

## CURRICULUM VITAE – Nasim Uddin, PhD, PE, F.ASCE., Fulbright Scholar

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*Professor and Graduate Program Director*, UAB Civil, Construction, and Environmental Engineering  
*Editor-In-Chief*, ASCE Natural Hazards Review Journal  
*Chair*, ASCE Walter Huber Civil Engineering Research Award Committee  
*President*, Bismillah LLC  
*Founding Research Director*, Sustainable Smart City Research Center, UAB  
*President*, Birmingham Islamic Society (2022-Present)

### I. GENERAL:

Dr. Nasim Uddin is a Professor and Graduate Program Director in the Department of Civil, Construction, and Environmental Engineering at the University of Alabama at Birmingham (UAB). He is a scholar-teacher with specialization on the built environment and its relationship to the physical infrastructure, climate readiness, resiliency, and antifragile Community. Some of the awards he received include 2023 President's Award for Excellence in Teaching, Dean's Excellence in Mentorship Award in 2017, Dean's Excellent Faculty Award 2000, J William Fulbright Scholar Award in 2007, FEMA Project Impact Best Community Award in 2000. He also received many best paper awards including the 2019 Winter Stimulation "Best of Conference" Paper award. He was a finalist for the 2022 Canada Excellence Research Chair (CERC) with the University of British Columbia.

World Bank highlighted his Research in 2010 Report: *Development and Climate Change*. He has received more than \$15 million in external funding from various state and federal agencies including 10 NSF funded projects (3 active NSF projects NSF-1849264, 1813949, 1645863). He has supervised 5 post docs, 18 PhD dissertations and 37 master theses/projects. He has authored 7 books, given 25 keynotes lectures worldwide. His leadership and team building research efforts as PI include: CAMPUS WIDE: "*Birmingham 2020: Roadmap to a Model City*", a Grand Challenge finalist including 32 faculty from all UAB Schools/colleges; STATE-WIDE: "*Alabama Machine Learning Initiative in Sensing under Extreme Environments*" including all 7 engineering and science programs in Alabama; NATIONAL: UTC Center Proposals; NSF CPS, SSC, FRONTIER & COPE, DoD; and GLOBAL: a USA-UK-Ireland Collaborative Research: "*Infrastructure Health Management*" (NSF 1645863 & 1100742). His diverse network of national and international partnerships includes Harvard University, Georgia Tech, Univ. of California, Univ. of Maryland, Univ. of Florida, Univ. of Pittsburg, Florida International University, Tufts University, Arizona State University, Purdue University, Penn State University, Ireland University College Dublin, Queen University in England to conduct multi-year and multi-million-dollar interdisciplinary collaborative research.

Prof. Uddin is the founding research director of the UAB Sustainable Smart City Research Center. He served as the Chair of the Executive Committee for the ASCE Counsel for Disaster Risk Management currently known as ASCE Infrastructure Resilience Division (IRD). He also served as PI to organize the NSF Sponsored International Workshop on Disaster Risk Mitigation, and US Chair for the US-Bangladesh Collaborative Workshop. He is currently serving as Technical Advisor, Training and Liaison for the Government of Bangladesh for the design and implementation of World Bank Funded URP/RAJUK/S-6: Establishment of Urban Resilience for the Capital City Project. He is currently the Chair of the ASCE *Walter Huber Civil Engineering Research Award* Committee and *Editor-In-Chief* of the *ASCE Natural Hazards Review Journal*. He is a Faculty Fulbright Scholar and ASCE Fellow.

Prof. Uddin is married (with Samina Uddin, MD; Assistant Professor of the Division of Geriatric and Palliative Medicine at the UAB School of Medicine) with two children Ilma Uddin and Alley Uddin.

## II. EDUCATION

- 1986 Bachelor of Science, Civil Engineering, Bangladesh University of Engineering & Technology (BUET)
- 1989 Masters of Science, Civil Engineering, University of Oklahoma
- 1992 Doctor of Philosophy, Civil Engineering, State University of New York at Buffalo

## III. ACADEMIC/PROFESSIONAL APPOINTMENTS

- 1986-1988 Lecturer, Civil Engineering, Bangladesh University of Engineering & Technology
- 1992-1997 Project Engineer, Acres International Corporation, New York
- 1997-2001 Assistant Professor, Civil Engineering, University of Evansville (UE), Indiana
- 2001-2004 Assistant Professor, Civil, Construction and Environmental Engineering (CCEE), UAB
- 2004-2010 Associate Professor, Civil, Construction and Environmental Engineering (CCEE), UAB
- 2004-2010 Associate Professor and Undergraduate Program Director, CCEE, UAB
- 2007-Present Founding Research Director, Sustainability Smart City Research Center, UAB
- 2010-2019 Professor, Civil, Construction and Environmental Engineering (CCEE), UAB
- 2019-Present Professor and Graduate Program Director, CCEE, UAB
- 2017-Present Member, Center for Engagement in Disability Health and Rehabilitation Sciences

## IV. HONORS AND AWARDS

- 1978-1980 National Merit Scholarship
- 1982-1986 Dean's List
- 1986 Colombo Plan Scholar Award
- 1987-1988 Australian Government Commonwealth Scholarship
- 1997 International Concrete Repair Institute "Project of the Year" Award
- 1998 MUPEC Conference Faculty Advisor Award
- 2000 FEMA Project Impact Best Community Award; REDCROSS Recognition Award
- 2001 UE's 33<sup>rd</sup> "Outstanding Faculty of the Year Award"
- 2001 College of Engineering and Computer Science Dean's Teaching Award
- 2005 Center for Advanced Material Conference Paper Award 2005
- 2006 Nominated by the CCEE for the President's Excellence in Teaching Award (2012, 2016, 2018)
- 2006 Fellow, American Society of Civil Engineers
- 2006 Academy of Science Research Paper Award; TRB Research Paper Award
- 2006 J William Fulbright Scholar Award
- 2010 The World Bank published a story on Dr. Uddin's research on page 302 of Chapter 7: "*Accelerating innovation and technology diffusion*" in World Development Report 2010: Development and Climate Change.
- 2017 UAB Dean's Excellence in Mentorship Award (2017)
- 2019 Nominated by the IRD for ASCE Richard Torrens Award (Nominated 2019, 2020, 2021)
- 2019 Best Conference Paper, Winter Simulation Conference, 2019

- 2020 Nominated by the IRD for the ASCE Distinguished Member Award
- 2020 Advisor, Training and Liaison for the Government of Bangladesh for World Bank Funded URP/RAJUK/S-6: Establishment of Urban Resilience for the Capital City Project.
- 2022 Finalist for the 2022 Canada Excellence Research Chair (CERC) with the University of British Columbia.
- 2023 ASME Associate Editor Award (for ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems)
- 2023 2023 President's Award for Excellence in Teaching

## V. LEADERSHIP EXPERIENCE

### Leadership in Educational Programs

- 2004-2010: CCEE Undergraduate Program Director and ABET/SACS Assessment Coordinator- Primary author of the CE Program ABET Self Study Report 2006; Co-authored web-based graduate and undergraduate programs self-study report for the 2005 SACS re-accreditation
- 2006-2008: Chair of the UAB University Curriculum and Research Committee- Led the committee effort to prepare a resolution for a single campus-wide teaching evaluation system, and successfully passed the resolution through the faculty senate; revised and updated the Faculty Development Grant guidelines including multidisciplinary proposals with number of faculty development grant proposals doubled compared to the previous years and funding level increased 50%; and planned and executed UAB Faculty Research Day
- 2011-2013: SOE Graduate Studies Committee Chair, School of Engineering
- 2014-2020: SOE Chair, School of Engineering Tenure & Promotion Committee
- 2018-Present: CCEE Graduate Program Director, Civil, Construction, and Environmental Engineering, UAB: Helped in build and grow graduate program of the Civil, Construction, and Environmental Engineering (CCEE), where I have been leading graduate admissions and the graduate program as the graduate program director, and as well as the Engineering school's Graduate Studies Committee. Led the effort to develop joint UAB-degree programs in undergraduate and graduate degrees with Queens University at Belfast (in UK), Ireland University College Dublin (in Ireland), and Bangladesh Cambrian University (in Bangladesh); Currently working on CCEE graduate student support for recruiting excellent graduate students, updating of graduate catalog and handbooks, external review for the PhD programs, growth of graduate programs, among many other efforts.
- 2020-Present: Center for Engagement in Disability Health and Rehabilitation Sciences (CEDHARS)

### Leadership in Research Programs

Professor Uddin's research focuses on developing innovative technologies for improving the health of built infrastructures for achieving resilience and antifragility against natural hazards. Professor Uddin has completed many research projects funded by the National Science Foundation (NSF), Department of Transportation (DOT), World Bank (WB), Department of Energy (DOE), Federal Highway Authority (FHWA) and Federal Emergency Management Agency (FEMA) whose cumulative funding exceeds \$15.0 million, and he directed 5 post docs, 18 doctoral dissertations (as supervisor and committee chair) and 37 Master's theses/projects (as supervisor and committee chair), and over 15 undergraduate research based on the sponsored research projects. He is the supervisor of Dr. Amol Vaidya who won 2009 UAB Student of the Year Award and the UAB Academic Excellence Award in Doctoral Category. His students won 2nd place in the 2017 UAB Graduate School 3MT Doctoral and Master's competitions (Dr. Ahmed Hattab and Ms. Heba Elsis respectively). His student Dr. Ahmed Hattab was also honored with 2019 UAB Young

Alumni Rising Star Award, and three (3) of his doctoral students won the UAB School of Engineering Best Graduate Student Award. His research leaderships includes:

- 2001-Present: High performance composite structural systems for resilient built infrastructures (against windstorm, flood, and wildfire): As principle investigator (PI) of **4 NSF** funded projects [**Over \$2M funded by NSF** (*NSF-CMMI-825938; NSF-CMS-533306; NSF-IPW-0419893; and NSF-CMS-0229631*)], where research team has been pursuing Innovative Composite Structural Insulated Panels (CSIPs) for use in hurricane and storm resistant housing and also for bridge superstructures, remarkable due to both its originality and its practical applications (e.g., an innovative material combination and specialized construction system could stop a projectile traveling at over 250 miles per hour, passing the Federal Emergency Management Agency's (FEMA) strict standards for use in a hurricane shelter).
- 2005-2006: U.S. Chair for the U.S. - Bangladesh Collaborative Workshop. [Organized an interdisciplinary workshop to identify and prioritize emerging issues in the natural disaster mitigation and risk management. Supported by the National Science Foundation and the Government of Bangladesh.]
- 2006-Present: Developed International Collaborative Research Projects with England (Queen University of Belfast), Ireland (National University of Ireland-University College of Dublin), Bangladesh (Bangladesh University of Engineering and Technology, Bangladesh Atomic Energy Commission, and BRAC University) funded by National Science Foundation
- 2008-Present: Innovative health monitoring systems for monitoring and damage detection of the built infrastructures As PI of **3 NSF** funded projects [**Over \$3M funded by NSF** (*NSF-CMMI-1100742; NSF-CNS-1645863; NSF-IIS- 181394*)] where the team has been pursuing innovative infrastructure health monitoring systems to conduct real time performance assessment for infrastructures. This system represents new indirect-low cost monitoring systems for structures by using mobile and deployable sensing units (e.g., UAVs acting as flying sensors and collect critical information from the bridge through driving-by the bridge) and drive-by inspection vehicles offering flexible system architecture over conventional static sensors. Therefore, a couple of mobile sensors can replace hundreds of static sensors resulting in a paradigm shift in the field of infrastructure control and condition monitoring.
- 2010-Present: Scientific framework for maintaining the productivity and safety of emergency response: As PI of over **20 DOT/FHWA/NSF** funded projects **Over \$10M funded by NSF, DOT, and FHWA** (e.g., *NSF-S&AS-1849264; NCTSPM2015-72; NCTSPM2016-48; NCTSPM2018-32; ALDOT 930-607B; DOT/FHWA 930-773R; ALDOT 930-607A; ALDOT 930-549; UTC 0365, 5228, 3229, 4210, 08204, 07212, 3405, 10204; Federal Motor Vehicle Safety; DOE funded GATE Center at UAB for advanced Lightweight Materials Technologies, among many others*) where the team has been developing innovative and outstanding solutions with vital safety information, and a scientific framework for maintaining the productivity and safety of emergency response transportation infrastructures and vehicles while eliminating accidents.
- 2007-Present: Founding research Director of the Sustainable Smart Cities Research Center (SSCRC)
- 2019-Present: Technical Advisor, Training and Liaison for the Government of Bangladesh for the design and implementation of World Bank Funded URP/RAJUK/S-6: Establishment of Urban Resilience for the Capital City Project.
- 2020-Present: Led as PI collaborative research efforts in Alabama CAMPUS WIDE: "Birmingham 2020: Roadmap to a Model City" - including 32 faculty from all UAB Schools/colleges; and STATE-WIDE: "Alabama Machine Learning Initiative in Sensing under Extreme Environments" - including all 7 engineering and science programs in Alabama
- 2020-Present: Led as PI collaborative National & Regional UTC Center Proposal; NSF FRONTIER, CPS, and COPE, DoD; and INTERNATIONAL: USA-UK-Ireland Collaborative Research funded by NSF.

