AYHAN IRFANOGLU

Professor and Associate Head of Civil Engineering
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APPOINTMENTS

2021/07-present Associate Head, Lyles School of Civil Engineering, Purdue University
2020/08-present Professor, Lyles School of Civil Engineering, Purdue University
2011-2020 Associate Professor, Lyles School of Civil Engineering, Purdue University
2005-2011 Assistant Professor, School of Civil Engineering, Purdue University
2000-2005 Engineer/Associate, Wiss, Janney, Elstner Associates, Inc., Emeryville, CA

EDUCATION

1994-2000 PhD, Civil Engineering, California Institute of Technology. Pasadena, CA, USA
1993-1994 MS, Civil Engineering, California Institute of Technology, Pasadena, CA, USA
1989-1993 BS, Civil Engineering, *summa cum laude*, Middle East Technical University, Ankara, TURKEY

HONORS and AWARDS

2020 Edward M. Burke Outstanding Civil Engineering Professor Award, Chi Epsilon (Civil Engineering Honor Society), Purdue University
2014 Harold Munson Outstanding Teacher Award, Lyles School of Civil Eng, Purdue University
2010 Ross Judson Buck Outstanding Counselor Award, School of Civil Eng, Purdue University
2010 Edward M. Burke Outstanding Civil Engineering Professor Award, Chi Epsilon (Civil Engineering Honor Society), Purdue University
2010 Young Professional Awardee, 6th International Workshop on Structural Concrete in the Americas, American Concrete Institute (ACI)
2010 NSF support to participate in the Int. workshop on Bio-inspired Methods and Large-Scale Structural Monitoring, Japan
2008 IDEAS^2 Presidential Award of Excellence, American Institute of Steel Construction (AISC) for the California State Bar Building upgrade project (Team leader: T. Paret, WJE)
2005 NSF support to attend "Istanbul at the Threshold" workshop, Turkey; secretary of the workshop
2003 NSF support to present at the 7th U.S.-Japan Workshop on Urban Eq Hazard Reduction, Maui, HI
2000 CUREe grant to present at the 12th WCEE in Auckland, New Zealand
1998 Graduate Student Council Teaching Assistant Award, Caltech, Pasadena, CA
1993/4 Harold Hellwig Fellowship in Structural Engineering, Caltech, Pasadena, CA
1993 Recognition for academic excellence at *summa cum laude* rank, Department of Civil Engineering, Middle East Technical University, Ankara, Turkey
1993 Recognition and award for academic excellence as top ranked graduating senior, Turkish Chamber of Civil Engineers, Ankara, Turkey

ACADEMIC/ADMINISTRATIVE POSITIONS at PURDUE UNIVERSITY

- School of Civil Engineering
  - Associate Head, 2021/07-present
  - ABET Committee, *ex officio*, 2021/07-present
  - Faculty Governance Committee, *ex officio*, 2021/07-present
    - Structural Engineering Area Representative, 2019-2021
  - Graduate Committee, Structural Engineering Area Representative, 2014-2017

        - Master's Program Subcommittee, 2008
    - Structural Engineering Area Coordinator, 2019/08-2021/08
    - Study Abroad Committee, 2014-present; Chair, 2015-present
    - Study Abroad Committee ad hoc founding taskforce member, 2012-2013
    - Undergraduate Committee, *ex officio*, 2021/07-present
        - Structural Engineering Area representative, 2012-2014
        - Recruitment committee, 2014-2015
        - First-Year Engineering CE presenter, 2014-2017
    - Assistant Professors Faculty Evaluation Committee, 2012-2013
    - Structural Engineering Faculty Search Committee, 2019-2020
    - Big Data Cluster Hire (CE) Search Committee, 2013-2014
    - Computational Mechanics Faculty Search Committee, 2008-2009
- College of Engineering
    - Undergraduate Advisory Council (UGAC), 07/2021-present
    - Global Engineering Programs Committee, CE Representative, 2015-present
    - International Faculty Exchanges and Internships Committee of the College of Engineering, Strategic Plan, Global Portfolio, 2009
- University
    - Office of Professional Practice, Co-op Faculty Coordinator for Civil Engineering, 2021/07-present
    - Advisory Committee for Museum of Art and Technology Project, member, 2019-present
    - University Senate, Senator, Lyles School of Civil Engineering, 2017-2020
        - Educational Policy Committee (EPC) member, 2017-2020
        - EPC Student Excellence subcommittee member, 2019-2020
    - Computational Science and Engineering (CS&E) Graduate Specialization Program
        - Founding and Charter CE representative, 2007-2015
        - CS&E Lynn Fellowship Committee, 2009-2015
    - Computational Interdisciplinary Graduate Student Organization (CIGSO), 2015-present
        - Founding faculty advisor
    - Campus Grievance Steering Committee, 2007

