

# Nasim K. SHATARAT

P.O. Box 954 Amman 11953  
n.shatarat@ju.edu.jo

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## EDUCATION

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- 2004 Ph.D. Civil Engineering/Structures** Washington State University,  
Pullman, WA, USA.  
Dissertation “Seismic Behavior of Outrigger Knee Joint Systems”. The dissertation was focused on studying the seismic behavior of existing outrigger knee joints that incorporate seismic deficiencies and developing and evaluating the effectiveness of retrofit measures for improving their performance in an earthquake.
- 1999 M.Sc. Civil Engineering/Structures** University of Jordan, Amman.  
Thesis “Some Trends in Design Methods of Continuous Box Girder Bridges”.
- 1995 B.Sc. Civil Engineering** University of Jordan, Amman.  
Area of Concentration: Structural Engineering. Graduation project involves the design of a high rise building.

## AWARDS

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- 2002** HALLGARTH, HOWARD Award. Highest GPA for Graduate Students. Department of Civil and Environmental Engineering, Washington State University.
- 2000-2004** The Hashemite University Fellowship to graduate school at Washington State University- Pullman, WA-USA.

## TEACHING EXPERIENCE

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- 2015-Present** The University of Jordan  
**Associate Professor** –Civil Engineering Department
- 2010-2015** The Hashemite University – Jordan  
**Associate Professor** –Civil Engineering Department
- 2004-2010** The Hashemite University – Jordan  
**Assistant Professor** –Civil Engineering Department
- 2001** Washington State University, WA, USA.  
**Teaching Assistant**

## RESEARCH EXPERIENCE

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- 2002-2004** **Research Assistant** – to Professor David I McLean- Washington State University, WA, USA.

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Conduct structural testing in the laboratory on 1/3-scale model of outrigger knee joints

**2000-2002**      **Research Assistant** – to Professor Michael Symans- Washington State University, WA, USA.

Evaluation of Displacement-Based Methods and Computer Software for Seismic Analysis of Highway Bridges

## **CONSULTING EXPERIENCE**

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**2007-2014**      **Bridge Consulting Engineer – kpff Consulting Engineers-** Amman Regional office

### Key Tasks:

- Analysis and design of offshore structures.
- Seismic analysis and design of new highway bridges according to AASHTO LRFD Seismic Specifications.
- Seismic upgrade and retrofit of old highway bridges.
- Load rating of steel and concrete highway bridges.

### Key Projects

- SR520 Floating Bridge, Seattle – USA  
2-km floating bridge supported by structural concrete pontoons.
- I90 Slide Curve Bridge, Seattle – USA ;  
400-m curved bridge supported by very long columns.
- Duwamish River, WA, USA:  
Load rating of a bridge consisting of 21 precast-girder spans, 2 steel plate-girder spans, and double leaf bascule truss span.
- Columbia River Vernita, WA, USA  
Load Rating for Gusset Plates :Three-span truss with 22 bays
- Steamboat Slough, WA, USA  
Load Rating for Gusset Plates :Three-span truss with 32 bays
- Analysis of drydock #6 , Bremerton, WA, USA  
Guide the safe docking of vessels and nuclear aircraft carriers in the Naval Shipyard, Bremerton, WA, USA.

**1997-2000**      **Structural Engineer - Omrania and Associates -** Amman Regional Office

**1995-1997**      **Structural Engineer - Subuh Engineering Office**

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## PUBLICATIONS

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### Journal Papers

- Katkhuda H, **Shatarat N** and Hyari K. (2017) ,"*Two Stage System Identification Approach for Three Dimensional Structural Systems*", International Journal of Structural Engineering, Inderscience publication, (In press).
- Katkhuda H, **Shatarat N** and Hyari K. (2017) ,"*Damage Detection in Steel Structures with Semi-rigid Connections Using Unscented Kalman Filter*", International Journal of Structural Integrity, Emerald Group Publishing Limited, 2017, Vol. 8, issue 1.
- **Shatarat, N**, Katkhuda H, Abdel-Jaber M and Alqam M, (2016). "*Experimental Investigation of Reinforced Concrete Beams with Spiral Reinforcement in Shear,*" Construction and Building Materials, Elsevier publications, Volume 125, pp 585-594.
- Katkhuda H and **Shatarat, N**, (2016). "*Shear Behavior of Reinforced Concrete Beams Using Treated Recycled Concrete Aggregate,*" Construction and Building Materials, Elsevier publications, Volume 125, pp 63-71.
- **Shatarat, N.**, (2012)"*Effect of Plastic Hinge Properties in Nonlinear Analysis of Highway Bridges*". Journal of Civil Engineering, Vol.6, No. 4.
- Hanayneh, B., **Shatarat, N.** and Katkhuda, H., (2012)"*Improving Durability of Concrete to Phosphoric Acid Attack*". Jordan Journal of Civil Engineering, Vol.6, No. 1.
- Katkhuda, H., Dwairi, H. and **Shatarat, N.** (2010)," *System Identification in Plane Semi-Rigid Steel Frames*" Structural Engineering and Mechanics, Vol. 34, No. 3.
- Qablan, H., Dwairi, H., **Shatarat, N.**, and Al-Rosan, T. and Qablan, T. (2010)," *Stability Analysis of Composite Panels with Stiffeners and Circular Cutouts*, Jordan Journal of Civil Engineering, Vol.4, No. 2.
- **Shatarat, N.**, Al-Sadder, S., Katkhuda, H., Qablan, H. and Shatnawi, A.,"*Beahvior of a Rhombous Frame of Nonlinear Elastic Material under Large Deflection*" (2009) International Journal of Mechanical Sciences Elsevier, Volume 51, pp 166-177.
- Katkhuda, H., **Shatarat, N.K.**, and Qablan, H. (2009). "Damage Detection at Element Level in Structures with Different Support Conditions", *Journal of Applied Sciences: Volume 9, Number 21, pp 3906-3911.*
- Al-sadder, S. and **Shatarat, N.** (2007),"*A Proposed Technique for Large Deflection Analysis of Cantilever Beams Composed of Two Nonlinear Elastic Materials and Subjected to an Inclined Tip Concentrated Force*", Advances in Structural Engineering, Multi-Science, UK.
- **Shattarat, N.K.**, Symans, M.D., McLean, D.I. and Cofer, W.F. (2007). "*Evaluation of Displacement-Based Methods and Computer Software for Seismic Analysis of Highway*

