

Wasim S. Barham, Ph.D.
Civil and Construction Engineering
Southern Polytechnic State University
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EDUCATION

Ph.D. Civil Engineering

University at Buffalo, State University of New York, 09/2005.

Dissertation: "Large Increment Method for Solving Nonlinear Structural Systems"

M.S. Civil Engineering

Jordan University of Science and Technology, Jordan, 09/2001.

Thesis: "Active Control of Cable-Stayed Bridges Vibrations Using Artificial Neural Networks"

B.S. Civil Engineering

Jordan University of Science and Technology, Jordan, 02/1999.

Fundamentals of Engineering (FE)

New York, 2005

PROFESSIONAL EXPERIENCE (Academia)

Southern Polytechnic State University

School of Engineering/Civil and Construction Engineering Program

Assistant Professor, August 2008 - present

University at Buffalo, State University of New York

Department of Civil, Structural and Environmental Engineering.

Research Assistant, January 2002-September 2005.

Jordan University of Science and Technology

Department of Civil Engineering.

Teaching Assistant, September 1999 - August 2001.

PROFESSIONAL EXPERIENCE (Industry)

Weidlinger Associates Inc.

Structural Engineer, October 2005 – July 2008.

Industries for Construction Equipment Company, Jordan

Design Engineer (part-time), December 1999 – December 2001

RESEARCH INTERESTS

Structural Engineering
Computational Mechanics
Finite Element Methods
Concrete Structures
Structural Dynamics
Artificial Neural Networks in Civil Engineering
Virtual Reality
Rubble Houses

PUBLICATIONS

Refereed Journal Papers

Barham, W., Aref, A. and Dargush, G., “On the elastoplastic cyclic analysis of plane beam structures using a flexibility-based finite element approach.” *International Journal of Solids and Structures*, *International Journal of Solids and Structures*, Volume 45, Pages 5688–5704, 2008.

Barham, W., Aref, A. and Dargush, G., “Development of the Large Increment Method for Elastic Perfectly Plastic Analysis of Plane Frame Structures under Monotonic Loading.” *International Journal of Solids and Structures*, Volume 42, Issue 26, Pages 6586-6609, 2005.

Barham, W., Aref, A., Dargush, G., “Flexibility-based Large Increment Method for Analysis of Elastic Perfectly Plastic Beam Structures.” *Computers and Structures*, Volume 83, Issues 28-30, Pages 2453-2462, 2005.

Conference Proceedings

Barham, W., Oncul, F., Meadati, P., and Oguzmert, O., “Three Dimensional Displacement Response Study of a Rubble-House Using a 3D Laser Scanner.” 2012 ASCE International Conference on Computing in Civil Engineering, *to appear*.

Barham, W., Preston, J., and Werner, J., “Using a Virtual Gaming Environment in Strength of Materials Laboratory.” 2012 ASCE International Conference on Computing in Civil Engineering, *to appear*.

Oncul, F., Barham, W., and Meadati, P., “A Full Scale Rubble-House Construction and Testing Project Powered by Undergraduate Student Volunteers Workforce” The 119th ASEE Annual Conference and Exposition, *to appear*.

Preston, J., Barham, W., and Werner, J., “Using Digital Games to Improve Access and Learning.” 2012 Conference on Higher Education Pedagogy, February 8-10, 2012.

Barham, W., Meadati, P., and Irizarry, J., “Enhancing Student Learning in Structures Courses with Building Information Modeling.” 2011 ASCE International Workshop on Computing in Civil Engineering, Miami Beach, 2011.

Oh, I., and Barham, W., “The Application of Artificial Neural Network for the Prediction of the Deformation Performance of Hot-Mix Asphalt.” 2011 ASCE International Workshop on Computing in Civil Engineering, Miami Beach, 2011.

Barham, W., Aref, A. and Dargush, G., “A Finite-Element–Based Large Increment Method for Nonlinear Structural Dynamic Analysis.” Proceedings of the Tenth International Conference on Civil, Structural and Environmental Engineering Computing, Rome, Italy, 2005.