OTHER COMMITTEE MEMBERSHIPS

- TED University, Faculty of Engineering, Advisory Board, Ankara, TURKEY, 03/2022-present
- Ivy Tech Community College, Mechanical Engineering Technology and Engineering Advisory Committee, Lafayette, IN, 07/2021-present
- George E. Brown, Jr. Network for Earthquake Engineering Simulation, 2009-2014
    - Co-PI on Purdue University NEES Operations (NEEScomm) project
    - Member of Engineering Core Feedback Group
- Member, Building Instrumentation Subcommittee of the California Integrated Seismic Network (CISN), region of the Advanced National Seismic System, 2003-2005
- Member, Structural Engineers Association of Southern California/SEAOSC (student member, 1999-2000); Structural Engineers Association of Northern California/SEAONC, 2000-2005
- Charter member and representative of Caltech at the Student Leadership Council of the Pacific Earthquake Engineering Research Center, 1999-2000
- Civil Engineering Representative at Caltech Graduate [Honor Code] Review Board, 1995-1997

PROFESSIONAL AFFILIATIONS

- American Concrete Institute
    - Committee 133, Disaster Reconnaissance, voting member
    - Committee 314, Simplified Design of Concrete Buildings, secretary & voting member
- American Society of Civil Engineers

    - Structural Engineering Institute, member
    - Applied Mechanics Institute, member
- Earthquake Engineering Research Institute
    - Heritage and Existing Structures Committee (Chair: 2010-2013; Vice Chair: 2009-2010)
    - School Seismic Safety Committee (charter member)
    - Northern California Chapter (charter member, 2001-2005)
    - Purdue University Student Chapter Faculty Advisor (2006-2015, 2020-present)
- Earthquake Engineering Association of Turkey
- Seismological Society of America

EDITOR and REVIEWER

- Frontiers in Built Environment – Earthquake Engineering (Associate Editor, 02/2022-present)
- ASCE, Journal of Performance of Constructed Facilities (Associate Editor, 2017-present)
- Shock and Vibration (Associate Editor, 2010-2013)
- Encyclopedia of Earthquake Engineering, Springer (invited section editor for "Consequences and Assessment", 2015)
- Earthquake Spectra (Responsible Editor with associate editor duties, 2009-2014)
- IEEE Computing in Science and Engineering (invited co-editor for the special issue on Earthquake Engineering Simulation, 2011)
- Reviewer for NSF, USGS, QNRF, KFUPM, ISF, Oxford University Press, and Prentice-Hall
- Reviewer for World Housing Encyclopedia, IAEE/EERI
- Reviewer for 22 engineering, scientific, and professional journals
- Served/serving on scientific/technical committees of several international conferences

GRADUATE RESEARCH ADVISEES (MS and PhD)

- Fabian A. Consuegra, "On the Relationship between Small Amplitude Vibration Dynamic Properties and the Past Maximum Displacement in Reinforced Concrete Structures", PhD, 2009 *[Director of Bldgs & Industrial Struc Dept, Ingetec S.A. & Adj. Prof at Javeriana U., Colombia]*
- Bismarck N. Luna, "On Development of Base Shear versus Roof Drift Curves Using Earthquake-Response Data", MSCE, 2009 [*Senior Development Specialist at Praxair in Tonawanda, NY*]
- Mustafa K. Ozkan, "Dynamic Response of Beams with Tuned Mass Dampers", MSCE, 2010 [*Engineer at Westinghouse Electric Co. in Pittsburgh, PA*]
- Sergio A. Abondano Corredor, "Effects of Column-Base and Foundation Rotational Flexibility on the Dynamic Response of a Column", MSCE, 2011 (co-advisor) [*Structural Engineer at Destek Engineering in Natick, MA*]
- Aditya P. Tan, "Study of Response of Buildings to the 1994 Northridge, California Earthquake", MSCE, 2012 [*Engineer and Business Development Executive at Cakrawala Lestari Konstruski in Jakarta, Indonesia*]
- Prasanth Tanikella, "Detection of Damage by Tracking Building Natural Frequencies using Empirical Mode Decomposition of Dynamic Response", MSCE, 2012 [*Senior Structural Engineer at Structus, Inc., San Francisco, CA*]
- Jeffrey D. Dowgala, "Detecting and Quantifying Damage in Buildings using Earthquake Response Data and Capacity Curves", PhD, 2013 [*Senior Associate at WJE, Emeryville, CA*]
- Rabab A.K. Al Louzi, "Seismic In-Plane Response of Reinforced Concrete Frames with Masonry Infill Walls", PhD, 2015 [*Assoc. Prof. of Civil Eng. at University of Jordan, Amman, Jordan*]
- Amer A.K. Alkloub, "Behavior of Reinforced Concrete Panels Subject to Impact by Non-Deformable Projectiles", PhD, 2015 [*Assoc. Prof. of Civil Eng. at U. of Jordan, Amman, Jordan*]
- Pedram Hesam, "Estimating Effective Viscous Damping and Restoring Force in Reinforced Concrete Structures", PhD, 2016/05 [*Senior Engineer at Karagozian & Case, Inc., Glendale, CA*]

