

**MOHAMED ELGAWADY, Ph.D.**

Professor and Benavides Faculty Scholar  
Interim Director Center for Infrastructure Engineering Studies (CIES)  
Missouri University of Science and Technology  
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**EDUCATION**

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- Ph.D. Structural Engineering, Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland, 2004.
- M.Sc. Structural Engineering, Cairo University, Egypt, 2000.
- B.Sc. (*magna cum laude*) Civil Engineering, Cairo University, Egypt, 1997.

**PROFESSIONAL EXPERIENCE**

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*Academic Appointments:*

- Fall/2021 - Present, Interim Director, Center for Infrastructure Engineering Studies (CIES)
- Fall/2021 - Present, Present, Interim Director, Advanced Construction Material Laboratory (ACML)
- Spring/2018 – Present, Director, High-bay Structural Laboratory, Missouri University of Science and Technology
- Fall/2018 – Present, Professor, Missouri University of Science and Technology
- Fall/2015 – Present, Benavides Faculty Scholar (Limited Endowed Chair), Missouri University of Science and Technology
- Fall/2012 – Fall/2018, Associate Professor, Missouri University of Science and Technology
- Fall/2006 – Fall/2012, Adjunct/Assistant Professor, Department of Civil & Environmental Engineering, Washington State University, USA
- 1/2005 – 8/2006, Postdoctoral Research Fellow, The University of Auckland, New Zealand
- 10/2000 – 12/2004, Research Assistant, Swiss Federal Institute of Technology at Lausanne, Switzerland
- 10/1997 – 7/2000, Tutor, High Institute for Engineering and Management (HIEM), Egypt

*Visiting Academic Appointments:*

- Fall/2012 – Present, Adjunct Senior Lecturer, University of South Australia, Australia
- Spring/2012 – Fall/2012, Visiting Senior Lecturer, University of South Australia, Australia
- Fall/2010 – Fall/2011, Visiting Associate Professor, Civil Engineering Department, Tokyo Institute of Technology, Japan

- 11/2002 – 6/2003, Visiting Scholar, Swiss Federal Institute of Technology at Zurich, Switzerland

### *Research Investigator:*

- Spring/2013 – Present, Senior Researcher, Materials Research Center, Missouri University of Science and Technology
- Fall/2012 – Present, Center for Infrastructure Engineering Studies Faculty, Missouri University of Science and Technology

### *Non-Academic Appointments:*

- 7/1997 – 7/2000, Bridge Design Engineer (part time), ACE Moharram Bakhoun, Cairo, Egypt

## **HONORS AND AWARDS,**

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- Recognized as a Top 2% Scientist by Stanford University rankings of global scientists and engineers in 2019, 2020, 2021, and 2022
- Missouri S&T Faculty Excellence Award, 2017, 2020
- Missouri S&T Faculty Research Award, 2018, 2020 (Awarded but withheld due to winning the Faculty Excellence award in the same year)
- Missouri S&T Outstanding Teaching Commendation, 2020
- Scientist Award and Medal, International Association of Advanced Materials (IAAM) (Sweden-based organization), 2020
- American Society of Civil Engineers (ASCE) Innovation Award (with my PhD student Yasser Darwish), 2019
- Joseph H. Senne, Jr. Academy of Civil Engineers Faculty Achievement Award, 2016
- 3<sup>rd</sup> most cited paper in the American Society of Civil Engineers (ASCE) Journal of Bridge Engineering “Seismic Behavior of Self-Centering Precast Segmental Bridge Bents”  
<https://ascelibrary.org/doi/abs/10.1061/%28ASCE%29BE.1943-5592.0000174>
- One of the top-20 most-cited papers since 2016 in Engineering Structures Journal “Static cyclic behavior of FRP-confined crumb rubber concrete columns”  
<https://www.journals.elsevier.com/engineering-structures/most-cited-articles>
- Inaugural Benavides Faculty Scholar (Limited Endowed Chair), 9/2015 – present
- Elected member, Board of Directors, The Masonry Society, 2013 - present
- Outstanding Reviewer, Journal of Structural Engineering, ASCE, 2013
- ExCEEEd New Faculty Excellence in Teaching Award, ASCE, Northern Arizona University, July 15 – 20, 2007

- The University of Auckland Postdoctoral Research Fellowship, 1/2005 – 8/2006.
- Fellowship, German Academic Exchange Service, Dresden University of Technology 12/7/2003 – 12/18/2003.
- Postgraduate Scholarship, Federal Commission for Scholarships (FCS), Switzerland, 7/2000 – 3/2003.
- Egyptian Government Award of Excellence in Undergraduate Studies in the Faculty of Engineering, 10/1/1992 – 7/1/1993 and 10/1/1994 – 7/1/1997.