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- Bridges,*” Engineering Structures, Volume 30, pp 1335-1345.
- **Shatarat, N.K.**, and McLean, D.I. (2007) “*Seismic Behavior and Retrofit of Outrigger Knee Joints,*” ASCE: Journal of Bridge Engineering, ASCE.
  - **Shattarat, N.K.**, and McLean, D.I.(2005) “*Seismic Retrofitting of Outrigger Knee Joints,*” Transportation Research Record 1928, TRB, National Research Council, Washington, D.C., pp. 193-203.

## Conference Proceedings

- **Shatarat, N.K.** , Assaf, A. (2009). "*Seismic Behavior and Capacity/Demand Analyses of Simply Supported Multi-Span Bridges*". International Conference on earthquake and Structural Engineering, Proceedings of World Academy of Science Engineering and Technology, Malaysia, Volume 50, pp 253-259.
- Al-Sadder, S., Qablan, H., Shatnawi, A., and **Shatarat, N.** (2007), "*Buckling Analysis of Long Cylindrical Shell with Non-Uniform Wall Thickness under External Hydrostatic Pressure,*" Sixth International Conference on Steel and Aluminum Structures (ICSAS'07), Oxford, UK, 24-27 July.
- Katkhuda, H., **Shatarat N.**, and Abdel-Jaber M., (2007)"System Identification in Plane Steel Frames with Semi-Rigid Supports," 6th International Conference of Steel and Aluminum Structures (ICSAS'07), Oxford, UK, 24-27 July, 2007, pp. 915-922.

## Technical Reports

- Michael D. Symans, **Nasim K. Shattarat**, David J. McLean, William F. Cofer. “Evaluation of Displacement-Based Methods and Computer Software for Seismic Analysis of Highway Bridges,” WSDOT Report No. WA-RD 553.1, Washington State Department of Transportation, Olympia, WA. 2008.
- McLean, D.I. and Shattarat, N.K. “Seismic Behavior and retrofit of Outrigger Knee Joint Systems,” WSDOT Report No. WA-RD 601.1, Washington State Department of Transportation, Olympia, WA. 2005.

## **COURSES TAUGHT**

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- Computer Applications in Structural Engineering
- Introduction to Earthquake Engineering
- Design of Steel Structures
- Prestressed Concrete
- Reinforced Concrete Design I
- Reinforced Concrete Design II
- Reinforced Concrete Design III
- Engineering Mechanics – Statics
- Strength of Materials

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- Matrix Structural Analysis
- Bridge Engineering
- Finite Element Analysis

## RESEARCH INTEREST

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- Seismic assessment and retrofit of existing reinforced concrete bridges and buildings
- Experimental testing of structural systems and components
- Nonlinear modeling of structures
- Performance-based seismic engineering.

## TECHNICAL SKILLS

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- Professional in nonlinear static/dynamic analysis of highway bridges.
- Excellent knowledge in the AASHTO LFD & LRFD Bridge Design Specifications, AASHTO LRFD Seismic Guide Specifications, AASHTO Manual for Bridge Evaluation, AASHTO Signs Specifications, Washington State Bridge Design Manual.
- Excellent knowledge in ACI-318 design provisions, BS8110, IBC, UBC, ASCE7, AISC Manual, PCI Handbook.
- Excellent knowledge in the SEAOC and FEMA guidelines for Performance-Based Seismic Engineering.
- Professional in the following software packages: ADINA, LEAP Software Package (ConBox, ConSpan, RCPier), PGSUPER, RAM Concept, SAP2000, ETABS, SAFE, Staad Pro, Matlab, MathCAD and AutoCAD.

## PROFESSIONAL AFFILIATION

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**1995-Present** Jordan Engineers Association.