### Leadership in Professional Societies

Served as the Chair of the Council for Disaster Risk Management (currently renamed as Infrastructure Risk Division) of the American Society of Civil Engineers (ASCE), as well as in multiple other leadership roles within the Division and on the organizing committee of our annual conference. In the ASCE, led the committee that set manual of practice, standards as well as policies. Currently serving as the *Editor-in-Chief* of the *ASCE Journal of Natural Hazards Review journal Chair*, and as the *Chair* of the *ASCE Walter Huber Civil Engineering Research Award Committee*.

- 2005-2009: NSF-NEES Advisory Board for the Tsunami Resistant Structural Design, Member
- 2007-2008: ASCE Task Committee to develop guideline for Multihazard Risk assessment, Chair
- 2005-2011: ASCE Council for Disaster Risk Management (CDRM), Secretary-Elect (2006-2007), Vice Chair (2007-2008), Chair (2008-2011), and Past Chair (2012-2014)
- 2016-present: Editor-in-Chief of the ASCE Journal of Natural Hazards Review - Under my leadership NHR journal saw 4-fold growth in its submissions (400%), doubled its publications (250%), journal rating and ranking tripled (300% in impact factor, from Annual Impact Factor: 0.79 to 4.200 - This is 90% growth from last year and highest among all ASCE journals!), and special publications along with expansion of editorial board members (almost doubled). He established a new socioeconomic track for the journal, planned and executed inaugural IRD Research Forum “2017 Disaster” resulting in technical publications including series of NHR special publications.
- 2019-2023: Chair, ASCE Walter Huber Civil Engineering Research Award Committee

### Leadership in Public service

Dr. Uddin has been serving as the President of the Birmingham Islamic Society (BIS) (<https://www.bisweb.org/>) serving the spiritual and social needs of over 10,000 Muslim population in the greater Birmingham Area, and managing the operation of 5 masjids. He has also been serving as Friday Jumuah Khatib since 2001.

## **VI. AREAS OF RESEARCH INTEREST**

- **High performance built environment:** Multifunctional Composite Structural Insulated Panel (MSIPS) for bridges and buildings against windstorm, flood and wildfire; High Data Density Short Range Wireless Telemetry for Built Infrastructure
- **Infrastructure monitoring:** Bridge Weigh-in-Motion (B-WIM) Health Monitoring Systems for Bridge Infrastructure; Fly-By and Drive-by monitoring system for Bridge Network Resiliency; Fly-By Image Processing for Real Time Congestion Mitigation; Aerodynamic Intelligent Morphing System for Autonomous Smart Utility
- **Antifragile communities and community health:** Human Rights Framework for Facilitating Citizen Engagement in Smart Cities; Orchestrated Sensor Communities for Automated high-Resolution system (OSCAR).

## **VII. GRANTS AND CONTRACTS**

### **Project/Date/Funding**

### **Source**

1. **PI**, “CPS: Breakthrough: Mobile Automated Rovers Fly-By (MARS-FLY) for Bridge Network Resiliency (Internationally collaborative research project with matching funds from Ireland SFI and UK national research agency INI) (NSF-CNS-1645863); Period of Support: 04/17- 05/22

NSF

\$600,000 (NSF), \$1,500,000 (Total)	
2. <b>PI</b> , “High Data Density Short Range Wireless Telemetry for Next Generation IoT Applications (Co-PI) (NSF-CSSR- 1813949); Period of Support: 08/18- 08/22 \$500,000	NSF
3. <b>Co-PI</b> , “S&AS:INT:COLLAB: Aerodynamic Intelligent Morphing System (A-IMS) for Autonomous Smart Utility Truck Safety and Productivity in Severe Environments”, (NSF-S&AS-1849264); Period of Support: 10/19-10/23; \$1,000,000	NSF
4. <b>PI</b> , “Developing Bridge Weigh-in-Motion (B-WIM) Health Monitoring Systems for Bridge Infrastructure Safety (Internationally collaborative research project with matching funds from Ireland SFI and UK national research agency INI) (NSF-CMMI-1100742); Period of Support: 04/11- 05/15 \$350,000 (NSF), \$1,500,000 (Total)	NSF
5. <b>PI</b> , "Structural Panels for Natural Hazard Resistant Structures," (NSF-CMMI-825938); Period of Support: 10/08-10/13 (Co-PI: Fouad, Salama) \$550,900	NSF
6. <b>PI</b> , "Multifunctional Composite for Panelized Construction," (NSF-CMMI-533306); Period of Support: 10/05-10/12 (Co-PI: Fouad, Vaidya) \$289,900	NSF
7. <b>PI</b> , “International Research for Manufacturing and Design Feasibility of Jute Fibers in Composite Construction," (NSF-CMMI-635422); Period of Support: 10/06-12/08 \$30,000	NSF
8. <b>PI</b> “Novel Building Materials for Panelized Construction,” (NSF-CMS-229631); Period of Support: 01/03-10/06 (Co-PI: Fouad, Vaidya), \$180,400	NSF
9. <b>PI</b> , "NSF International Workshop on Disaster Mitigation Construction”(NSF-CMS-4198931) Period of Support: 10/05-10/06 \$40,000	NSF
10. <b>PI</b> , “Research Experience for Undergraduates Students on Disaster Mitigation Construction”, (NSF -CMS-0329213) Period of Support: 01/03 – 10/06 \$18,000	NSF
11. <b>PI</b> , “Research Experience for Undergraduates Students on Panelized Construction”, (NSF - CMS-0634573) Period of Support: 01/06 – 12/08 \$18,000	NSF
12. <b>PI</b> , “Fly-By Image Processing for Real Time Congestion Mitigation”;	USDOT

(UTC STRIDE 2012-0365);

Period of Support: 11/18- 11/21

National Transportation Center Collaborative Project

With University of Florida; US DOT

\$240,000

13. **PI**, “Cost-Effective VARTM Technology for Repair and Strengthening-Phase III,” Alabama DOT/FHWA 930-607B

ALDOT/

FHWA

Period of Support: 10/09-1/12

(Co-PI: Vaidya); \$150,250

14. **PI**, Fulbright Scholarship, “Catalyzing US-Bangladesh Collaboration to Advance Green Building Technologies for Windstorm and Storm Surge Mitigation”

US Department of State

Period of Support: 01/08-12/09)

\$50,000 (Exp. Incurred)

15. **PI**: Bridge Rail Design Procedures

USDOT

USDOT NCTSPM 2013-046

Period of Support: 01/14- 01/17; US DOT;

National Transportation Center Collaborative Project

With Georgia Institute of Technology

\$300,000;

16. **PI**: Field Validation of a Drive-By Bridge Inspection System

USDOT

with Wireless BWIM +NDE Devices USDOT NCTSPM 2013-010

Period of Support: 01/14- 01/17; US DOT;

National Transportation Center Collaborative Project

With Georgia Institute of Technology;

\$600,000

17. **PI**, Impact and Feasibility Study of Solutions for Doubling

USDOT

Heavy Vehicles; (USDOT NCTSPM 2012-60);

Period of Support: 04/12- 01/16;

National Transportation Center Collaborative Project

With Georgia Institute of Technology

\$443,648

18. **PI**, Next-Generation Wireless Bridge Weigh-in-Motion (WIM)

USDOT

System Incorporated with Nondestructive Evaluation (NDE) Capability for Transportation Infrastructure Safety (USDOT NCTSPM 2012-007);

Period of Support: 04/12- 01/16; US DOT;

National Transportation Center Collaborative Project

With Georgia Institute of Technology

\$797,554

18. **PI**, Consequence Based Route Selection for Hazardous Material Cargo:

USDOT

GIS-Based Time Progression of Environmental Impact Radius of Accidental Spills”;

Period of Support: 04/12- 01/16 (UTC STRIDE 2012-0365);

National Transportation Center Collaborative Project

With University of Florida; US DOT

\$220,000	
19. <b>PI</b> , “Assessment of Long-time Behavior for Bridge Girders Retrofitted with Fiber Reinforced Polymer (FRP) Using Accelerated-time Concepts” Alabama DOT/FHWA 930-773R Period of Support: 1/1/12 – 12/1/13 \$175,000	ALDOT/ FHWA
20. <b>PI</b> , “Cost-Effective VARTM Technology for Repair and Strengthening-Phase II,” Alabama DOT/FHWA 930-607A Period of Support: 04/06-04/09 (Co-PI: Vaidya) \$140,611	ALDOT/ FHWA
21. <b>PI</b> , “Cost-Effective VARTM Technology for Repair and Strengthening-Phase I,” Alabama DOT/FHWA 930-607 Period of Support: (05/05-11/06) (Co-PI: Vaidya) \$139,380	ALDOT/ FHWA
22. <b>PI</b> , “Demonstration of Cost-effective VARTM Technology for Repair and Strengthening- A Case Study with I-565 Highway Bridge,” ALDOT/FHWA 930-549 Period of Support: 03/03-02/05 (Co-PI: Vaidya) \$143,611	ALDOT/ FHWA
23. <b>PI</b> , “Anacostia River Park Pedestrian Bridge Project-Novel Technology Demonstration,” Period of Support: 06/05 - 08/06 (Co-PI: Vaidya, Husman) \$1,000,000 (UAB \$200,000)	Washington DC DOT/ FHWA
24. <b>PI</b> , “Use of WIM Data for Site-specific LRFR Bridge Rating” UTCA 10204, Period of Support: (01/10-12/10) (Co-PI: Waldron) \$65,000	UTCA/ US DOT
25. <b>PI</b> , “VARTM Technology for Repair and Strengthening,” UTCA-3405; Period of Support: 04/03-01/05 (Co-PI: Vaidya) \$120,611 (\$50k Matching)	UTCA/ US DOT
26. <b>(Co-PI)</b> “Bridge Weigh-In-Motion (BWIM) System Testing and Evaluation,” UTCA 07212; Period of Support: 03/07-06/08 (PI: Hitchcock; co-PI: Sisiopiku, Salama, Kirby, Anderson, Toutanji) \$350,000 (with ALDOT Purchase of \$200,000 Equipment)	UTCA/ DOT
27. <b>(Co-PI)</b> “Expanding Portable BWIM Technology,” UTCA 08204; Period of Support: 07/08-06/09 (PI: Hitchcock; co-PI: Sisiopiku, Salama, Kirby, Anderson, Toutangi),	UTCA/ DOT



\$150,000	
28. <b>Co-PI</b> , “Vestavia School Pedestrian Bridge Project-Novel Technology Demonstration,” Period of Support: 10/11 - 12/11 (PI: Jackson, Co-PIs: Fouad, Andrew, Vaidya) \$200,000	FHWA/ IBRC
29. <b>Co-PI</b> , “Multidisciplinary Commercial Motor Vehicle Safety Research Program”; Federal Motor Vehicle Safety Period of Support: 9/03-9/06 (PI: Fouad; Co-PIs: Sisiopiku, Peters) \$275,000	US DOT
30. <b>Co-PI</b> “GATE Center at UAB for advanced Lightweight Materials Technologies,” Period of Support: 03/06-03/12 (PI: Vaidya, Co-PI: Shih, Eberhardt) \$600,500	DOE
31. <b>PI</b> , “Low cost Composite Wrap to Enhance the Dynamic Damage Resistance of Bridges," UTCA-4210 Period of Support: 07/03-01/05 (Co-PI: Vaidya) \$100,000 (\$50k Matching)	UTCA/ DOT
32. <b>PI</b> , "Vulnerability Reduction of Bridge Structure," UTCA-3229; Period of Support: 06/04-12/05 (Co-PI: Vaidya), \$100,000 (\$50k Matching)	UTCA/ DOT
33. <b>PI</b> , "Cost-Effective Thermoplastic Technology for Vehicular Bridge Superstructure," UTCA- 5228, Period of Support: 06/05-12/06 (Co-PI: Vaidya) \$100,000 (\$50k Matching)	UTCA/ DOT
34. <b>Co-PI</b> , “Sustainable Green Construction”, Period of Support: (2009) (PI: Robert Peters, Co-PI: Kirby, Watts) \$4,000	STERN GRANT
35. <b>PI</b> , “Homeland Security-Critical Infrastructure Protection”, Period of Support: 2004 (Co-PI: Robert Peters) \$3,000	STERN GRANT
36. <b>PI</b> , “Advanced Sensor Technology for Infrastructure Protection” Period of Support: 2004 (Co-PI: Robert Peters) \$3,000	STERN GRANT
37. <b>PI</b> , “Advanced FRP Composite for Infrastructure” Period of Support: 2005	STERN GRANT