- Li-Hui Cheng, "Phase Difference Index: A Frequency-Domain Analysis Tool for Structural Mode Identification", PhD, 2017/12 [*Chief Eng., Construction Office, New Taipei City Gov., Taiwan*]
- Sekandar Zadran, "Estimating Likelihood of Severe Damage Due to Earthquakes in Reinforced Concrete Frame Buildings in Afghanistan", MSCE, 2018/5 [*Asst. Prof. at Kabul Polytechnic University in Kabul, Afghanistan* and *recipient of the 2020 German Academic Exchange Service (DAAD) Fellowship pursuing doctoral studies at the University of Stuttgart, Germany*]
- Sokheang Thea, "Identification of Stiffness Reductions using Partial Natural Frequency Data", MSCE, 2019/5 [*Structural Eng., Urban and Asia Investment Co., Ltd, Phnom Penh, Cambodia]*
- Charles Kerby, "An Experimental Study of The Response of Reinforced Concrete Frames with Wood Panel Infills to Simulated Earthquakes", MSCE, 2022/05 [*Doctoral Student at U Canterbury, Christchurch, New Zealand]*
- Samyog Shrestha, "Seismic Isolation of Nuclear Reactor Vessels Considering Soil-Structure Interaction", PhD, 2022/08 [*Structural Engineer at Structus, Inc., San Francisco, CA*]
- Osama M. Abdelaleim, "Reduced-Order Modeling for Fluid-Structure Interaction Analysis" (working title), PhD, 2023/05 (est.)

COURSES TAUGHT at PURDUE UNIVERSITY

- Basic Mechanics I: Statics (CE 297)
- Basic Mechanics II: Dynamics (CE 298)
- Structural Analysis I (CE 371)
- Structural Analysis II (CE 474)
- Senior Design (CE 498)
- Earthquake Engineering (CE571)
- Structural Dynamics (CE 573)
- Geologic and Engineering Seismology (CE 597M/EAS591G; co-taught with Prof. Arvid Johnson; new course)
- Earthquake Engineering: Istanbul at the Threshold (CE497/597; first Study-Abroad course offered in civil engineering at Purdue University; new course)
- Earthquake Engineering: Christchurch, New Zealand (CE497/597; new Study-Abroad course)
- Structural Engineering Seminars (CE 691)

EARTHQUAKE RECONNAISSANCE

1. January 1994, Northridge earthquake: field survey for the CA Office of Emergency Services, member of the Caltech graduate engineer team
2. August 1999, Kocaeli, Turkey earthquake: surveyed disaster area between Yalova (west end) and Duzce (east end); assisted in inspection of school buildings in Adapazari. Website: *A personal album of the Kocaeli earthquake disaster area*
3. July-August 2000, Sakarya/Adapazari, Turkey: accompanied Japanese geotechnical/engineering seismology team led by Kyoto University, Disaster Prevention Research Institute
4. May 2003, Bingol, Turkey earthquake: joined Purdue University team to survey RC buildings. Website: *2003 Bingol earthquake engineering report on DataCenterHub*
5. February-March 2010, Haiti earthquake: joined the ASCE team as a representative of NEES to survey disaster zone and identify research questions for US National Science Foundation
6. June-July 2010, Haiti: co-leader of a team of engineers from Purdue University, University of Kansas, and University of Washington as part of NSF-RAPID funded building survey in Port-au-Prince and Leogane, Haiti. Website: *2010 Haiti RC building database on DataCenterHub*
7. October-November 2011, Van, Turkey earthquake: leader of the EERI team surveying the disaster zone. Website: *https://www.eeri.org/wp-content/uploads/Van_Turkey_eq-report.pdf*

8. March 2016, Meinong, Taiwan earthquake: co-leader of a team of engineers from Purdue University, NSF-RAPID funded joint project by Purdue University and University of Washington. Website: *Performance of RC buildings in the 2016 Taiwan (Meinong) earthquake*
9. January-February 2018, Mexico City, Puebla earthquake: co-leader of a team of engineers from Purdue University, NSF-RAPID funded joint project by Purdue University, U California San Diego, SUNY Buffalo, U Nebraska, Cal State San Luis Obispo. Website: *Buildings surveyed in Mexico City after the 2017 Puebla earthquake*

