$39,500 (Co P.I.)

Application of DGPS for Collision Avoidance in a Wireless Environment.

November 1999 – August 2000.
Center for Advanced Transportation System Simulation (CATSS)
\$50,000. (P.I.)

A Palm-Held Reporting System
January 2000 - September 2000
Florida Department of Transportation
\$50,000 (P.I.)

Positioning Equipment for Transportation and Construction Engineering Research.
January 2000. (Equipment Grant)
University of Central Florida.
\$30,000 (P.I.)

Transit Tracking System.
May 2001 – July 2002.
Center for Advanced Transportation System Simulation (CATSS)
\$55,000. (P.I.)

Optimization of Transportation Network Projects using Design Structure Matrix (DSM) and Simulation.
May 2002 – July 2003.
Center for Advanced Transportation System Simulation (CATSS)
\$65,000. (Co-P.I.)

GPS-Aided Asphalt Condition Rating using Infrared Thermography.
November 2002 – May 2004.
Florida DOT
\$89,000. (P.I.)

Moisture monitoring of soil using GPRS.
March 2003 – March 2004.
Center for Advanced Transportation System Simulation (CATSS)
\$45,000 (Co-P.I.)

Non-Intrusive Weight Measurement of Commercial Vehicles
March 2003 – March 2004.
Center for Advanced Transportation System Simulation (CATSS)
\$46,000 (Co-P.I.)

Virtual Commercial Vehicle Inspection Stations
February 2003 – December 2005.
Florida DOT.
\$570,000 (P.I.) (includes cost for an overhead Gantry, \$250-300K)

Passenger Demand Infrastructure System

July 1, 2003 – October 1, 2004.
Florida DOT
\$ 250,000 (P.I.)

Traffic & Rural Intersection Monitoring with a Solar-based Infrared Wireless System
June 2004 - December 2005
Florida DOT.
\$86,478.00 (P.I.)

Simulation and Continuance of Operation for the use of Transit in Emergency Evacuation.
November 1, 2004 – December 2005
CATSS
\$178,000 (co-P.I.)

Mobile Non-Invasive Weigh-in-Motion System
May 2005 - May 2007
Florida DOT
\$228,000 (P.I.)

Test Deployment of Proposed FTA Safety and Security Guidelines
May 2005 - May 2007
CATSS
\$99,000 (P.I.)

GRADUATE SUPERVISION

Par Axelsson MS - IE 4/03 Co-Advisor
Topic: DSM Applications in Building Design and Construction.

Tang-Hung Nguyen Ph.D.-AE 4/99 Advisor
Topic: Automated Deduction of Topology in Building Design and Construction.

Won Do M.S.- CE 8/97 Advisor
Topic: An improved algorithm for automated compaction with Positioning.

Julie Anderson M.S. - AE 8/96 Advisor
Topic: A Design-Build guide for engineers and Architects.

Joe Kranz M.S. - AE 12/96 Advisor
Topic: A Self Enforcement Safety Guideline for Contractors.

John Moskowitz M.S. - AE 12/95 Co-Advisor
Topic: A System for FRP concrete design.

John Korka M.S. - CE 6/95 Advisor

Topic: Computerized Maintenance Management Systems for Buildings

Cheng-Che Li M.S. - CE 4/95 Advisor

Topic: An algorithm for automated compaction of soil.

Cindy Carpenter M.S. - AE 5/95 Co-Advisor

Topic: A Framework for Post Occupancy Evaluation of Buildings.

Reynaldo Espino 1989 Civil Engineering Co-Advisor

Topic: GIS in Civil Engineering.