## **MY ADVISEE HONORS, AWARDS, AND SCHOLARSHIPS**

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- Alireza Pourhassan, College of Engineering and Computing Dean's Scholar, Missouri S&T, 2023
- Eslam Gomaa, College of Engineering and Computing Dean's Scholar, Missouri S&T, 2022
- Alireza Pourhassan, 1<sup>st</sup> poster prize, Center for Infrastructure Studies (CIES) Research Day, 2021
- Eslam Gomaa, 3<sup>rd</sup> poster prize, Center for Infrastructure Studies (CIES) Research Day, 2021
- Missouri Bridge Conference, University of Missouri, (three awards each year), 2019
- Binod Shrestha, Mohanad Abdulazeez, and Ahmed Ghani (as a team), 1<sup>st</sup> poster prize (three awards each year; two of them went to my students during this year), Oklahoma Transportation Research Day Conference, Midwest City, 2019
- Amro Ramadan, 2<sup>nd</sup> poster prize (three awards each year; two of them went to my students during this year), Oklahoma Transportation Research Day Conference, Midwest City, 2019
- Mohanad Abdulazeez, 1<sup>st</sup> poster prize, Missouri Bridge Conference, University of Missouri, (three awards each year; all of them went to my students during this year), 2019
- Eslam Gomaa, 2<sup>nd</sup> poster prize, Missouri Bridge Conference, University of Missouri, (three awards each year), 2019
- Alireza Pourhassan, 3<sup>rd</sup> poster prize, Missouri Bridge Conference, University of Missouri, (three awards each year), 2019
- Eslam Gomaa, 1<sup>st</sup> poster prize, 6<sup>th</sup> CIES Annual Transportation Conference, Rolla, Mo. (three awards each year, two of them went to my students during this year), 2018
- Amro Ramadan, 3<sup>rd</sup> poster prize, 6<sup>th</sup> CIES Annual Transportation Conference, Rolla, Mo. (three awards each year), 2018

- Amro Ramadan, 1<sup>st</sup> prize, Missouri S&T Civil Engineers Academy Graduate Students Excellence Award, Missouri S&T, (three awards each year; all of them went to my students during this year), 2018
- Eslam Gomaa, 2<sup>nd</sup> prize, Missouri S&T Civil Engineers Academy Graduate Students Excellence Award, Missouri S&T, 2018
- Yasser Darwish, 3<sup>rd</sup> prize, Missouri S&T Civil Engineers Academy Graduate Students Excellence Award, Missouri S&T, 2018
- Mohanad Abdulazeez, Franklin Y. and Pi-Yu C Cheng Teaching Scholars Program, 2018 - Present
- Mohanad Abdulazeez, College of Engineering and Computing Dean's Scholar, Missouri S&T, 2018
- Mohanad Abdulazeez, ACI Missouri Chapter Honorary Graduate Scholarship, 2018
- Alexis Lee, ACI Missouri Chapter, ACI Luke and Billie Snell Undergraduate Scholarship, 2018
- Alexis Lee, 1<sup>st</sup> prize, Civil Engineering Academy Undergraduate Students Excellence Award, Missouri S&T, 2018
- Eslam Gomaa, April Best Presentation, Chi Epsilon Society, 2018
- Yasser Darwish, Chi Epsilon Society Graduate Scholarship, 2018
- Mohanad Abdulazeez, Best Poster, Missouri S&T Graduate Research Showcase (six awards each year), 2018
- Eslam Gomaa, 1<sup>st</sup> prize, Missouri S&T Civil Engineers Academy Graduate Students Excellence Award, Missouri S&T, (three awards each year; all of them went to my students during this year), 2018
- Amro Ramadan, 2<sup>nd</sup> prize (tie), Missouri S&T Civil Engineers Academy Graduate Students Excellence Award, Missouri S&T, 2018
- Yasser Darwish, 2<sup>nd</sup> prize (tie), Missouri S&T Civil Engineers Academy Graduate Students Excellence Award, Missouri S&T, 2018
- Eslam Gomaa, 1<sup>st</sup> prize, Missouri S&T Graduate Research Showcase (six awards each year, two of them went to my students during this year), 2018
- Ahmed Ghenni, 2<sup>nd</sup> prize, Missouri S&T Graduate Research Showcase (six awards each year), 2018