PUBLICATIONS

BOOK

1. *At Risk: The Seismic Performance of Reinforced Concrete Frame Buildings with Masonry Infill Walls*, C.V.R. Murty, S. Brzev H. Faison, C.D. Comartin, and A. Irfanoglu. Authors are members of the World Housing Encyclopedia, a joint initiative of the EERI and the IAEE. Published by the EERI, Oakland, California, November 2006. 83 pp. Funded by USAID. Translated into Spanish, Indonesian.
2. *Drift-Driven Design of Buildings: Mete Sozen's Works on Earthquake Engineering*, S. Pujol, A. Irfanoglu, and A. Puranam, CRC Press. https://doi.org/10.1201/9781003281931, May 2022

REFEREED JOURNAL PAPERS

1. J.L. Beck, E. Chan, A. Irfanoglu, and C. Papadimitriou, "Multi-criteria Optimal Structural Design under Uncertainty", *Earthquake Engineering and Structural Dynamics*, 28:741-761, 1999.
2. J.H.P. Griffiths, A. Irfanoglu, and S. Pujol, "Istanbul at the Threshold: an Evaluation of the Seismic Risk in Istanbul", *Earthquake Spectra*, v.23 (1): 63-75, 2007.
3. F. A. Consuegra and A. Irfanoglu, "On the Variation of Dynamic Properties of a Full-scale 3-story Reinforced Concrete Flat-plate Building", Mecánica Computacional, v. XXVI: 2384-2394, 2007.
4. A. Irfanoglu and C.M. Hoffmann, "An Engineering Perspective of the Collapse of WTC-I", *Journal of Performance of Constructed Facilities*. v.22 (1):62-67, 2008.
5. P. Rosen, V. Popescu, C. Hoffmann, and A. Irfanoglu, "A High-Quality High-Fidelity Visualization of the September 11 Attack on the World Trade Center", *IEEE Transactions on Visualization and Computer Graphics*, v.14(4), 937-947, July/Aug. 2008.
6. T. Gur, A.C. Pay, J.A. Ramirez, M.A. Sozen, A. M. Johnson, A. Irfanoglu, and A. Bobet, "Performance of School Buildings in Turkey during the 1999 Düzce and the 2003 Bingöl Earthquakes", *Earthquake Spectra*, v. 25 (2): 239-256, 2009.
7. A. Irfanoglu, "Performance of Template School Buildings during Earthquakes in Turkey and Peru", *Journal of Performance of Constructed Facilities*, v. 23 (1): 5-14, 2009.
8. K. Miamis, A. Irfanoglu, and M.A. Sozen, "Dominant Factor in the Collapse of WTC-1", *Journal of Performance of Constructed Facilities*, v. 23 (4): 203-208, 2009.
9. K.A. Korkmaz, A. Irfanoglu, and A.H. Kayhan, "Seismic Risk Assessment of Buildings in Izmir, Turkey", *Natural Hazards*, September 2009 (online), v. 54 (1): 97-119, July 2010.
10. A. Deniz, K.A. Korkmaz, and A. Irfanoglu, "Probabilistic seismic hazard assessment for İzmir, Turkey." *Pure and Applied Geophysics*, 2010, 167 (12): 1475-1484.
11. A. Irfanoglu, "Using Numerical Simulations and Engineering Reasoning under Uncertainty: Studying the Collapse of WTC-1", *Computer-aided Civil and Infrastr Eng*, v. 27(1): 65-76, January 2012.
12. F.A. Consuegra and A. Irfanoglu, "Variation of Small Amplitude Vibration Dynamic Properties with Displacement in Reinforced Concrete Structures", *Experimental Mechanics*, v. 52(7), 817-828, 2012.
13. A.H. Kayhan, K. A. Korkmaz, and A. Irfanoglu, "Selecting and Scaling of Real Ground Motion Records using Harmony Search Algorithm", *Soil Dyn. and Eq Eng*, v. 31 (7): 941-953, July 2011.
14. P. O'Brien, M. Eberhard, O. Haraldsson, A. Irfanoglu, D. Lattanzi, S. Lauer, and S. Pujol, "Measures of the Seismic Vulnerability of Reinforced Concrete Buildings in Haiti", *Earthquake Spectra*, v. 27(S1): 373-386, October 2011.
15. G. Yan, S.J. Dyke, and A. Irfanoglu, "Experimental Validation of a Damage Detection Approach on a Full-Scale Highway Sign Support Truss", *Mech. Sys. and Signal Process.*, v. 28:195-211, April 2012.