Barham, W., Dargush, G. and Aref, A., “Nonlinear Cyclic Analysis of Structures Using Large Increment Method.” *Proceedings of the 2005 Joint ASME/ASCE/SES Conference on Mechanics and Materials (McMAT2005)*, Rouge, Louisiana, 2005.

Barham, W., Dargush, G. and Aref, A., “On the Flexibility-Based Solutions for Beam Elements with Bi-linear Material Model.” *Proceedings of the Seventh International Conference on Computational Structures Technology*, Lisbon, Portugal, September 7-9, 2004.

Barham, W., Dargush, G. and Aref, A., “Large Increment Method for Elastic Perfectly Plastic Analysis of Plane Frames Under Monotonic Loading.” *Proceedings of the 17th Engineering Mechanics Conference of the American Society of Civil Engineers*, University of Delaware, June 13-16, 2004.

Barham, W., Aref, A. and Dargush, G., “Derivation and Implementation of Flexibility–based Large Increment Method for Solving Nonlinear Structural Problems.” *Proceedings of the Ninth International Conference on Civil and Structural Engineering Computing*, Egmond–aan–Zee, The Netherlands, September 2–4, 2003.

SEMINARS AND PRESENTATIONS

Title: Deformation/Displacement Measurement Using 3D Laser Scanning

Presenters: Faith Oncul, Wasim Barham, John Lee, Dan Branham, and Pavan Meadati

Event: the 2012 Technical Seminar at Southern Polytechnic State University, Surveying and Mapping Society of Georgia January 26, 2012.

Title: The Rubble-House Project at SPSU: Full-Scale Construction, Testing, and Measurement Experience

Presenters: Faith Oncul, Wasim Barham, and Pavan Meadati

Event: ASCE February 2012 Section Meeting, Atlanta, February 23, 2012

Title: Enhancing Student Learning in Structures Courses with Building Information Modeling

Presenters: Wasim Barham and Pavan Meadati

Event: the 3rd Annual Polytechnic Summit Southern Polytechnic State University Atlanta, Georgia, USA. June 8– 10, 2011

Title: The Application of Artificial Neural Network for the Prediction of the Deformation Performance of Hot-Mix Asphalt

Presenters: Ilseok Oh and Wasim Barham

Event: the 3rd Annual Polytechnic Summit Southern Polytechnic State University Atlanta, Georgia, USA. June 8– 10, 2011

Title: Engineering Summer Camp for K-12 Students: Balsa Bridge Competition

Presenters: Ilseok Oh and Wasim Barham

Event: the STEM (Science Technology Engineering and Mathematics) Institute Conference, University of West Georgia, Carrollton GA, 2/20/2010

Title: Large Increment Method for Elastic Perfectly Plastic Analysis of Plane Frames Under Monotonic Loading

Event: the 17th Engineering Mechanics Conference of the American Society of Civil Engineers, University of Delaware, Newark, DE, June 13, 2004.

GRANTS

Sponsored Research, "Drop Prevention" at the Construction Sites, Principal Investigators: James Werner, Wasim Barham, and ILSEOK OH, Budget: \$55,625.00, Sponsor: PowerBlock Industrial Supplies, Inc., Spring, 2010.

"Using a Virtual Gaming Environment in Strength of Materials: Increasing Access and Improving Learning Effectiveness", National Science Foundation, March 30, 2010, Awarded. (\$147,000)

COMPUTER SKILLS

- Programming: FORTRAN 77, Matlab, and Maple.
- Engineering graphics: AutoCAD, and VISIO.
- Finite elements: SAP2000, ETABS, and ABAQUS.
- Web design: Front Page.

AWARDS

Civil, Structural and Environmental Engineering (CSEE) Graduate Fellowship-University at Buffalo, State University of New York (2002-2004)

Teaching assistant scholarship–Jordan University of Science and Technology, Jordan (1999-2001)

PROFESSIONAL AFFILIATIONS

- The American Institute of Steel Construction (AISC) – Educator Membership
- American Society of Civil Engineers (ASCE) - Member
- Jordan Engineers Association (JEA) - Registered Professional Engineer