Ahmed A. Eltahan 1991 Civil Engineering Advisor

Topic: GIS in Geotechnical Engineering

SOFTWARE PROGRAMS

1. S3: Simulation of Shield Tunneling Systems: A software package for the simulation of shield tunneling projects. User gives simulation parameters and watches animated representation of the construction progress. Users can edit a multitude of variables.
2. FIESTA: Fujita Integrated Environment for Soils and Terrain Dependent Applications: This Software integrates a database of soils information with a geographic information system for educational uses, it illustrates to students concepts of relational data base designs, GIS, visual programming and software integration methods.
3. S3 (EXTEND) A simulation library developed by implementing a new concept developed by A. Oloufa for the simulation of construction projects. Currently being tested by Fujita, a Japanese construction company.
4. FOCUS: A solid modeling based software system for the visualization of building construction projects.
5. CTS-Raster: A raster-based system for the quality control of asphalt pavement.
6. CTS-Vector: A raster-based system for the quality control of asphalt pavement utilizing real-time positioning of construction equipment.
7. ColDet & ColDetSrv: Software for vehicle tracking and detection. PC-based software utilizing GPS and wireless communications.
8. PCRS: Palmpilot Crash Reporting System. Handheld software for crash reporting.
9. TripTrak: Data storage and decoding program for wireless communications.

10. TripTrakListen: Data storage and decoding program for wireless communications.
11. Bus Tracking Website: Data-driven Website for School Bus Tracking.
12. UCFROCSSrv, Server Application, Remotely Operated Compliance Stations (ROCS).
13. UCFROCSView, Viewer Application, Remotely Operated Compliance Stations (ROCS).

SERVICE

University of Central Florida

University

1. Senate.
2. Senate Personnel Committee.
3. Sick Leave pool Committee.

College

Dean Search Committee (2004)

Department

1. Curriculum Committee.
2. Structures Search Committee (2002)
3. Structures Search Committee (2003)
4. Construction Search Committee (2004)

Penn State University

Department

- 1- Tuition Surcharge Committee 1992 - 1994
- 2- Curriculum Committee, 1992 - present
- 3- Faculty-in-charge of Macintosh Lab, 1992 -1994
- 4- AE MEng. Committee 1995

College

1. Computer Science 201 Course Modification Committee, 1992 –1993
2. ECSEL Faculty Advisory Committee, 1992 –1994
3. ECSEL Computer Lab Committee 1993 –1995

University of Hawaii

Department

- 1- Chairman, Computer Committee (Fall 1989 - Fall 1992)
- 2- Member, Curriculum Committee (Fall 1989 - Fall 1992)
- 3- Member, Graduate Program Committee (Fall 1989 - Spring 1990)

University

1. Member, ITAC (Fall 1990 - Fall 1992). Information Technology Advisory Committee (appointed by the University President).
2. Senator, Faculty Senate (Fall 1990 - Fall 1992). Elected as one of two representatives for the College of Engineering.
3. Chairman, CAPP (Fall 1991 - Fall 1992). Faculty Senate Committee on Academic Planning and Policy.
4. Member, CAPP (Fall 1990 - Spring 1990). Faculty Senate Committee on Academic Planning and Policy.

Refereed Journal Reviewer

American Society of Civil Engineers:

- a. Journal of Construction Engineering & Management
- b. Journal of Computing in Civil Engineering
- c. Journal of Architectural Engineering
- d. Journal of Transportation Engineering

Journal of Automation in Construction.

Journal of Microcomputers in Civil Engineering.

National & International

1. National Science Foundation Japan Panel to select students for a fellowship in Japan. 1995
2. National Research Council of Canada Reviewer of proposals for GIS 1993 - 1994.
3. American Society of Civil Engineers. Construction Research Council (CRC). Past-Past Chair and Chair of the Awards Program. 1999

4. American Society of Engineering Education. Chair, Vice-Chair, and currently Treasurer of the Construction Division.
5. University of Alberta, Canada. Department of Civil Engineering. Invited as an external member of a Ph.D. thesis. 2000.
6. Indiana University- Purdue University at Indianapolis. Chair of Construction Technology Program Review Committee. 2001
7. Concordia University, Canada. Department of Civil Engineering. Invited as an external member of a Ph.D. thesis. 2002
8. International Conference Committee, International Association for Automation in Construction, Taiwan, 2001.
9. International Conference Committee, Second International Conference on Construction Hong Kong, 2003.