16. T. Hacker, R. Eigenmann, S. Bagchi, A. Irfanoglu, S. Pujol, A. Catlin, E. Rathje, "The NEEShub Cyberinfrastructure for Earthquake Engineering", *IEEE Comp. Sci. & Eng.*, 67-78, July/Aug. 2011.
17. B. Barry, V. Drnevich, A. Irfanoglu, and D. Bullock, "Summary of Developments in the Civil Engineering Capstone Course at Purdue University", *J Professional Issues in Eng Education & Practice*, v.138(1), 95-98, Jan 2012.
18. Z. Sun, S. Krishnan, G. Hackmann, G. Yan, S.J. Dyke, C. Lu, and A. Irfanoglu, "Damage Detection on a Full-scale Highway Sign Structure with a Distributed Wireless Sensor Network", *Smart Structures and Systems, An International Journal*, v.16(1): 223-242, 2015.
19. J. Dowgala and A. Irfanoglu, "A Method for Extracting Building Empirical Capacity Curves from Earthquake Response Data", *Earthquake Spectra*, v.32(4): 2229-2244, November 2016.
20. P. Shah, S. Pujol, M. Kreger, and A. Irfanoglu, "2015 Nepal Earthquake: Damage Assessment Survey", *Concrete International*, v.39(3): 42-49, March 2017
21. A. Irfanoglu, "High-velocity Fluid Impact on Flexible Structures", IPSI BgD Trans. on Int. Research (TIR), Jan. 2018. http://ipsitransactions.org/journals/papers/tir/2018jan/p12.pdf *[invited paper]*
22. H. Korucu and A. Irfanoglu, "Response of Reinforced Concrete Beams to High Velocity Fluid Impact – Part I: Experiments", *Structural Concrete*, v.19(4):1101-1114, August 2018.
23. H. Korucu and A. Irfanoglu, "Response of Reinforced Concrete Beams to High Velocity Fluid Impact – Part II: Numerical Modeling and Simulation", 19(4):1115-1121, Aug 2018.
24. R. Allouzi and A. Irfanoglu, "Development of New Nonlinear Dynamic Response Model of Reinforced Concrete Frames with Infill Walls", *Advances in Structural Engineering*, April 2018.
25. R. Allouzi and A. Irfanoglu, "Finite Element Modeling of Reinforced Concrete Frames with Masonry Infill Walls Subjected to Lateral Load Reversals", *The Masonry Society Journal*, v. 36(1), Dec 2018.
26. G. Yan, S. Dyke and A. Irfanoglu, "Damage Detection for Truss Structures based on Member Axial-strain Mode Shapes with Experimental Validation", *J Vib Test & Syst Dyn*, v.2(4): 403-416, 2018.
27. R. Allouzi and A. Irfanoglu, "Failure Mode Identification of Masonry Infilled RC Frames", *Emirates Journal for Engineering Research*, 24(1):1-13, 2019.
28. P. Hesam, A. Irfanoglu, and T. Hacker, "A Method to Estimate Effective Viscous Damping Ratio and Restoring Force from the Dynamic Response Data of Structures", *Frontiers in Built Environment – Earthquake Engineering*, February 2019, v.5.
29. A. Puranam, A. Irfanoglu, S. Pujol, T.-C. Chiou, S.-J. Hwang, "Evaluation of Seismic Vulnerability Screening Indices using Data from the Taiwan Earthquake of 06 February 2016", *Bulletin of Earthquake Engineering*, April 2019, Volume 17, Issue 4, pp. 1963–1981.
30. S. Pujol, L. Laughery, A. Puranam, P. Hesam, L.-H. Cheng, A. Lund, A. Irfanoglu, "Evaluation of Seismic Vulnerability Indices for Low-Rise RC Buildings Including Data from the 6 February 2016 Taiwan Earthquake", *Journal of Disaster Research*, 2020, Volume 15, no. 1, pp. 9-19
31. S. Alcocer, A. Behrouzi, S. Brena, J. Elwood, A. Irfanoglu, M. Kreger, R. Lequesne, G. Mosqueda, S. Pujol, A. Puranam, and M. Rodriguez, "Observations about the Seismic Response of RC Buildings in Mexico City", *Earthquake Spectra*, 2020, 36(2_suppl), pp. 154-174.
32. S. Shrestha, E.G. Kurt, K. Kim, A. Prakash, A. Irfanoglu, "Effect of Soil Properties and Input Motion on Site Amplification using Validated Nonlinear Soil Model", *Nuclear Technology*, 2021, Volume 207, Issue 11, pp. 1639-1663, DOI: 10.1080/00295450.2021.1920798
33. S. Shrestha, E.G. Kurt, K. Kim, A. Prakash, and A. Irfanoglu, "On Component Isolation of Conceptual Advanced Reactors," *Nuclear Engineering and Technology*, August 2022, Volume 54, Issue 4, pp. 2974-2988. DOI: 10.1016/j.net.2022.02.012