(Co-PI: Rizk, Vaidya),  
\$2,500  
38. **PI**, “Natural Hazard Mitigation” STERN GRANT  
Period of Support: 2006  
\$2,500  
39. **PI**, “Anacostia River Trail Park Bridge Design-Preliminary Washington DC DOT/  
Study” US DOT  
Period of Support: 01/04 - 12/05  
(Co-PI: Fouad, Vaidya)  
\$40,000  
40. **PI**, Anacostia River Trail Park Bridge Design-Final Design, Washington DC DOT/  
Period of Support: 01/05 - 12/06 US DOT  
(Co-PI: Fouad, Vaidya)  
\$160,000  
41. **PI**, UAB Bus Study, Parking and Transportation UAB  
Services; Period of Support: 01/03-12/03  
(Co-PI: Jones)  
\$40,000  
42. **PI**, “Seismic Design for Concrete-Face Rockfill Dams” Faculty Development Grant  
Period of Support: 1999  
\$50,000  
43. **PI**, “Multimedia application in the Structural Design” EXCEL FIIG  
Period of Support: 1999  
\$30,000  
44. **PI**, “GPS Surveying Equipment for the HAZUS Center” FEMA  
Period of Support: 2000  
\$10,000  
45. **PI**, “Multimedia Application in the Structural Design” EXCEL FIIG  
Period of Support: 2000  
\$30,000  
46. **PI**, “Modification of Ground Motion due to Underground Mining” ARSAF  
Period of Support: 2000  
\$17,500  
47. **Co-PI**, “Develop DMS System for SW Indiana” Sandia National  
Period of Support: 1999-2001 Laboratories, NM  
(City of Evansville, IN).  
\$658,000  
48. **PI**, “Assessing Seismic Vulnerability of Transmission Structures” EPRI /DRC  
Period of Support: 2000  
\$4000  
49. **Co-PI**, “Creating Inclusive Transportation Systems in Smart Cities: CAS Interdisciplinary  
Team Realizing the Right to Mobility for People with Disabilities Proposal competition  
in Birmingham”,  
Period of Support: 04/21-04/22;  
\$44,773  
50. **Co-PI**, “Addressing Urban Heat Mitigation, Health, Equity and UAB SOE  
Climate Change Issues in Birmingham, Alabama”  
Period of Support: 05/22- 05/23  
\$50,000

## VIII. TEACHING ACTIVITIES

<u>Undergraduate Courses</u>	<i>Title</i>	<i>Credit Hours</i>
CE 499:	Senior Design Project	3
CE 450:	Structural Steel Design	3
CE 360:	Structural Analysis	3
CE 220:	Mechanics of Solids	3

<u>Graduate Courses</u>	<i>Title</i>	<i>Credit Hours</i>
CE 650/750:	Advanced Steel Structure	3
CE 568/468:	Wind and Seismic Load	3
CE 567/467:	Bridge Engineering	3
CE 664	Plate & Shells	3
CE 665	Structural Stability	3

### Undergraduate Senior Design Projects

1997-Present	Taught over 25 senior design classes topics ranging from innovative real design projects including sustainable resilient facility, airport, stadium, hydroelectric power facility etc. Some of the projects won awards because of the novelty, e.g.
1997	MUPEC Conference “Best Senior Design Project Award”, Faculty Advisor
2007	Federal Aviation Authority (FAA) <i>National Airport Design Competition</i> , 2 <sup>nd</sup> Place Award

## IX. MASTER’S AND PH.D. THESES DIRECTED AND FELLOWS SUPERVISED

### Postdoctoral Fellows Supervised

2009-2011	Dr. Amol Vaidya <i>Global Innovation Leader at Owens Corning - Owens Corning, Ohio</i>
2011-2013	Dr. Hua Zhao; <i>Associate Professor, Department of Structural Engineering, Hunan University, China</i>
2013-2015	Dr. Leslaw Kwasniewski <i>Department of Civil Engineering, University of Poland, Poland</i>
2015-2018	Dr. Wenfeng Du <i>Professor of Structural engineering, Henan University, China</i>
2018-2020	Dr. Lei Li <i>Assistant Professor, College of civil engineering, Zhengzhou University of Aeronautics, Zhengzhou, Henan, P.R. China</i>

### Doctoral Students Supervised and Directed as the Chair of the Committee

2005-2009	Amol Vaidya (PhD, '09) <i>Multifunctional Composite for Panelized Construction (won UAB student of the year 2009, won "Academic Excellence Award in Doctoral Category")</i>
2006-2010	Hua Zhao (PhD, '10) <i>Innovative Bridge Weigh-In-Motion (BWIM) System Testing and Evaluation for Highway Bridges</i>

- 2007-2011 Mohammed Mousa (PhD, '11)  
*Novel Structural Composite Panels for Disaster Resistant Construction*
- 2005-2012 Mohammed Shohel (PhD, '12)  
*Experimental Evaluation and Numerical Modeling of VARTM for Repairing and Strengthening of Concrete Structures*
- 2008-2012 Zhisong Zhao (PhD, '12)  
*Simulation of Bridge Weigh-in-Motion System Integrated with Bridge Safety*
- 2009-2013 Luis Ramos (PhD, '13)  
*Development of Vacuum Assisted Resin Transfer Molding (VARTM) Method for the Repairing and Strengthening of Concrete Structures*
- 2008-2013 Li Dong  
*Next-Generation Wireless Bridge Weigh-in-Motion System Incorporated with Nondestructive Evaluation Capability*
- 2009-2014 Adel A Elfayoumy (PhD, '14)  
*Impact and solution for doubling heavy vehicles in Roadway*
- 2010-2015 Rahul Kalyanker (PhD, '15)  
*Simulation of Bridge responses to Heavy Vehicles*
- 2011-2015 Marwan Mostafa (PhD, '15)  
*Sustainable Construction with Green Compressed Earth Block (GCEB)*
- 2013-2018 Ahmed Hattab (PhD, '18)  
*Drive-by Bridge Monitoring and Damage Identification (Won UAB student of the year 2017, won SOE best student 2017 and CCEE Best Student 2017 Awards; 2nd place winners of 2017 UAB Graduate School 3MT Doctoral and Master's competitions)*
- 2014-2019 Erik G Winardi (PhD, '19)  
*Simulation of Dynamic Interaction of Bridge with Wind and vehicle*
- 2014-2019 Yahya Mohamed Abd el Razek (PhD, '19)  
*Bridge Safety against Multihazard Extreme Events*
- 2015-2020 Chengjun Tan (PhD, '20)  
*Drive-by and Fly-by Bridge Network Damage Detection*
- 2016-2021 Zhenhua Shi (PhD, '21)  
*Fly-and Drive-by Vehicle-based Structural Health Monitoring of bridges*
- 2018- AbdelAziz I. Abdellatef (PhD Candidate, '18)  
*Integrated Structural Health Monitoring Techniques Using Community of Sensors*
- 2019- Emad Badiee  
*New Bridge Rail Design Procedure*
- 2020- Muhammad Eshki  
*Dynamic Data Driven Systems for Adaptive Resilience*

Masters Students Supervised

- 1999-2000 Tim A Maurer  
*Innovative Seismic Retrofitting for School Structures*
- 2001-2003 Amol A. Khotpal  
*Structural Characterization of Hybrid FRP-Autoclave Aerated Concrete Panel for Disaster Mitigation Construction*
- 2002-2004 Amol K. Vaidya  
*Performance Evaluation of 3D and Multifunctional Composite Structure for Infrastructure Application*

- 2003-2005 John D. Purdue  
*Ballistic Impact Performance Evaluation of Thermoplastic Reinforced Concrete Panels and Piers*
- 2004-2006 Nitin Futin  
*Post-Fire Behavior of Fiber Reinforced Polymer Wrapped Columns*
- 2004-2006 Abdul Moeed  
*Thermoplastic Composite Bridge Design for Anacostia River Trail Bridge Project*
- 2004-2006 Kedar Sehler  
*A Novel Sandwich Panel for Panelized Construction*
- 2005-2007 Casey Brown  
*Thermoplastic Bridge Superstructure for Military Applications*
- 2005-2007 Mohammed Mousa  
*Novel Multifunctional Panels for Panelized Construction*
- 2006-2008 Stephen Cauthen  
*Design method for Repairing of Bridge Girders using Innovative VARTM Processing*
- 2007-2009 Anand Patel  
*Reliability Analyses for the Housing for Wind Storm and Storm Surge mitigation construction*
- 2007-2009 Swapnil P Konde Deshmukh  
*Cost effectiveness of Thermoplastic Bridge Structures*
- 2007-2009 Rahul Kalyanker  
*Green FRP Composites for Panelized Construction*
- 2007-2009 Tonga Nguyen  
*Simulation of Storm Shelter against Wind Storm*
- 2008-2010 Amber Greer  
*LRFR Bridge Rating using WIM Data*
- 2009-2011 Elton D'Silva  
*Flood Protected Home for Hurricane Hazard Mitigation*
- 2010-2012 Li Dong  
*Wind Storm Resistance of Composite Structural Insulated Panels (CSIPs)*
- 2011-2013 Martin K Waruinge  
*Specifications and design guidelines for VARTM Repairing and Strengthening of Concrete Structures*
- 2011-2013 Malcolm Parrish  
*Innovative Processing for Bridge Repair*
- 2012-2014 Mohamed Hindam  
*The Construction Workers in Gulf Cooperation Council Countries*
- 2012-2014 Hisham Merhebi  
*Impact and Feasibility Study of Solutions for Doubling Heavy Vehicles*
- 2012-2014 Emad Badiee  
*Bridge Rail Design Procedure*
- 2013-2015 Adel Badiee  
*Nonlinear FE model for bridge dynamic impact*
- 2013-2015 Ahmed Hattab  
*Drive-By Bridge Damage Detection*
- 2014-2016 Yahya Mohamed Abd el Razek  
*Cyber-Physical System for Monitoring and Controlling Loads*
- 2014-2016 Chris Arias

- Assessment of Long-time Behavior for Bridge Girders Retrofitted with Fiber Reinforced Polymer (FRP) Using Accelerated-time Concepts*
- 2015-2017 Amin Pahlevannejad  
*Testing and Simulation of Reinforced Concrete Beams under Impact Loading.*
- 2016-2019 Heba Elsisy  
*Seismically Damaged Structure Performance Under subsequent Wind Event (2nd place winners of 2017 UAB Graduate School 3MT Master's competitions)*
- 2017-2019 Nathan Boswell  
*Issues and Challenges of AL Bridges*
- 2017-2019 Nainish Rajendra Munot  
*Multihazard Damage Detection Framework for Earthquake and Windstorm*
- 2017-2019 Rushikesh Surendra Chavan  
*Independent and Interrelated Multi-Hazard Performance*
- 2019-2021 Sannagoudar, Linganagouda Siddanagouda  
*Performance based structural Design*
- 2019-2021 Haibo Zhu  
*Aerodynamic Analysis of Utility Truck Safety in Severe Environments*
- 2020-2021 Sunny Dineshchandra Desai  
*Inspection using Drones*
- 2020- Shadrack Mboya  
*Innovative Shell Composite Structures*
- 2021- Pradeep Kumar Varma Kothapalli  
*Fly-by monitoring of bridge structures*
- 2021- Jeremy Lunsford  
*Flood resistant structural design*
- 2022- Saja Hamdan  
*Antifragile Infrastructure Solution*
- 2022- Rutvi Patel  
*Drone and Robotics Technology in the Construction Industry: The Future of Building*
- 2022- Jaldhi Bhupendra Patel  
*Comparative Study of Voided Bubble Deck Slab and U-Boot Beton Deck Slab*
- 2022- Chanunta Pitaksringkarn  
*Transportation Infrastructure due to Autonomous and Electric Vehicles*

Undergraduate Research Projects Supervised

- 2002-2003 Gentry Rust  
*VARTM Method for Bridge Repair*
- 2002-2003 Stacey Solava  
*VARTM Processing for Concrete*
- 2004 Dana Helton  
*Nanotechnology for Infrastructure*
- 2005 Holly A. Odom  
*Multihazard Design*
- 2005 Danielle Berry  
*Panelized Construction*

2006	Sajjad Haider <i>RC Mix Design for Higher Strength</i>
2005-2006	Deborah Myers <i>Disaster Mitigation Construction</i>
2005-2006	Janet Robertson <i>TP Technology for Building Repair</i>
2006-2007	Tujuana Shaw <i>TP Technology for Building Repair</i>
2006-2007	David Lovett <i>Bridge Pier Repair with TP Wrap</i>
2006-2007	Chelicia Hill <i>Bridge Strengthening Using Composites</i>
2006-2007	Anand Patel <i>Housing for Wind Storm and Storm Surge</i>
2007-2008	Stephanie Strong <i>Bridge Weigh-in-Motion Systems</i>
2002-2004	Malcolm Parrish <i>Innovative Processing for Bridge Repair</i>
2002-2004	Geoffrey J Collawn <i>Wireless NDE Integrated BWIM System</i>
2002-2004	Michael S Carpenter <i>Innovative Processing for Bridge Repair</i>
2003-2004	Michael Gleba <i>High Fidelity Bridge Truck Interaction Simulation</i>
2004-2005	Trace Rudolph <i>Nano Concrete Design for Higher Strength</i>

## **X. PROFESSIONAL ACTIVITIES**

### Professional Societies

1988-	American Society of Civil Engineers (ASCE) ASCE Council for Disaster Risk Management (CDRM), Secretary-Elect (2006-2007), Vice Chair (2007-2008), Chair (2008-2011), and Past Chair (2012-2014) Chair, ASCE Walter Huber Civil Engineering Research Award Committee (2019-2023) Member, Executive Committee of ASCE Infrastructure Resilience Division (IRD) Team Leader, ASCE CDRM Task Committee to develop webinar/short course on quantitative risk assessment (QRA) for natural hazards (2008-2012). Member, ASCE CDRM Task Committee to develop pre-standard/guideline for Multihazard Risk assessment (2007-2008).
1999-	American Society of Engineering Education
2003-	American Society of Mechanical Engineers (ASME)
2004-	American Composite Materials Association (ACMA)

### Editorial Boards

2016-	Editor-in-Chief, ASCE Journal of Natural Hazards Review Journal
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2018- Associate Editor, ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems  
2015- Editorial Board, International Journal of Building  
2018-2020 Guest Editor, Special Collection on “2017 Disasters: Sociotechnical Perspectives”  
2020-2021 Guest Editor, Special Collection on “A Global Pandemic: Sociotechnical Perspectives on COVID-19”