REFEREED CONFERENCE and SYMPOSIA PAPERS, ABSTRACTS

1. J.L. Beck, C. Papadimitriou, E. Chan, and A. Irfanoglu, "Reliability-based Optimal Design Decisions in the Presence of Seismic Risk", Paper No. 1058, *11WCEE*, Acapulco, Mexico, 1996
2. J.L. Beck, E. Chan, A. Irfanoglu, C. Papadimitriou, S.F. Masri, H.A. Smith, and T. Tsugawa, "A Methodology for Reliability-based Multi-criteria Optimal Structural Design", *Proceedings of the 7th International Conference of Structural Safety and Reliability*, Kyoto, Japan, 1997

3. J.L. Beck, A. Irfanoglu, C. Papadimitriou, and E. Chan, "A Methodology for Performance-based Optimal Structural Design", *Proc 12th ASCE Engineering Mechanics Conf.*, La Jolla, CA, 1998
4. J.L. Beck, A. Irfanoglu, C. Papadimitriou, and E. Chan, "Performance-based Optimal Design under Seismic Risk", *Proceedings of the 11th European Conf. on Earthquake Eng.*, Paris, France, 1998
5. J.L. Beck, A. Irfanoglu, C. Papadimitriou, and S.K. Au, "A Performance-based Optimal Design Methodology Incorporating Multiple Criteria", Paper No. 344, *Proceedings of the 12th World Conference on Earthquake Engineering*, Auckland, New Zealand, 2000
6. A.B. Mason, J.L. Beck, Y. Achkire, S. Wilkie, and A. Irfanoglu, "Optimal Strategy for Business Recovery after Earthquakes", Paper No. 1497, *Proc. 12WCEE*, Auckland, New Zealand, 2000
7. A. Irfanoglu and J.L. Beck, "Optimal Structural Design under Seismic Risk using Engineering and Economic Performance Objectives", *Proc Int Conf on Str Safety & Reliability*, CA, 2001
8. S.A. Freeman, A. Irfanoglu, and T.F. Paret, "Structural Implications of the TriNet Instrumental Intensity Scale", Paper No. 692, *Proc. of the 7NCEE*, Boston, MA, 2002
9. S.A. Freeman, A. Irfanoglu, and T.F. Paret, "Improving Emergency Response using Building Response Data, ShakeMap Data, and the Earthquake Engineering Intensity Scale", *Proc. of the 7th U.S./Japan Workshop on Urban Eq. Hazard Reduction*, EERI and Inst. of Social Safety Science, Maui, HI, 2003
10. S.A. Freeman, T.F. Paret, G.R. Searer, and A. Irfanoglu, "Musings on recent developments in performance-based seismic engineering", *Proc. of the ASCE Structures Congress*, 137 (79), 2004
11. T. Gur, J.A. Ramirez, M.A. Sozen, A.C. Pay, A.M. Johnson, A. Bobet, A. Matamoros, A. Irfanoglu, and L. Akin, "Performance of school buildings in Bingol during the 1 May 2003 earthquake", Paper No. 1017, *Proc. of the 13th World Conf. on Earthquake Eng.*, Vancouver, Canada, August 1-6, 2004
12. T.F. Paret, A. Irfanoglu, M.M. Hachem, and S.A. Freeman, "Efficient application of the secant method for capturing the peak response of complex multi-story buildings", *Proceedings of the 13th World Conf on Earthquake Engineering*, Vancouver, Canada, August 1-6, 2004
13. S.A. Freeman, A. Irfanoglu, and T.F. Paret, "Earthquake Engineering Intensity Scale: A Template with Many Uses", No. 1667, *Proc.13th World Conf. Eq. Eng.*, Vancouver, Canada, August 1-6, 2004
14. A. Irfanoglu and S.A. Freeman, "Using the Earthquake Engineering Intensity Scale to Improve Urban Area Earthquake Emergency Response", Paper No. 1069, *Proc. 8NCEE*, San Francisco, CA, 2006
15. F.A. Consuegra and A. Irfanoglu, "On the Variation of Dynamic Properties of a Full-scale 3-story Reinforced Concrete Flat-plate Building", *Prato Seminar on Str. and Geotech. Mechanics*, Oct. 2007
16. F.A. Consuegra and A. Irfanoglu, "Variation of Dynamic Properties with Displacement in a 3-story Reinforced Concrete Flat-plate Structure", Paper No. 12-01-0156, *Proc. 14WCEE,* China, 2008
17. P. Gulkan, Z. Ahunbay, Z. Celep, A. Yakut, K. Guler, D. Mazlum, J. Kubin, D. Kubin, M.A. Sozen, A. Irfanoglu, and E. Eroglu, "Seismic Assessment of the Architectural Heritage in the Fatih District of Istanbul", *14th World Conference on Earthquake Engineering (14WCEE)*, China, October 2008
18. A. Irfanoglu and Y. Chang, "Introducing Earthquake Engineering through Simultaneous In-Class and Webcast Lectures, and International Expedition to a Megapolis at Seismic Risk", Paper No. 1036, *2009 ASEE Annual Conference*, Austin, TX, June 14-17, 2009
19. A. Irfanoglu and Y. Chang, "Introducing Earthquake Engineering through Simultaneous In-Class and Webcast Lectures, and International Expedition to a Megapolis at Seismic Risk", Paper No. 274, *2009 ASEE Global Colloquium*, Budapest, Hungary, October 12-15, 2009
20. I. Bedirhanoglu and A. Irfanoglu, "Earthquake Response of a Historic Masonry Minaret Supported on Four Pillars", *Symposium with International Participation on Strengthening and Preserving Historical Buildings and Cultural Heritage-2*, Diyarbakir, Turkey, October 15-17, 2009
21. A. Irfanoglu, "Performance of Template School Buildings in Turkey and Peru during Earthquakes", Paper No. 1818, *9NCEE/10th Canadian Conf on Eq Eng*, Toronto, Canada, 2010 (*invited paper*)
22. B.N. Luna and A. Irfanoglu, "Estimating Base Shear versus Roof Drift Curves Using Earthquake-Response Data", Paper No. 1143, *9NCEE /10th Canadian Conf on Eq Eng*, Toronto, Canada, 2010
23. F.A. Consuegra and A. Irfanoglu, "Variation of Small Amplitude Vibration Dynamic Properties with Displacement in Reinforced Concrete Structures", Paper No. 1191, *9th U.S. National Conference on Earthquake Engineering/10th Canadian Conference on Earthquake Eng.*, Toronto, Canada, July 2010

24. K.A. Korkmaz, A. Irfanoglu, A.H. Kayhan, and A. Deniz, "Evaluation of Seismic Safety of Existing Reinforced Concrete Buildings in Western Region of Turkey", Paper No. 1517, *9th U.S. National Conf. on Earthquake Eng./10th Canadian Conf. on Earthquake Eng.*, Toronto, Canada, July 2010
25. A. Irfanoglu and B.N. Luna, "Using Recorded Earthquake-Response Data to Estimate Base Shear versus Roof Drift Curves in Buildings", *5th World Conf. Str Control & Monitoring*, Japan, 2010
26. S.S. Krishnan, Z. Sun, A. Irfanoglu, S.J. Dyke, and G. Yan, "Evaluating the performance of distributed approaches for modal identification", SPIE Smart Str & Material/NDE Conf., March 2011
27. B. Erdil, U. Akyuz, and A. Irfanoglu, "A Comparative Study of Force-Deflection Relationship of FRP-Confined Concrete Columns", COMPDYN 2011, *Eccomas Thematic Conf., 3rd Int. Conf. on Comp. Methods in Structural Dynamics and Earthquake Eng.*, 26-28 May 2011, Corfu, Greece
28. P. Gulkan, M.A. Sozen, A. Yakut, Z. Celep, K. Guler, J. Kubin, D. Kubin, E. Eroglu, A. Irfanoglu, and Z. Ahunbay, "The Fatih Project: A Pilot Seismic Assessment of the Architectural Heritage in the Historic Peninsula of Istanbul", *WCCE-ECCE-TCCE Joint Conference on Seismic Protection of Cultural Heritage*, October 31-November 1, 2011, Antalya, Turkey.
29. A. Irfanoglu, "A Method to Estimate Building Capacity Curves Using Response Records", *1st Turkish Earthquake Eng. and Seismology Conference*, 11-14 October 2011, Ankara, Turkey
30. Z. Sun, S. Krishnan, S.J. Dyke, G. Hackmann, C. Lu, G. Yan, and A. Irfanoglu, "Damage Detection on a Full-scale Highway Sign Structure with a Distributed Wireless Sensor Network", *6th Int. Conference on Bridge Maintenance, Safety and Management, IABMAS 2012*, 8-12 July 2012
31. A. Tan and A. Irfanoglu, "Correlation between Ground Motion Based Shaking Intensity Estimates and Actual Building Damage", *15WCEE*, Lisbon, Portugal, 24-28 September 2012
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6. "Istanbul at the Threshold: Seismic Risk in Istanbul, Turkey", *Disaster Prevention Research Institute, Kyoto University*, Japan, December 2007
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9. "Numerical Simulation versus Engineering Judgment in Studying the Collapse of the World Trade Center Tower-1", *C.W. Lovell Symposium on the Role of Numerical Analysis in Interdisciplinary Engineering Research*, Purdue University, October 2008
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11. "Reforming Civil Engineering Education in the USA," invited presentation at the Turkish Chamber of Civil Engineers Education Symposium, Nov 5-7 2009 Antalya, Turkey
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13. "The Chilean and the Californian: Designing Reinforced Concrete Buildings against Earthquakes", A. Irfanoglu, *Sixth International Workshop "Structural Concrete in the Americas", American Concrete Institute*, March 19-20, 2010, Chicago [*Young Professional Awardee and Invited Speaker*]
14. "On the 12 January 2010, Haiti Earthquake Disaster". *Purdue University College of Engineering Ambassadors*, seminar, April 2010
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22. "Performance of Template School Buildings in Turkey and Peru During Earthquakes", A. Irfanoglu. *9th U.S. National Conference on Earthquake Engineering/10th Canadian Conference on Earthquake Engineering*, Toronto, Canada, July, 2010