External Advisory Panels / Program Reviews

2005-2009 NSF-NEES Advisory Board for the Tsunami Resistant Structural Design: Guide and Code Development.  
2006-2012 National Science Foundation Network for Earthquake Engineering Simulation

Leadership Training

2008 OXFORD ROUND TABLE: Global Warming and Sustainable Development: Governing a Crisis in the University of Oxford, Oxford, England  
2010 NOAA (National Oceanic Atmospheric Administration) delegate for IATF panel on Mainstreaming Natural Disasters in Sustainable Development sponsored by OAS/UDSE/World Bank and NOAA Coastal Service Center, Charleston, South Carolina,

Grant Reviews

2000 Federal Emergency Management Agency (FEMA)  
2005- National Science Foundation (NSF) (CMMS, CMMI, CNS, CPS programs)  
2005-2006 The US Civilian Research & Development Foundation  
2005-2007 The United Nation Development Program  
2006 The United States AID Program  
2019- Transportation Consortium of South Central States

External Tenure/Promotion Reviews

2000- External Reviewers for tenure and promotion for the faculty from:  
Louisiana State University  
University of South Carolina  
University of New Mexico  
University of Florida  
Florida State University  
Florida International University

Journal Reviewer

International Journal of Natural Hazards  
Architectural Science Review (ASR)  
ACI Structural Journal  
ACI Materials Journal  
Journal for Composite Structures  
Journal of Reinforced Composite Plastics  
Journal of Engineering Structures  
International Journal of Natural Hazards  
Canadian Geotechnical Engineering Journal  
International Journal of Civil engineering Research and Practice  
International Journal of Construction & Building Materials



ASCE Journal of Natural Hazards Review  
 ASCE Journal of Composite for Construction  
 ASCE Journal of Materials in Civil Engineering  
 ASCE Journal of Structural Engineering  
 ASCE Journal of Bridge Engineering  
 ASCE Journal of Aerospace Engineering  
 ASCE Journal of Management in Engineering  
 ASCE Periodical of Leadership in Civil Engineering  
 ASCE SEI conference papers and ASEE conference papers  
 International Conference on Earthquake Engineering  
 IEEE Journal  
 FEMA Project Impact Publications

## **XI. DEPARTMENT, SCHOOL, UNIVERSITY, STATE, AND NATIONAL SERVICE**

### Department

2001- CCEE Faculty Search Committee (2002, 2005, 2010, 2016, 2020)  
 2004-2010 Undergraduate Program Director  
 2004- Tenure and Promotion Committee (Chair 2015-Present)  
 2005 SACS re-accreditation Visit Coordinator  
 2006 ABET Visit Coordinator, Primary author of the CE Program ABET Self Study Report  
 2019- Graduate Program Director

### School of Engineering (SOE)

2006-2006 School of Engineering ABET Accreditation Committee  
 2011-2013 School of Engineering Research Compliance Committee  
 2014-2018 Chair, School of Engineering Tenure & Promotion Committee  
 2018- School of Engineering Graduate Programs Committee

### University Committee (UAB)

2006-2008 University of Alabama at Birmingham (UAB) Curriculum and Research Committee  
 2016 - UAB HPC Advisory Committee & Research Scientists  
 2017- Engineering Member, UAB conflict of interest review board (IRB)  
 2020-2021 School of Engineering Dean Search Committee  
 2020- Center for Engagement in Disability Health and Rehabilitation Sciences (CEDHARS)

### National/ International

2000 NOAA (National Oceanic Atmospheric Administration) delegate for IATF panel on Mainstreaming Natural Disasters in Sustainable Development – Infrastructure Vulnerability Assessment workshop sponsored by OAS/UDSE/World Bank and NOAA Coastal Service Center, March 20-24, NOAA/CSC in Charleston, South Carolina.  
 2008-2012 The National Earthquake Hazards Reduction Program (NEHRP) Stakeholder Community  
 2006-2012 National Science Foundation Network for Earthquake Engineering Simulation  
 2007 US Delegate, Global Facility for Disaster Reduction and Recovery (World Bank) and World Congress on Urban Infrastructure in Developing Countries, New Delhi, India, November 12-16

- 2007 ASCE CDRM delegate for Quantitative Risk Assessment (QRA) of Multihazards at International Civil Engineering Conference, Taipei, Taiwan, June 27-30, 2007.
- 2008-2011 Chair for the ASCE Council of the Executive Committee of ASCE Council for Disaster Risk Management (CDRM) (2008-2011)
- 2008-2012 Team Leader of ASCE CDRM Task Committee to develop webinar/short course on quantitative risk assessment (QRA) for natural hazards.
- 2012 Led a US team (ASCE CDRM) of natural hazards experts to China to survey damage, participated in a world forum for China reconstruction, and overview of risk management activities of Wenchuan earthquake
- 2018- Technical Advisor, Training and Liaison for the Government of Bangladesh for the design and implementation of World Bank Funded URP/RAJUK/S-6: Establishment of Urban Resilience for the Capital City Project.

## XII. BOOKS PUBLISHED

1. Seismic Hazard Design Issues in the Central United States (ed. Uddin), (New York: ASCE, 2013); ASCE Council for Disaster Risk Management (CDRM) Publication (2013).
2. Developments in Fiber Reinforced Polymer (FRP) Composites for Civil Engineering (London: Woodhead Publishing, 2013), (ed. Uddin); ASCE Council for Disaster Risk Management (CDRM) Publication: ISBN 0 85709 234 0; May 2013; 560 pages 234 x 156mm hardback; £170.00 / US\$290.00 / €205.00
3. Blast Protection of Infrastructures and Vehicles Using Composites (ed. Uddin), (London: Woodhead Publishing, 2010): ISBN 1 84569 399 X; ISBN-13: 978 1 84569 399 2 March 2010 448 pages.
4. Disaster Risk Assessment and Mitigation, (ed. Uddin with Ang), (New York: ASCE, 2008) ISBN 9 78078 4410127, December 2008 paperback, 110 pages.
5. Wind storm and Storm Surge Mitigation Construction (ed. Uddin), (New York: ASCE, 2010) ISBN 978-0-7844-1081-3, 2010, 164 pp. (Foreword by President William J. Clinton)
6. Quantitative Risk Assessment for Natural Hazards (ed. Uddin with Ang), (New York: ASCE, 2010) ISBN 978-078441153-7, June 2011, Paperback 88 pages.
7. Models and Metrics for Sustainability and Resilience of Systems (ed. Uddin), (New York: ASCE 2017), ASCE-ASME Journal of Risk and Uncertainty special collection.

## XIII. PAPERS PUBLISHED OR IN PRESS

GoogleScholar profile: <https://scholar.google.com/citations?user=FFgpvkcAAAAJ&hl=en>

### *Full-Length Journal Articles (with supervised trainees)*

1. Comfort, L., and Uddin, N. (2022) “A Global Pandemic: Sociotechnical Perspectives on COVID-19”, Natural Hazards Review; Volume 23 Issue 4 - November 2022
2. Mohammed, Y., and Uddin, N. (2022) “Identification of bridge mode shapes using accelerometer Mounted on zero Gravity Robot”, World Journal of Engineering and Technology, (Accepted for Publication)
3. Tan, C., Zhao, H., Uddin, N., Yan, B. (2022) “A Fast Wavelet-Based Bridge Condition Assessment Approach Using Only Moving Vehicle Measurements”, *Journal: Applied Sciences*, November 2022 DOI: 10.3390/app122111277

4. Zhang, B, Tan, C., Zhao, H., Uddin, N. (2022) “An Extended Bridge Weigh-In-Motion System Without Vehicular Axles and Speed Detectors Using Non-Negative LASSO Regularization”, *Journal of Engineering Structures*, (Accepted for Publication)
5. Du, Wenfeng, Zhang, H., Zhou, Z, Wang, K, and Uddin, N. (2022) “Experiment and numerical simulation of innovative 3DPC thin shell structure”; *Journal of Thin-Walled Structures* (Accepted for Publication)
6. Zhao, H., Zhang, B, Tan, C., Uddin, N. (2022) “Exploring Time-Varying Characteristics in Drive-by Bridge Frequency Extraction with the Second Order Synchrosqueezing Transform”, *Journal of Sound and Vibration*, (Accepted for Publication)
7. Pedram, M., Taylor, S., Robinson, D. Uddin, N (2022). Experimental evaluation of heat transition mechanism in concrete with subsurface defects using infrared thermography. *Construction and Building Materials*; Volume 360, 19 December 2022, 129531
8. Pedram, M., Taylor, S., Robinson, D. Uddin, N (2022). Experimental investigation of subsurface defect detection in concretes by infrared thermography and convection heat exchange. *J Civil Struct Health Monit* (2022) 12, pages1355–1373 (2022). <https://doi.org/10.1007/s13349-022-00550-y>
9. Shi, Z. and Uddin, N. (2021) “Extracting multiple bridge frequencies from test vehicle - a theoretical study”; *Journal of Sound and Vibration*, (accepted for publication); Article number 115735, reference: YJSVI\_115735; S0022-460X(20)30565-4
10. Shi, Z. and Uddin, N. (2021) “Theoretical vehicle bridge interaction model for bridges with non-simply supported boundary conditions”, *Journal of Engineering Structures*, Volume 232, 2021, 111839, ISSN 0141-0296, <https://doi.org/10.1016/j.engstruct.2020.111839>.
11. Amgad Elbehriya, Omar Elnawawya, Magdy Kassemb, Amr Zahera, Nasim Uddin, Marwan Mostafa (2020) “Performance of concrete beams reinforced using banana fiber bars” *Journal Case Studies in Construction Materials*, Volume 13, December 2020, <https://doi.org/10.1016/j.cscm.2020.e00361>
12. Zhao, H.; Tan, C.; OBrien, E.J.; Uddin, N.; Zhang, B. Wavelet-Based Optimum Identification of Vehicle Axles Using Bridge Measurements. *Appl. Sci.* **2020**, *10*, 7485.
13. Tan, C., Elhattab, A., and Uddin, N. (2020) “Wavelet-Entropy Approach for Detection of Bridge Damages using Direct and Indirect Bridge Records”; *Journal of Infrastructure Systems*” Volume 26 Issue 4 - December 2020
14. Yahya M M, Nasim U, Chenjun T, Zhenhua S. (2020) “Crack Detection using Faster R-CNN and Point Feature Matching”. *Civil Eng Res J.* 2020; 10(3): 555790.DOI: 10.19080/CERJ.2020.10.555790.
15. Tan, C. and Uddin, N. (2020) “Hilbert transform based approach to improve extraction of "drive-by" bridge frequency”, *Smart Structures and Systems* Volume 25, Number 3, March 2020, pages 265-277; DOI: <https://doi.org/10.12989/sss.2020.25.3.265>
16. Tan, Chengjun, Uddin, N., Eugene J. Obrien, Patrick J McGetrick, and Chul-Woo Kim (2020). “Extracting Mode Shapes from Drive-By Measurements to Detect Global and Local Damage in Bridges.” *Structure and Infrastructure Engineering*; DOI: 10.1080/15732479.2020.1817105
17. Comfort, L. and Uddin, N. (2020). “Introducing the ASCE Journals’ Early Career Editorial Board” February 2020 *Natural Hazards Review* 21(1):01619001 Follow journal; DOI: 10.1061/(ASCE)NH.1527-6996.0000373
18. Shi, Zhenhua; Uddin, Nasim (2020), “Analytical solutions to VBI system (simply supported boundary condition) considering both vehicle and bridge damping effects and multiple bridge vibration modes”, *Mendeley Data*, V4, doi: 10.17632/m4z6mkwt6k.4
19. Tan, C. and Uddin, N. (2020) “Structural Health Monitoring of Bridges – the Conflicting Challenges of Detecting Global and Local Damage”, *Structure and Infrastructure Engineering* (accepted for publication)