23. "Deconstructing the 2010 Haiti Disaster: What Happened, Why the Disaster, and Lessons Learned", Purdue University Earthquake Engineering Research Institute (EERI) Student Chapter and the Civil Engineering Graduate Student Advisory Council (CEGSAC) lecture, November 2010
24. "Analysis, Analysis, and Engineering Judgment in Understanding the Collapse of WTC-1", University of Illinois at Chicago, invited talk, November 2014
25. "Runaway Engineering: Performance-Based Earthquake Engineering", invited talk at the Symposium on Making Rational Decisions Under Uncertainty and Model Complexity, a celebration in honor of Prof. James L. Beck, California Institute of Technology, February 2017
26. "Locating Performance Points in Capacity Spectrum Method using Empirical Capacity Curve, Equivalent Viscous Damping and Nonlinear Displacement Estimates", with P. Hesam, *2017 Engineering Mechanics Inst. Conf.*, ASCE, keynote lecture in Structural Modeling & Identification for Performance & Resilience Assessment of Civil Structures Symposium, San Diego, CA, June 2017
27. "Field Survey and Guidelines for Preliminary Evaluation of Reinforced Concrete Buildings in Nepal", with P. Shah and S. Pujol, *10th Annual Conference of the American Society of Nepalese Engineers*, invited plenary session talk, Manassas, VA, June 2017
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29. "Experiences of a New VIP instructor", *Vertically Integrated Projects [VIP] 2017 Midwest Workshop*, University of Notre Dame, South Bend, Indiana, 11 November 2017
30. "From Complexity to Simplicity: How Mete Sözen Arrived at Priority Index - A Review of Prof. Sözen's Work on Rapid Earthquake-risk Assessment", with T. Paret, *11th U.S. National Conference on Earthquake Engineering*, Los Angeles, CA, June 2018
31. "Vulnerability of RC Buildings to Earthquake Demands", "Proportioning in RC Buildings with Robust Walls", and "Ranking Low-rise RC Buildings in Vulnerability against Earthquakes": Three short-courses at Escuela Colombiana de Ingenieria in Bogota, Colombia, August 2018
32. "Rapid Screening of Low-Rise Concrete Buildings for Seismic Vulnerability", *Workshop in Honor of Prof. Haluk Sucuoglu during the 5th International Conference on Earthquake Engineering and Seismology*, Ankara, Turkey, 8-11 October 2019
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34. "Earthquake-vulnerability Evaluation of Buildings", with S. Pujol, *17th World Conference on Earthquake Engineering,* September 27-October 2, 2021, Sendai, Japan
35. "Practical Approaches for Estimating Seismic Response of Buildings", Keynote Lecture, 6th International Conference on Earthquake Engineering and Seismology, 13-15 October 2021, Gebze, Turkey
36. "Design, Construction, and Evaluation of Buildings against Earthquakes" (*in Turkish*), invited speaker, *4th Science Talk for the Enthusiast*, 25 December 2021, College of Engineering, Dicle University, Diyarbakir, Turkey
37. "Drift-Driven Design and Assessment: Guides for Earthquake Engineers", invited speaker, Faculty of Civil Engineering, University of Belgrade, 4 November 2022, Belgrade, Serbia [upcoming]
38. "Facing Uncertainty: The Practice of Earthquake Engineering", invited speaker, *Diaspora and Friends of Montenegro*, Scientific Symposium, 1-4 November 2022, Montenegrin Academy of Sciences and Arts, Podgorica, Montenegro [upcoming]