20. Elhattab, A., Uddin, N., and OBrien, E., (2019) "Extraction of Bridge Fundamental Frequencies Utilizing a Smartphone MEMS Accelerometer"; *Journal Sensors*; 2019, 19(14), 3143; <https://doi.org/10.3390/s19143143>
21. Tan, Chengjun, Uddin, N., Eugene J. Obrien, Patrick J McGetrick, and Chul-Woo Kim (2019). "Extraction of Bridge Modal Parameters Using a Passing Vehicle Response." *Journal of Bridge Engineering (ASCE)*; Volume 24 Issue 9 - September 2019
22. Mohammed, Y., and Uddin, N. (2019) "Acceleration-Based Bridge Weigh-in-Motion"; *Journal of Bridge Structures* 14(4): 131-138.
23. Mohammed, Y., and Uddin, N. (2019) "Moving Force Identification for Real-Time Bridge Weigh-In-Motion"; *Journal of Bridge Structures*; 14(4): 139-145.
24. Qi Liu, Wenfeng DU, Uddin, N. and Zhi-yong Zhou (2019) "Experimental investigation of innovative composite folded thin cylindrical concrete shell structures"; *Journal of Thin-Walled Structures, Thin-Walled Structures* 137:224-230 · April 2019; DOI: 10.1016/j.tws.2019.01.014.
25. Sharath, P., Rajeev, A., Uddin, A., Shleke, A., and Uddin, N. (2018) "Probabilistic Contact Force Model for Low Velocity Impact on Honeycomb Structure Sustainable and Resilient Infrastructure", *Journal of Sustainable and Resilient Infrastructure*, vol.4, issue 2, pg 51-65; DOI: 10.1080/23789689.2018.1469359
26. Qi Liu, Wenfeng DU, Uddin, N. and Zhi-yong Zhou (2018) "Flexural Behaviors of Concrete/EPS-foam/Glass-fiber composite sandwich panel" *Journal of Advances in Materials Science and Engineering*, Volume 2018, Article ID 5286757, 10 pages; <https://doi.org/10.1155/2018/5286757>
27. Qi Liu, Wenfeng DU, Uddin, N. and Zhi-yong Zhou (2019) "Experimental investigation of innovative composite folded thin shell structures"; *Journal of Engineering Structures*, Accepted for publication.
28. Mohammed, Y., and Uddin, N. "B-WIM System using Fewer Sensor", *J. Transportation Management* (2018) Volume 1, Issue 2, doi:10.24294/tm.v1i2.701
29. Elhattab, A., Uddin, N., and OBrien, E., (2018) "Drive-By Bridge Frequency Identification under Operational Roadway Speeds Employing Frequency Independent Underdamped Pinning Stochastic Resonance (FI-UPSR)"; *Journal Sensors*; 2018, 18(12), 4207; <https://doi.org/10.3390/s18124207>
30. Tan, C. and Uddin, N. (2017) "'Drive-By' Bridge Frequency Based Monitoring Utilizing Wavelet Transform", *Journal of Civil Structural Health Monitoring*, November 2017, Volume 7, Issue 5, pp 615–620.
31. Elhattab A. and Uddin, N. (2017) "Drive-by Bridge Damage Monitoring: Concise Review", *Civil Eng Res Journal*, CERJ.MS.ID.555555 (2017), Volume 1 Issue 1 - July 2017
32. Lydon, M., Robinson, D., Taylor, S., Amato, G., Brien, E. J. O. & Uddin, N. "Improved Axle Detection for Bridge Weigh-In-Motion System using Fiber Optic Sensors , 12 Jul 2017, *Journal of Civil Structural Health Monitoring*. 7, 3, p. 325-332
33. Elhattab A. and Uddin, N. (2017) "Drive-by Bridge Damage Detection Using Non-Specialized instrumented vehicle", *Journal of Bridge Structures*, accepted for publication.
34. Elhattab, A., Uddin, N., and OBrien, E., 2016, "Drive-by bridge damage monitoring using Bridge Displacement Profile Difference," *Journal of Civil Structural Health Monitoring*, 6(5), pp. 839-850.
35. Kalyankar, R., and Uddin, N. (2017) "Axle Detection on Prestressed Concrete Bridge Using Bridge Weigh-In-Motion System", *Journal of Civil Structural Health Monitoring*, accepted for publication.
36. Zhao, Z. and Uddin, N. (2017) "Bridge Weigh-in-Motion Algorithms Based on the Field Calibrated Simulation Model" *ASCE Journal of Infrastructure System*, February 2016, *Journal of Infrastructure Systems*, Volume 23 Issue 1 - March 2017
37. Du, W. and Uddin, N. (2016) "Innovative Composite Structural Insulated Panels (CSIPs) Folded Shell Structures for Large-Span Roofs", *Journal of Materials and Structures*, February 2017, 50: 51.

doi:10.1617/s11527-016-0924-3

38. Kalyankar, R. R., and Uddin, N. (2017), "Simulation of Advanced 3D Finite Element Dynamic Vehicle Bridge Interaction Using Single and Multi-Vehicle Scenario for Obtaining Dynamic Amplification Factor," *Int. Journal of Bridge Engineering*, Volume 5, Issue 2 (May. - Aug. 2017).
39. Kalyankar, R. R., and Uddin, N. (2016), "Simulating the Effects of Surface Roughness on Reinforced Concrete T Beam Bridge under Single and Multiple Vehicles," *Advances in Acoustics and Vibration*, vol. 2016, Article ID 3594148, 12 pages, 2016. doi:10.1155/2016/3594148.
40. Mostafa, M. and Uddin, N. (2016) "Experimental analysis of Compressed Earth Block (CEB) with banana fibers resisting flexural and compression forces", *Journal of Case Studies in Construction Materials*, Volume 5, December 2016, Pages 53–63.
41. Kalyankar, R. R., and Uddin, N. (2016) "Analysis of Glass Fiber Reinforced Structural Insulated Panels (GSIPs) Under High Velocity Impact Loading", *International Journal of Emerging Technology and Advanced Engineering*, Volume 6, Issue 6, June 2016
42. Pandey, S., Haider, M. and Uddin, N. (2016) "Design and Implementation of a Low-Cost Wireless Platform for Remote Bridge Health Monitoring", *International Journal of Emerging Technology and Advanced Engineering*, Volume 6, Issue 6, June 2016
43. Lydon, M., Robinson, D., Taylor, S. E., O'Brien, E., Uddin, N. (2016) "Next generation bridge weigh-in-motion system: optimized using explicit finite element analysis" *ASCE Journal of Bridge Engineering*, Accepted for publication.
44. Uddin, N. and \*Du, W. (2015) "New Thin Shells Made of Composite Structural Insulated Panels", *Journal of Reinforced Plastics and Composites*, 2014, Vol. 33(21) 1954–1965
45. Mostafa, M. and Uddin, N. (2015) "Effect of Banana Fibers on the Compressive and Flexural Strength of Compressed Earth Blocks", *Journal of Buildings*, Volume 5, Issue 1, 282-296.
46. Zhao, H. and Uddin, N. (2014) "Field-Calibrated Algorithm to Identify Axle Weights for BWIM Systems"; *Structure and Infrastructure Engineering*, Structure and Infrastructure Engineering, Vol. 11, No. 6, June 2015, pp. 721-743.
47. Zhao, H. and Uddin, N. (2014) "Identification of Vehicular Axle Weights with a BWIM System Considering Transverse Distribution of Wheel Loads"; *ASCE Journal of Bridge Engineering*, Vol. 19, Issue 3, 2014.
48. Zhao, Z. and Uddin, N. (2013) "Determination of Dynamic Amplification Factors Using Site-Specific B-WIM Data" *ASCE Journal of Bridge Engineering*, Vol. 19, No. 1, January 1, 2014.
49. Zhao, Z. and Uddin, N. (2013) "Field Calibrated Simulation Model to Perform Bridge Safety Analyses against Extreme Events", *Journal of Engineering Structures*, 56 (2013) 2253–2262.
50. Ramos, L. and Uddin, N. (2013) "Benefits of Grooving on Vacuum Assisted Resin Transfer Molding (VARTM) FRP Wet-Out of RC Beams" *ASCE Journal of Composites for Construction*, Volume 17, Number 5, 636-641.
51. Mousa, M. and Uddin, N. (2013) "Response of Hybrid Sandwich Structures under Low Velocity Impact (LVI)"; *ACI Materials Journal*, Vol. 111, No. 1, February 2014, pp. 99-110.
52. Uddin, N., \*Dong, L., \*Nguyen, T.T. and \*Mousa, M.M. (2013) "Design of High Performance Composite Windstorm Shelter" *Journal of Solids and Structures* (accepted for publication).
53. Mousa, M. and Uddin, N. (2013) "Performance of Composite Structural Insulated Panels (CSIPs) after Exposure to Floodwater" *ASCE Journal of Performance for Constructed facilities*, Vol. 27, No. 4, August 2013.
54. Uddin, N. (2012) "Geotechnical Issues in the Creation of Underground Reservoirs for Massive Energy Storage", *IEEE Journal Special Issue: Addressing the intermittency challenge: Massive energy storage in a sustainable future*, (invited paper); Vol. 100, No. 2, February 2012.

55. Mousa. M. and Uddin, N. (2012) “Structural Behavior and Modeling of Full-Scale Composite Structural Insulated Wall Panels” *Journal of Engineering Structures*, Vol. 41, pp. 320–334.
56. Mousa. M. and Uddin, N. (2011) “Flexural Behavior of Full-Scale Composite Structural Insulated Floor Panels” *Journal of Advanced Composite Materials*, vol. 20, no. 6, pp. 547-567, 2011.
57. Kalyankar, R. R., and Uddin, N. (2012) “Structural Characterization of Natural Fiber Reinforced Polymeric (NFRP) Laminates for Building Construction”, *Journal of Polymers and the Environment*, Volume 20, Issue 1, March 2012, P. 224-229
58. Kalyankar, R. R., and Uddin, N. (2011) “Structural Characterization of Natural Fiber Reinforced Polymer Structural Insulated Panels (NSIPs) for Panelized Construction”, *Journal of Polymers and the Environment*, Volume 30, Issue 11, June 2011, P. 988-993
59. Uddin, N. and Kalyankar. R. and (2011) “Manufacturing and Structural Feasibility of Natural Fiber Reinforced Polymeric Structural Insulated Panels (NSIPs) for Panelized Construction”, *International Journal of Polymer Science*, Volume 2011 (2011), Article ID 963549, 7 pages; doi:10.1155/2011/963549
60. Elfayoumy, A., and Uddin, N. “Assessment of long-time behavior for bridge girders retrofitted with Fiber Reinforced Polymer (FRP)”, *Journal of Civil Engineering and Architecture* 9 (2015) 1034-1046 doi: 10.17265/1934-7359/2015.09.003
61. Elfayoumy, A. and Uddin, N. “Determination of representative truck by WIM data” *Journal of Civil Engineering and Architecture* 9 (2015) doi: 10.17265/1934-7359/2015.10.000
62. Mousa. M. and Uddin, N. (2011) “Global Buckling of Composite Structural Insulated Wall Panels” *Journal of Materials and Design*, volume 32, issue 2, year 2011, pp. 766 - 772
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***Book Chapters (with supervised trainees)***

104. N . Uddin , Li Dong , M . A . Mousa , F . J . Masters and G . Fernandez "Evaluation of system resilience of building panels through full-scale wind load and flood tests" , Safety, Reliability, Risk and Life-Cycle Performance of Structures and Infrastructures, Edited by George Deodatis , Bruce R . Ellingwood and Dan M . Frangopol, CRC Press 2014, Pages 1325–1329, Print ISBN: 978-1-138-00086-5; eBook ISBN: 978-1-315-88488-2; DOI: 10.1201/b16387-196
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### **Conference Papers (with supervised trainees)**

115. Y.M. Mohammed, C. Tan, N. Uddin "Fly-by Bridge Inspection using UAVs (standalone portable system)"; Proceedings of the 7th International Symposium on Life-Cycle Civil Engineering (IALCCE 2020), October 27-30, 2020, Shanghai, China
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120. C. Tan, and N. Uddin, Portable Bridge Weigh-In-Motion (P-B-WIM). Proceedings of the 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure, SHMII-9, St. Louis, MO, August 4-7, 2019
121. R. Lu, M. R. Haider, and Y. Massoud, "A three-coil coupled high-efficiency power link with resonant capacitor for wireless power transfer application," Accepted in IEEE WAMICON, paper ID: 1570527345, to be held on April 8-9, Coco Beach, Florida, 2019.
122. T. Zhang, M. R. Haider, and N. Uddin, "Class-associative structural health pattern recognition using

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  126. Key note paper for 2018 3rd International Conference on Vulnerability and risk analysis and management, 7th International Symposium on Uncertainty Modeling and Analysis, 4th International Symposium on Uncertainty Quantification and Stochastic Modeling in Brazil
  127. Tan, Chengjun, Nasim Uddin., and Ahmed Elhatab, “Utilizing Hilbert Transform to Assess the Bridge Health Condition Proceedings of the joint ICVRAM ISUMA UNCERTAINTIES conference. Florianopolis, SC, Brazil, April 8-11, 2018
  128. M. Yahya, N. Uddin, Field Verification for B-WIM System using Wireless Sensors. 27th ASNT Research Symposium, 2018, Orlando Florida, March 26, 2018
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  189. M. Mousa, N. Uddin (2010) “Global Buckling of Composite Structural Insulated Wall Panels”, ASCE Engineering Mechanics Institute 2010 Conference, Los Angeles, CA, August 8-11, 2010. Abstract was accepted.
  190. Zhao, H., Uddin, N., Hitchcock, W.A., Salama, T, and Ahmed, A. 2008 ““Innovative Bridge Weigh-in-Motion System for Enforcement and Bridge Maintenance: A Case Study with Bridge on Highway I-59,” Proceedings of the 10th International Bridge and Structure Management Conference, Buffalo, New York,(October 4-6).
  191. Zhao, H., Uddin, N., Hitchcock, W.A., Salama, T, and Ahmed, A. 2008 “Innovative Bridge Weigh-in-Motion System for Bridge Repair and Maintenance: A Case Study with Bridge on Highway I-59,” Proceedings of the Structural Faults & Repair-2008, Edinburgh, UK, (June 13-18) .
  192. Toutanji, H., Sisiopiku, V. P. , Hitchcock, W.A., Uddin, N. Salama, T, Kirby, J., and Richardson, J.A. 2008 “Bridge Weigh-In-Motion Technology,” Proceedings of the International Conference on Heavy Vehicles, Paris, France, (May 19-22).
  193. Sisiopiku, V. P., Chemmannur, J., Zhao, H., Toutanji, H., Hitchcock, W.A., Uddin, N. Salama, T, Kirby, J., and Richardson, J.A. 2008 “The U.S. Experience With New Generation Weigh-In-Motion Systems,” Proceedings of the International Conference on Heavy Vehicles, 10th International Conference on Application of Advanced Technologies in Transportation, May 27- 31, Athens, Greece.
  194. \*Uddin, N, Vaidya, A., Vaidya, U., and Fouad, H. 2008 “Innovative Multifunctional Structural Panels for Cost-effective Panelized Construction,” Proceedings of the National Science Foundation (NSF) Civil, Mechanical and Manufacturing Innovation (CMMI) Engineering Research and Innovation Conference, 16 pages, Knoxville, TN, (January 7-11).
  195. \*Uddin, N, Vaidya, A. and Vaidya, U. 2007 “Natural Fiber Reinforced Structural Insulated Panels for Cost-Effective Panelized Construction,” Proceedings of the National Science Foundation (NSF) Grantee Conference on International Research and Education in Engineering, Purdue University, 10 pages, West Lafayette, IN, (October 30-November 2).
  196. \*Uddin, N, Vaidya, A., and Vaidya, U. 2007 “Structural Characterization of Multifunctional Composites for Panelized Construction,” Proceedings of the International Conference on Mechanical Engineering, 2007 Conference, 10 pages, Dhaka, Bangladesh, (December 27-31).
  197. \*Uddin, N, Vaidya, A., and Vaidya, U. 2007 “Impact Characteristics of Composite Structural Insulated Panels (CSIPs) For Panelized Construction,” Proceedings of the Materials Science and Engineering Technology 2007 Conference, 8 pages, Detroit, Michigan, (October 11-17).
  198. \* Vaidya, A., Uddin, N, and Vaidya, U. 2007 “Manufacturing and Structural Characterization of Innovative Open Core Sandwich Composites”, Proceedings of the Fourth International Conference on FRP Composites in Civil Engineering (CICE 2007),6 pages, Hong Kong, China, (December 23-25).
  199. Uddin, N. 2007 “Quantitative Risk Analysis for Wind Hazards,” Proceedings of the 4th Civil Engineering Conference in the Asian Region, 10 pages, Taipei, Taiwan, (June 25-27).
  200. \*Uddin, N, Vaidya, A., and Vaidya, U. 2007 “Thermoplastic Composite Structural Insulated Panels (CSIPs) for Panelized Construction”, Proceedings of the SAMPE Conference, 8 pages, Long Beach, California, (August 11-17).

201. \*Uddin, N, Vaidya, A., and Vaidya, U. 2007 “Composite Structural Insulated Panels (CSIPs) For Flood and Storm Resistant Building Construction”, Proceedings of the CDRM Symposium, ASCE Annual Conference, 10 pages, Chicago, Illinois, (October 8-11).
202. \*Uddin, N., Purdue, J., and Vaidya, U. 2006 “Feasibility of Low Cost Thermoplastic Composite for bridge pier protection”, Proceedings of the Third International Conference on FRP Composites in Civil Engineering (CICE 2006), 4 pages, Miami, Florida, USA, (December 13-15).
203. \*Uddin, N, Purdue, J., and Vaidya, U. 2006 “Concrete Columns Strengthened with Prefabricated Polypropylene Wrap under Low Velocity Impact”, Proceedings of the ASCE SEI Conference, 8 pages, St. Louis, MO, (November 11-14).
204. \*Uddin, N, Shohel, M., Vaidya, U., and Serrano, J. 2006 “Bridge Retrofitting using Vacuum Assisted Resin Transfer Molding (VARTM) Process,” Proceedings of the Structural Fault and Repair Conference-2006, 10 pages, Edinburgh, England, (June 13 - 15).
205. \*Uddin, N, Abro, A. M., Kos, E., Husman, G., Vaidya, U., and Serrano, J. 2006 “Design and Manufacturing of Low Cost Thermoplastic Composite Bridge Superstructures- A Case Study”, Proceedings of the Structural Fault and Repair Conference-2006, 10 pages, Edinburgh, England, (June 13- 15).
206. \*Uddin, N, Abro, A. M., and Vaidya, U. 2006 “Design and Manufacturing of Low Cost Thermoplastic Composite Bridge Girder”, Proceedings of the Third International Conference on FRP Composites in Civil Engineering (CICE 2006), 6 pages, Miami, Florida, USA, (December 13-15).
207. \*Uddin, N, Purdue, J., and Vaidya, U. 2006 “Concrete Columns Strengthened with Prefabricated Polypropylene Wrap under Low Velocity Impact”, Proceedings of the ASCE SEI Conference, 8 pages, St. Louis, MO, (November 11-14).
208. \*Uddin, N, Sehler, K., and Fouad, F. 2005 “Impact Response of Hybrid Autoclave Aerated Concrete/FRP Sandwich Structures, Proceedings of the International AAC Conference, 10 pages, London, UK, (November 18-21).
209. \*Vaidya, A., Uddin, N., and Vaidya, U. 2005 “Vibration Response of Multifunctional Sandwich Composites Applicable in Commercial Motor Vehicles”; Proceedings of the SAMPE Conference, 10 pages, Long Beach, California, (August 3-11).
210. \*Uddin, N, Farhat, N., and Vaidya, U. 2005 “Low Cost Thermoplastic Technology for Vulnerability Reduction of Bridge Structures”; Proceedings of the ACI Annual Conference, 10 pages, Kansas City, MO, (November 17-21).
211. \*Uddin, N., and Maurer, T. 2005 “Seismic Retrofitting of Typical Building Systems”; Proceedings of the First Bangladesh Earthquake Symposium, 12 pages, Dhaka, Bangladesh, (December 14-15).
212. \*Uddin, N. 2005 Key Note Speaker Presentation: “Disaster Reduction Strategy on Coasts of the Indian Ocean”; Proceedings of the 1st NSF International Workshop on Innovation on Wind Storm and Storm Surge Mitigation, 10 pages, Dhaka, Bangladesh, (December 19-21).
213. \*Uddin, N., and Vaidya, U. 2004. “Potential Application of Nanoclay Relevant to Infrastructure Application”. Proceedings for NASA Nano-Technology Conference. ASCE/SEI 2004 Structures Congress, 12 pages, Nashville, TN, (March 4-7).
214. \*Vaidya, A., Uddin, N., and Vaidya, U. 2004. “Multifunctional Sandwich Materials for Mass Transit Applications”, Proceedings of the Conference on Intelligent Transit, 10 pages, Miami, FL, (March 20-23).
215. \*Vaidya, U., and Uddin, N. 2004. “Performance Evaluation of Fiber Reinforced Polymer (FRP)-AAC Sandwich Beams”. Proceedings of the Developments in Theoretical and Applied Mechanics. Vol XXII,

- 5 pages, Center for Advanced Materials (T-CAM) Tuskegee University, AL, (November 11-12).
216. \*Vaidya, U., and Uddin, N. 2004. "Hybrid Fiber Reinforced Polymer (FRP) – Autoclave Aerated Concrete (AAC)" Proceedings of the ASC/ASTM-D30 Joint 19th Annual Technical Conference, 8 pages, Atlanta, GA, (October 21-23).
217. \*Uddin, N., Fouad, Vaidya, A., and Khotpal, A. 2004. "Novel Hybrid Panels for Panelized Building Construction", Proceedings of the NSAMPE Conference, 10 pages, Long Beach, California, (August 7-10).
218. \*Uddin, N., Fouad, F., Vaidya, A. and Nadim, F. 2003. "Vulnerability Reduction for Bridge Structures Using Glass Reinforced Polypropylene Composite Wrap". Proceedings of the NSF Workshop, 10 pages, Cairo, Egypt, (December 13-19).
219. \*Vaidya, U., Uddin, N., and Vaidya, A. 2004. "Multifunctional Sandwich Materials for Mass Transit Applications", Proceedings of the Conference on Intelligent Transit, 10 pages, Miami, FL, (March 20-23).
220. \*Uddin, N., Fouad, Vaidya, A., and Khotpal, A. 2003. "Structural Characterization of Hybrid Fiber reinforced Polymer (FRP) – Autoclave Aerated Concrete (AAC) Panels". Proceedings of the NSF Workshop, 10 pages, Cairo, Egypt, (December 13-19).
221. \*Vaidya, U., Uddin, N., Serrano-Perez, S.C., and Shohel, M. 2003. "In-plane De-bond Response of Vacuum Resisted Resin Transfer Molded Carbon Fiber Sheet on Concrete Substrata", 8 pages, Proceedings of the International Composite Materials Conference, London, UK, (May 2-8).
222. Uddin, N., 2003. "Disaster Management System for Protecting Critical Infrastructure Against Natural Hazards". Proceedings of the 4th Joint Symposium on IT in Civil Engineering, 10 pages, Nashville, (July 13-14).
223. Uddin, N., 2003. "Advanced Composite Solution for Shore line Facilities", Proceedings of the Third International Coastal Structures Conference, 8 pages, Portland, OR, (December 16-18).
224. Uddin, N., Fouad, F., and Davidson, J., 2003. "Outcome Assessment of Engineering Education: Role of Industrial Advisory Board". Accepted for publication in the Proceedings of the ASEE (American Society of Engineering Education) '03 National Conference at Nashville, 10 pages, Tennessee, (May 21-23).
225. Uddin, N., and Vaidya, U. 2003. "Cost-effective VARTM Processing for Bridge Retrofitting". Proceedings of the Composite Structures for Repairing Conference", 8 pages, Los Angeles, California, (October 23-24).
226. Uddin, N., and Vaidya, U. 2003. "Potential Application of Nanoclay Relevant to Infrastructure Application". Proceedings of the NASA Nano-Technology Conference". ASCE/SEI 2004 Structures Congress, 10 pages, Nashville, TN, (June 14-15).
227. Uddin, N. 2002. "Survivability of Composite Structures for the Shore Facilities". Proceedings of the ASCE Technical Conference on Shore Engineering, 10 pages, Los Angeles, California (July 11-13).
228. Uddin, N. 2002. "Seismic Retrofitting of School System in the Mid West USA". Proceedings of the ASCE Technical Conference on Architectural Engineering Institute Annual Conference, 6 pages, Austin, TX (September 2-4).
229. Uddin, N. 2002. "Infrastructure Modeling for the Disaster Management System". Proceedings of the ASCE Technical Conference on Life Line Earthquake Engineering, 10 pages, Seattle, WA, (October 3-5).
230. Uddin, N. 2002. "Vulnerability and Survivability of Composite Structures". Proceedings of the Middle East International Composite Conference, 11 pages, Cairo, Egypt, (December 17-19).



231. Uddin, N. 2001. "Vulnerability and Survivability of Affordably Produced Infrastructure-Relevant Composite Structures". Proceedings of the Structural Engineering Congress, 8 pages, Tokyo, Japan, (May 16-19).
232. Uddin, N. 2001. "Affordably Produced Composite Materials for the Emergency Shelters and Safe Houses". Proceedings of the ASME-IMECE Conference, 10 pages, New Orleans, LA, (February 15-18).
233. Uddin, N. 2001. "Seismic Evaluation of Embankment Dam". Proceedings of the ASCE International Conference on Geotechnical Earthquake Engineering, 10 pages, San Diego, California, (March 10-17).
234. Uddin, N. 200. "Earthquake Deformation of Earth and Rockfill Dams". Proceedings of the International Conference on Structural Dynamics, 8 pages, Los Angeles, California, (February 4-7).
235. Uddin, N. 2001. "Seismic Evaluation and Remediation of Webber Dam." Proceedings of the International Conference on Soil Dynamics, 6 pages, Philadelphia, PA, (August 10-13).
236. Uddin, N. 2000. "Deep Excavation in Shale for Hydroelectric Power Facility". Proceedings of the ISCES International Conference on Computational Engineering and Sciences. UCLA, 8 pages, Los Angeles, California, (August 10-13).
237. Uddin, N. 2000. "Analysis of Underground Powerhouse Cavern against High Pressure Brine Water". Proceedings of the ISCES International Conference on Computational Engineering and Sciences. UCLA, Los Angeles, California, (August 10-13).
238. Uddin, N. 2000. "Design of Large Underground Plugs". Proceedings of the 14th ASCE EMD (Engineering Mechanics Division) Conference. University of Texas at Austin, 4 pages, Austin, Texas, (May 7-9).
239. Uddin, N. 2000. "Reliability-Based Concrete Plug Design for Mine Closure". Proceedings of the Eighth ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability, University of Notre Dame, 8 pages, Notre Dame, Indiana, (July 24-26).
240. Uddin, N. 1999. "Seismic Evaluation and Remediation of Croton Dam". Proceedings of the ASCE International Conference on Hydropower WATERPOWER 99, 10 pages, Las Vegas, NM, (August 10-12).
241. Uddin, N. 1999. "Design of Concrete Face Slab for the Concrete-Face Rockfill Dams for the Strong Earthquakes". Proceedings of the International Conference on Dam Engineering, 12 pages, London, UK, (March 21-28).
242. Uddin, N. 1999. "Seismic Analysis of Concrete-face Rockfill Dams during Strong Earthquakes". Proceedings of the 11th Nonlinear Finite Element Analysis and ADINA conference, 8 pages, MIT, Cambridge, MA, (June 11-14).
243. Uddin, N. 1999. "Earthquake Forces in Slab of Concrete-Face Rockfill Dams". Proceedings of the ICOLD/USCOLD Fifth International Benchmark Workshop on Numerical Analysis of Dams, 10 pages, Denver, CO, (June 2-5).
244. Uddin, N. 1999. "Numerical Analysis of the Powerhouse Cavern Setting for a Pumped Storage Project". Proceedings of the Geo-engineering for Underground Facilities. ASCE Special Conference, 8 pages, Urbana, IL, (March 2-5).
245. Uddin, N. 1999. "An analytical Solution to Design Face Slab for Concrete-Face Rockfill Dams". Proceedings of the 13th ASCE EMD (Engineering Mechanics Division) Conference, 4 pages, John Hopkins University, Baltimore, MD, (June 7-9).
246. Uddin, N. 1998. "Southwestern Indiana HAZUS demonstration Project". Proceedings of the CUSEC (Central United States Earthquake Consortium) Conference. 6 pages, Louisville, KY, (June 14-16).

247. Uddin, N. 1998. "Teaching Structures using MATHCAD: Incorporation of Design Education and Practice". Proceedings of the ASEE (American Society of Engineering Education) '98 Conference at Carbondale, 10 pages, Illinois, (March 8-11).
248. Uddin, N. 1998. "Integration of Design in a junior level STRUCTURES course using MATHCAD". Proceedings of the ASEE (American Society of Engineering Education) '98 Central Conference at Detroit, 10 pages, Michigan, (April 21-23).
249. Uddin, N. 1998. "Lessons from the Failure of the Lower Saranac Dams. "Filter and Drainage. Proceedings of the ASCE Annual Conference, 6 pages, Boston, MA, (October 2-5).
250. Uddin, N. 1998. "Stabilization and Mine Closure Design of Salt Mine". Grout and Grouting. Proceedings of the ASCE Annual Conference, 6 pages, Boston, MA, (October 2-5).
251. Uddin, N. 1997. "A Single-Step Procedure for Estimating Seismically Induced Permanent Displacement in Earth Structures". Proceedings of the 10th Nonlinear Finite Element Analysis and ADINA conference, MIT, 8 pages, Cambridge, MA, (June 18-20).
252. Uddin, N. 1997. "Dynamic Nonlinear Finite Element Analysis for Earth Dams". Proceedings of the 10th Nonlinear Finite Element Analysis and ADINA conference, MIT, Cambridge, MA, (June 18-20).
253. Uddin, N., and Bond, N. 1997. "Deep Excavation for Hudson Falls Hydroelectric Power Facility". Proceedings of the 36th U.S. Rock Mechanics Symposium ISRM International Symposium, 10 pages, New York, New York, (June 29-July 2).
254. Bond, N., and Uddin, N. 1997. "Detroit Salt Mine Closure Design". Proceedings of the 36th U.S. Rock Mechanics Symposium / ISRM International Symposium, 10 pages, New York, New York, (June 29-July 2).

#### Editorials

- 2018-2020 Guest Editor, Special Collection on "2017 Disasters: Sociotechnical Perspectives"  
 2020-2021 Guest Editor, Special Collection on "A Global Pandemic: Sociotechnical Perspectives on COVID-19"

#### **XIV. KEY NOTE/INVITED LECTURES / PRESENTATIONS**

1. Invited US DOT Presentation "Fly-by image processing for congestion mitigation"; November 17, 2021; <https://stride.ce.ufl.edu/2021/09/2021-stride-products-showcase/>
2. Organized and chaired ASCE Infrastructure Resilience Division Research Forum: 2021 Virtual Infrastructure Resilience Forum: Emerging Technologies, May 25, 2021.
3. Presentation to Alabama State DOHS "Community Opportunities and Outcomes for Antifragile Systems, Technology, and Learning Hub (COASTAL-Hub)" August 21, 2021
4. Presentation to ALDOT "Applications of Unmanned Aerial Systems Technologies for Element-Level Bridge Inspection", October 10, 2021.
5. Invited Southern Plain UTC Presentation "Drive-by and Fly-by Bridge Monitoring and Damage Detection Technology" Wednesday, September 23, 2020, 2:00 - 3:30 p.m.; Hosted via Zoom; 1 PDH Provided; Register at <https://www.eventbrite.com/e/118558570877>
6. Invited US DOT Presentation "Fly-by image processing for congestion mitigation"; June 3, 2020, 12 PM EST; <https://www.transportation.institute.ufl.edu/events/stride-webinar-fly-by-image-processing-for-real-time-congestion-mitigation/> [https://www.youtube.com/watch?v=nGFs2B3z\\_cg](https://www.youtube.com/watch?v=nGFs2B3z_cg)
7. Invited for the National Science Foundation (NSF) Infrastructure and Smart Cities panel, June 19-20, 2017 at the National Science Foundation in Arlington, Virginia

8. Key Note Paper Presentation “Dynamic Resiliency Index (R) Utilizing SHM Technique” at 2017 Resilience Colloquium, Albuquerque, NM
9. Key Note Paper Presentation “Risk management framework based on monitoring and assessment of infrastructures” at 2018 ICVRAM-ISUMA-Uncertainties - 3rd International Conference on Vulnerability and risk analysis and management, 7th International Symposium on Uncertainty Modeling and Analysis, 4th International Symposium on Uncertainty Quantification and Stochastic Modeling Conference, Florianopolis, Brazil
10. Invited for the National Windstorm Impact Reduction Program (NWIRP) Strategic Planning Stakeholders Workshop, Friday June 17-18, 2016 at the National Science Foundation in Arlington, Virginia
11. Distinguished Speaker, 1st International Conference on Advances in Civil Infrastructure and Construction Materials, Dhaka, Bangladesh jointly organized by Military Institute of Science & Technology (MIST), The University of British Columbia (UBC) and Canadian Society for Civil Engineering (CSCE), 14 - 15 Dec 2015
12. The World Bank publication of story on Dr. Uddin’s research on page 302 of Chapter 7: "Accelerating innovation and technology diffusion" in World Development Report 2010: Development and Climate Change.
13. Invited as “Resource Person” by for International Jute Study Group Research Strategy Workshop (2013)
14. Invited as key note speaker and panelists for a general session on Earthquake and Tsunami in Japan - Disaster Response for 2011 ASCE National Conference, Memphis, TN.
15. Organizing committee member of a joint ASCE-ASME Symposium ‘Risk of Extreme Storms Due to a Changing Climate’; April 25, 2013, Washington, DC.
16. Program Committee member of ASCE Symposium on Resilience Engineering, March 23, 2013; University of Delaware, DE.
17. Invited to organized and chair panel discussion on “The 2011 Earthquake and Tsunami in Japan: Risk Analysis and Management Perspectives” at International Conference on Vulnerability and Risk Analysis and Management (ICVRAM)/Fifth International Symposium on Uncertainty Modeling and Analysis (ISUMA 2011), April 11-13, 2011, Hyattsville, Maryland.
18. Invited and elected by ASCE to speak at the Global Facility for Disaster Reduction and Recovery (World Bank) and World Congress on Urban Infrastructure in Developing Countries, November 12-16, 2007
19. Presented invited seminar presentation on “Way Ahead: High Performance Infrastructures” in the Department of Civil and Environmental Engineering at Syracuse University, August 24, 2009.
20. Presented invited lecture in World Forum on Wenchuan Earthquake and Post-quake Reconstruction, October 10-11, 2008 at Tongji University, Shanghai, China.
21. Presented theme lecture on “US Experience with Bridge Weigh in Motion system” at International Workshop on BWIM, UAB, 2008.
22. Presented invited seminar presentation on “FRP Composites for High Performance Infrastructures” in the Department of Civil and Environmental Engineering at Northeastern University (2007).
23. Presented invited key note speech on risk assessment for wind hazards at the 4th International Civil Engineering Conference in the Asian Region, June 25-27, 2007, Taipei International Convention Center (TICC), Taipei, Taiwan.

24. Presented Invited lecture in Guest Lecture Series at Birmingham Southern College on Post-Katrina Recovery, Birmingham, Alabama, January 30, 2006.
25. Presented Invited lead-off paper at 1st Bangladesh Seismological Society Symposium on "International Symposium on Seismic Solution for Bangladesh", held in Dhaka, Bangladesh, on December 17-22, 2005.
26. Presented invited seminar presentation on "Natural Hazards: Structural Design and Construction with FRPs" in the Department of Civil and Environmental Engineering at University of Wisconsin, April 18, 2004.
27. Presented invited seminar presentation on "Seismic Retrofitting of Structures" in the Department of Civil and Environmental Engineering, Texas Tech University, Lubbock, Texas, February 18, 2001.
28. Presented invited seminar presentation on "Seismic Analysis of Dams" in the Department of Civil and Environmental Engineering, University of South Carolina, Columbia, South Carolina, January 21, 2001.
29. Presented invited seminar presentation on "Seismic Response of Structures and Natural Soil Masses" in the Department of Civil and Environmental Engineering, University of Utah, Salt Lake City, Utah, December 10, 2000.
30. Served as invited speaker and participant at the NOAA (National Oceanic Atmospheric Administration) IATF panel on "Mainstreaming Natural Disasters in Sustainable Development – Infrastructure Vulnerability Assessment Workshop" sponsored by OAS/UDSE/World Bank and NOAA Coastal Service Center, NOAA/CSC in Charleston, South Carolina, March 20-24, 2000.
31. Invited and conducted a 2-day training session on "Strategic Natural Hazard Mitigation" in the FEMA (Federal Emergency Management Agency) at the National Conference Project Impact Summit '99, December 12-16, Washington, D.C., 1999.
32. Presented invited speech on "Simulation and GIS based Computer Modeling for the Natural Hazards Mitigation" in the Conference on Earthquake Hazard for the Wabash Valley Seismic Zone, Vincennes, Indiana, September 2-3, 1999.
33. Presented invited speech on "Potential for Application of HAZUS at Dhaka, Capital City of Bangladesh," University of Engineering and Technology, July 24, 1998, Bangladesh.
34. Presented invited speech on "Southwestern Indiana HAZUS demonstration Project" at the CUSEC (Central United States Earthquake Consortium) Conference, Louisville, Kentucky, June 14-16, 1998.
35. Presented invited speech on "Dynamic Nonlinear Finite Element Analysis for Dams" in the 11th Nonlinear Finite Element Analysis and ADINA conference, June 18-20, MIT, Cambridge, 1997.

## **XV. PROGRAM DEVELOPMENT, IMPLEMENTATION, AND MANAGEMENT**

1. Organized and chaired ASCE Infrastructure Resilience Division Research Forum: 2021 Virtual Infrastructure Resilience Forum: Emerging Technologies, May 25, 2021.
2. Organized and chaired ASCE Infrastructure Resilience Division Research Forum 2017 Disaster June 11-13, 2018 at Reston, Virginia
3. Organizing committee member of a joint ASCE-ASME Symposium "Risk of Extreme Storms Due to a Changing Climate"; April 25, 2013, Washington, DC.
4. Program Committee member of ASCE Symposium on Resilience Engineering, March 23, 2013; University of Delaware, DE.
5. Under his leadership CDRM organized First International Conference on Vulnerability and Risk Analysis and Management (ICVRAM) April 11-13, 2011 at Hyattsville, Maryland (including key note

address by ASCE President Andrew W. Herrmann)

6. Organized and moderated panel discussion on “The 2011 Earthquake and Tsunami in Japan: Risk Analysis and Management Perspectives”
7. Served on the program committee, Moderated 3 sessions (TRACK: Risk methodologies and management; session multi-hazard analysis and risk assessment (also presented paper in the session); TRACK: Infrastructure Risk, management and protection; session on infrastructure systems);
8. Received NSF Grants to organize 1st international Workshop on Wind Storm and Storm Surge Mitigation Construction, in Dhaka, Bangladesh, December 18-23, 2005.
9. Organized and moderated a 2-day Symposium on Disaster Risk Management at ASCE 2005 National Conference, Los Angeles, CA following Hurricane Katrina, October 25-27, 2005.
10. Provided a 1-day discussion meeting on ABET assessment and CQI for CEE faculty at University of Alabama at Birmingham, January 2, 2003.
11. Provided a 2-day training session on Strategic Natural Hazard Mitigation in the FEMA National Conference Project Impact Summit '99, December 24-28, Washington, D.C., 2000.
12. Provided a 1-day training on Machine Foundation and Vibration for the staff engineers of the Berry Plastic Corporation, Evansville, Indiana, 1999.
13. Provided a 2-day training session on Strategic Natural Hazard Mitigation in the FEMA National Conference Project Impact Summit '99, December 12-16, Washington, D.C., 1999.
14. Hosted FEMA/CUSEC sponsored training session on hazard mitigation at UE, Evansville, Indiana, April 12-14, 1999.
15. Hosted a workshop for local architects and civil engineers on seismic safety and design, Evansville, Indiana, March 27, 1998.

## **XVI. COLLABORATIVE EXPERIENCES**

Professor Uddin’s teaching and research interests emphasizes national and international collaborative partnership to address problems by synthesizing scientific information and contextual understanding and create actionable knowledge. To facilitate and bolster his interdisciplinary research agenda, he has developed collaborative partnerships with the faculty, students, practitioners, and industrial partners from a wide range of institutions including:

### **Universities**

Bangladesh University of Engineering and Technology

BRAC University, Bangladesh

Columbia University

Dhaka University

Georgia Institute of Technology

Harvard University

Indian Institute of Technology, India

National Oceanic and Atmospheric Administration

Purdue University

Princeton University

Queen’s University at Belfast, UK

Stanford University

United States Geological Survey

University of Maryland

University Of Michigan  
University of California Berkeley  
University of California, LA  
University of California, San Diego  
University of Florida  
University of Center Florida  
University of Tokyo  
University College Dublin, Ireland  
World Bank

**Industry and National/International Laboratory partners participated in the research projects:**

Atomic Energy Commission, Dhaka, Bangladesh  
Argonne National Laboratory, Argonne, Illinois  
CRS, Builders Inc. at Alabama  
Coosa Composites, Alabama  
Idaho National Laboratory, Idaho Falls, Idaho  
KINGSPAN Group, London, UK  
National Composite Center, Dayton, Ohio  
National Science Laboratories, Dhaka, Bangladesh  
MPG, Composites Inc. at Alabama  
National Institute of Standard and Technology (NIST) Gaithersburg, MD  
Newport Ventures, Inc., Buffalo, NY  
Portage Casting and Mold, Portage, Wisconsin  
Sandia National Laboratory

**Visits from Industry & Venture Capitalist**

KINGSPAN Group, North Yorkshire, *YO17 8PQ*, UK  
[Mr. Brendan Murtagh and Dr. Malcolm Rochefort of Kingspan group]  
Newport Ventures, Inc., Schenectady, NY 12305  
[CEO Dr. Steven Shrader]  
David Bryson, Chairman/CEO, ThermaDesigns, LLC, 1301 Co Rd 803, Wedowee, AL 36278  
Randy Avery, CEO, Dome International, MS.  
Gill Mike, MFG Alabama, Montgomery, AL.  
Mike Ray, CEO, The Housing Group, Atlanta, GA.  
Willard Brann, Attorney from Atlanta involved with the rebuilding in New Orleans.  
Anthony Dwyer of COMPANEL  
John Daniel of BALVAC, Buffalo, NY  
Nadeem Quderi of GRG, Inc. of Montgomery, AL  
Jay Kelley of the JayBlock, Birmingham, AL  
Herb Margolis, CEO of InnoVida US Operations, and others.

**XVII. SELECTED POPULAR PRESS COVERAGE AND TV INTERVIEWS:**

**TV**

2007 NBC-13 lead news and interview reported (by Jon Paepcke) at Katrina Anniversary 2007 on

- hurricane resistant construction research, August 29, 2007.
- 2000 FOX affiliated WKTV-7 of Evansville; report on Disaster Resistant Community Initiatives, March 24, 2000.
- 2000 NBC affiliated WKTV-14 of Evansville, report on Project Impact Award, January 3, 2000.
- 2000 PBS affiliated WNIN-9 of Evansville, interview and report on Wabash Valley Earthquake, September 8, 2000.
- 1999 CBS affiliated WKTV- 44 of Evansville; report on Project Impact Project, September 23, 1999.
- 1999 FOX affiliated WKTV-7 of Evansville, news on interviews on the seismic retrofitting of Red Cross Building, January 11, 1999.
- 1998 ABC affiliated WRTV-6 of Indianapolis, lead news and interview reported (by Jack Rinehart, Senior Reporter), on disaster risk management research, September 14, 1998.
- 1998 NBC affiliated WKTV-14 of Evansville, news and interviews on seismic preparedness for the City of Evansville, June 13, 1998

### **Press/News/Media:**

<https://www.wbrc.com/2022/01/22/experts-say-rainbow-bridge-still-safe-foot-traffic-despite-being-closed-down-vehicles/>

<https://www.uab.edu/news/campus/item/11073-engineering-paper-on-sensor-aided-simulation-in-disaster-management-wins-best-of-conference-award>

<https://www.uab.edu/reporter/know-more/publications/item/9116-faculty-editors-share-ways-their-journals-are-responding-to-covid-19>

<https://www.uab.edu/reporter/know-more/research/item/8665-uab-team-wants-to-build-a-more-equitable-birmingham-through-sensors-and-sensitivity>

<https://www.uab.edu/engineering/home/news-events/school-of-engineering-news/two-soe-alumni-honored-with-young-alumni-rising-star-awards>

<https://www.uab.edu/reporter/research/grants-awarded/item/9434-cas-grants-spur-interdisciplinary-research>

Awarded World Bank funded Bangladesh Resilience Project (2020) as Resilience Training Team Leader  
<http://www.ur.gov.bd/en/content/page/21-power-point-slide-package-no-urp-rajuk-s-6>

- 2008 UAB Reporter: Cover Story “UAB Overseas Study Green Homes That Withstand Hurricanes”, Vol. 38, No. 36, pp: 1-2, December, 2008, <http://main.uab.edu/Sites/MediaRelations/articles/55613/>)
- 2008 Birmingham News: “UAB Professor Working on Hurricane Proof Housing”, December 8, 2008, (<http://www.al.com/news/birminghamnews/metro.ssf?/base/news/1228727745274480.xml&coll=2>)
- 2007 UAB Reporter: Cover Story “Researcher Develop Material to Withstand the Elements”; UAB Reporter, Vol. 31, No. 24, pp: 1-2, September, 2007.
- 2006 Mississippi Daily News: “Hurricane Katrina and Disaster Resistant Construction Research”, Interview with the Reporter, August 12, 2006.
- 2006 Birmingham News: “UAB Senior Design Project Focuses on Tarrant High School”, Section N, pp: 3-4, June 10, 2006.
- 2005 UAB Reporter: Cover Story “Stronger Material Combat Hurricane Winds”, UAB Reporter, Vol. 29, No. 47, pp: 1-2, October, 2005.
- 2000 Scholar: “Changing the Infrastructure: A Preemptive Strike”, Vol. 9, NO. 3, pp: 3-5, February 2000.

- 2000 Evansville Courier & Press: “UE Project Focuses on Red Cross Building”, Section A, pp:1-2, April 19, 2000.
- 1999 Evansville Courier & Press: “Computer Estimates Quake Would Kill Thousands”, Section A, pp: 3-4, November 11, 1999.
- 1998 Evansville Courier & Press: “UE Students, Prof to Help Make Area Nation’s First Showcase Community”, Section A, pp: 4, March 6, 1998.

## **XVIII. PROJECTS: SELECTED CONSULTING ACTIVITIES**

1. Design of Tornado Shelter for the FEMA approval, Green Safe Inc., Montgomery, Alabama.
2. Served as consultant for Birmingham Water Works for repairing water tank using innovative FRP technology.
3. Served as consultant for Streamline Automation, Huntsville, AL for Union Station Turbine Plant project at Little Rock, AR.
4. Seismic Retrofitting for Fire Stations and Public School for the Office of Building Commission at the City of Evansville.
5. Campus Industries Building, Inc at Buffalo, New York. Structural assessment of industrial/manufacturing buildings and retrofitting design for the Westvaco property building and Dorothy complex.
6. New York State Department of Transportation, Buffalo, New York. Analysis and design of bridge abutments, bridge piers, permanent retaining wall, temporary retaining wall (includes raking walls, sheet pile walls with soil anchor, rock anchor and tie back wall) and cofferdams for the excavation to build the Rt. 16 bridge over Buffalo River.
7. New York State Electric & Gas Corporation (NYSEG). Conceptual and detailed structural analysis including 3D finite element analysis for design of Hornell and Perry Service Centers microwave antenna support and mounting brackets.
8. Crystal Mines Inc., Detroit Salt Mine, Detroit, MI. Structural Analysis and detailed design of a steel head frame (space truss) and large concrete shaft plugs which included thermal control measures (pre-cooling and post-cooling the 6 plugs of 23 ft diameter and 30 ft deep) and stabilizing the existing mine pillars along with detailed mine investigations.
9. Finch, Pryun and Company, Inc., Glens Falls, NY. Performed 3D finite element analysis of the head wall structure to determine criteria for remedial design against deterioration.
10. South Glens Falls hydroelectric project, Glens Falls, NY. Performed 3D finite element analysis of the 15-ft dia steel penstocks to determine critical stress locations.
11. Webber dam hydroelectric project, Lyons, Michigan. Rehabilitation of concrete dam which included stability analysis of spillway, tainter gate piers and bear trap piers during demolition, reconstruction and final conditions. Also included conceptual design and structural analysis of abutment retaining walls, structural analysis and design of trunnion pins to support tainter gate piers, and structural analysis and design of new spillway slab beam.
12. Croton dam hydroelectric project, Rapid town, Michigan. Rehabilitation of concrete dam which included stability analysis of spillway, tainter gate piers and bear trap piers during demolition, reconstruction and final conditions. Also included conceptual and detailed structural design of a new counterfort wall (40 ft deep) to increase sliding stability of the spillway, trunnion pins to support tainter gate piers, new spillway slab beam, and finite element analysis of spillway foundation using a software MATS.
13. Finch, Pruyn and Company Inc., Glens Falls, NY. Analysis and design of a concrete masonry wall, rock anchors, and fish passage structure; stability analysis of south forebay wall, structural design of concrete



- overlays, structural design of fish passage and trashrack structure for, including preparation of design guidelines and construction specifications.
14. Summit Underground Pumped Storage Project (1,500 MW), Norton, Ohio. Development of design criteria for powerhouse caverns and pressure tunnels, finite- and boundary-element analyses of powerhouse caverns and pressure tunnels, design of preliminary rock supports for underground rock chambers, and stability analysis of powerhouse against 1400 psi gaseous brine pressure and developed test grouting program. Performed field and analytical study for characterization of insitu rock engineering properties by Hydraulic Fracturing and Dilatometer testing methods at 2200 ft level of existing mine.
  15. AKZO salt mine, Retsof, NY. Field and analytical study for characterization of in-situ rock engineering properties by Hydraulic Fracturing Method at 2000 ft below ground and set up GIS.
  16. Chulabhorn Pumped Storage Project (800 MW), Chulabhorn, Thailand. Development of design criteria for powerhouse caverns and pressure tunnels, finite- and boundary-element analyses of powerhouse caverns and pressure tunnels, design of preliminary rock supports for underground rock chambers, tailrace tunnels and power tunnels.
  17. Adirondack Hydro Development Corporation, NY. Developed and coded a computer program for "Beta Testing" the Adirondack Hydro Dev. Corp., NY (AHDC) - Finch, Pryun & Co., NY (FP) information management systems. This Fortran 77 program reads USGS data and simulates downstream gage, the penstocks, the intake channel flow and communication between two PC's (AHDC - FP). Output includes tables for FOXPRO.
  18. Alto Cachapoal hydroelectric power project, Chile. Established seismic design criteria for the seismic design of dams, embankments, power house, and designed field monitoring instrumentation.
  19. Lower Saranac hydro project, Plattsburg, New York. Field inspection and repair of embankment dam failure including stress analysis of penstocks, flow net analysis of the embankment dam, and design for repair of embankment dam failure at hydraulic intake structure and along the full length of twin 10 ft dia buried steel penstocks.
  20. Sivaco Treatment Plant, Buffalo, New York. Slope failure which includes evaluation of geotechnical testing report, data, and development of geotechnical design parameters and criteria, slope stability analysis and remedial design, and construction planning and cost estimating.
  21. Orleans County, New York for NY State Department of Transportation. Analysis and design of soldier pile cantilever retaining wall to support roadway embankment adjacent to Marsh Creek.
  22. Toronto Transit Commission, Toronto, Canada. Analysis and remedial design of landfill including selection of geotechnical design parameters and development of design criteria and slope stability analysis of landfill.
  23. Aleltu hydroelectric project, Aleltu, Ethiopia. Feasibility study including preliminary analysis and design of 65m Rikicha-Gamoro dam, preliminary analysis and design of 40m Chacha dam (main), and sensitivity analysis of geotechnical design parameters.
  24. Kents Falls hydro project, Clinton county, NY. Rehabilitation of gate bulkhead structure and intake structure including stability analysis of gate bulkhead and intake structure, rock anchor design and detailing for gate bulkhead and intake structure. Performed analysis and design of a braced cofferdam to reconstruct the gate bulkhead structure.
  25. South Glens Falls hydroelectric project, Glens Falls, NY. Evaluation of geotechnical testing, data and development of geotechnical design parameters and criteria, evaluation and analysis of geologic mapping data using DIPS software and stereographic plots. Also included determination of possible rock slope failure mechanisms and design of safe excavation slopes for excavation cuts up to 60 ft in height, embankment cofferdam stability analysis and design for multi phases construction, and design of stone protection (riprap) for embankment cofferdam.
  26. Hudson Falls hydroelectric project, Hudson Falls, NY. Analysis and design including rock anchor and rock bolt design for 100-ft deep cut in shale powerhouse, tailrace and intake structure excavation, design

- of rock reinforcement utilizing DIPS software for analyzing geologic mapping data and determining possible rock slope failure mechanisms from stereographic projections, analysis and design of embankment cofferdam, cellular cofferdam, and analysis and design of closure structure.
27. Tejas gas storage project, Tioga, PA. Induced Seismicity study and 3D geologic characterization of salt deposits for a and ridge province from geophysical logs of oil and gas exploration wells. Characterization included depicting the location of various geologic strata and probable fault.
  28. Aleltu hydroelectric project, Aleltu, Ethiopia. Liquefaction and seismic deformation analysis for 65 m Kicha-Gamoro Dam, and 40 m Chacha Dam.
  29. Consumers Power Inc., Michigan. Dynamic analyses to evaluate seismic stability of the Webber hydroelectric power project dams and designed remedial measures for Webber Dam at Rapid Town.
  30. Consumers Power Inc., Michigan. Dynamic analyses to evaluate seismic stability of the Croton hydroelectric power project dams and designed remedial measures for Croton Dam at Lansing, Michigan.
  31. Tejas gas storage project, Tioga, PA. Preliminary analysis and design for the foundations of process facilities of including machine foundation design for a large gas compressor and high capacity pumps.