- Eslam Gomaa, 2<sup>nd</sup> poster prize, 5<sup>th</sup> CIES Annual Transportation Conference, Rolla, Mo. (three awards each year), 2017
- Ahmed Gheni, 3<sup>rd</sup> prize, Oklahoma Transportation Research Day, 2017
- Ahmed Gheni, Wire Reinforcement Institute Education Foundation Scholarship, \$2,750, 2017
- Ahmed Gheni, Inaugural College of Engineering and Computing Dean's Scholar, Missouri S&T 2017
- Ahmed Gheni, ACI Missouri Chapter Honorary Graduate Scholarship, 2017
- Ahmed Gheni, Civil Engineering Academy Graduate Students Excellence Award, Missouri S&T, 2017
- Ahmed Gheni, 1<sup>st</sup> prize, Missouri S&T Graduate Research Showcase (six awards each year; (two of them went to my students during this year), 2017
- Mohanad M. Abdulazeez, 2<sup>nd</sup> prize, Missouri S&T Graduate Research Showcase (six awards each year), 2017
- Mohanad Abdulazeez, 1<sup>st</sup> prize, Academy Poster Contest, Civil, Architectural, and Environmental Engineering Department, Missouri S&T (three awards each year; two of them went to my students during this year), 2017
- Ahmed Gheni, 3<sup>rd</sup> prize, Academy Poster Contest, Civil, Architectural, and Environmental Engineering Department, Missouri S&T (three awards each year), 2017
- Ahmed Gheni, 1<sup>st</sup> prize, Missouri S&T Graduate Research Showcase (six awards each year), 2016
- Ahmed Gheni, 1<sup>st</sup> poster prize, 4<sup>th</sup> CIES Annual Transportation Conference, Rolla, Mo. (three awards each year), 2016
- Mohanad Abdulazeez, 3<sup>rd</sup> poster prize, 4<sup>th</sup> CIES Annual Transportation Conference, Rolla, Mo. (three awards each year), 2016
- Ahmed Gheni, National Chi Epsilon Graduate Fellowship, 2016
- Ahmed Gheni, St. Louis Chapter of the American Society of Professional Estimators Scholarship, 2016
- Ahmed Gheni, Central Chi Epsilon Graduate Fellowship, 2015
- Noor Yacob, 1<sup>st</sup> prize, Academy Poster Contest, Civil, Architectural, and Environmental Engineering Department, Missouri S&T (three awards each year), 2016
- Ayman Moustafa, 1<sup>st</sup> poster prize, 3<sup>rd</sup> CIES Annual Transportation Conference, St Louis University (three awards each year), 2015

- Song Wang, 3<sup>rd</sup> prize, Academy Poster Contest, Civil, Architectural, and Environmental Engineering Department, Missouri S&T (three awards each year), 2015
- Omer Abdelkarim, 1<sup>st</sup> prize, Academy Poster Contest, Civil, Architectural, and Environmental Engineering Department, Missouri S&T (three awards each year), 2015
- Ahmed Gheni, Travel Grant to attend the 12<sup>th</sup> North American Masonry Conference, National Concrete Masonry Association, \$1000, 2015
- Hesham Tuwair, 1<sup>st</sup> prize, 1<sup>st</sup> Annual Missouri Bridge Conference (two awards each year), 2015
- Hesham Tuwair, 1<sup>st</sup> prize, Missouri S&T Graduate Research Showcase (six awards each year), 2015
- Ahmed Gheni, 3<sup>rd</sup> prize, Missouri S&T Graduate Research Showcase (six awards each year), 2015
- Hesham Tuwair, 2<sup>nd</sup> prize, Academy Poster Contest, Civil, Architectural, and Environmental Engineering Department, Missouri S&T (three awards each year), 2014
- Omer Abdelkarim, Travel Grant to attend the 10<sup>th</sup> U.S. National Conference on Earthquake Engineering, Graduate Research Office, Missouri S&T, \$200, 2014
- Omer Abdelkarim, Travel Grant to attend the 10<sup>th</sup> U.S. National Conference on Earthquake Engineering, Earthquake Engineering Research Institute (EERI), \$400, 2014
- Matthew Hoffman, The Pam Keating Memorial Scholarship (AS\$10,000, the most prestigious award in University of South Australia) for his graduation thesis on rubberized concrete, 2012

## RESEARCH FUNDING

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### *Funded projects*

Total funded project = \$12.1 M (Not including any in-kind donations), ElGawady's credit = \$3.7 M (Not including any in-kind donations)

- **ElGawady**, M. (PI), Mid-America Transportation Center (MATC), "Repair of Small-scale prestressed bridge girders subjected to impact loads", \$67,947, 1/2022 – 6/2023.
- **ElGawady**, M. (PI, 83%), Ibrahim, A. (University of Idaho, Co-PI, 17%) Pooled funding, "Assessment and repair of over-height truck impact with prestressed concrete bridge girders", \$805,000, 1/2021 – 12/2023, Contract #: TPF-5(462).
- **ElGawady**, M. (PI), Mid-America Transportation Center (MATC), "Assessment of bridge girders subjected to vehicle impact", \$85,000, 1/2021 – 6/2022.

- **ElGawady**, M. (PI), Missouri Department of Transportation, “The effect of rubber fills on the performance of infrastructure: Phase 1”, \$170,066, 10/2019 – 12/2021, Contract #: TR202013.
- **ElGawady**, M. (PI), Mid-America Transportation Center (MATC), “Behavior of Corroded Steel H-piles subjected to eccentric loads before and after repair”, \$37,500, 1/2020 – 12/2020.
- **ElGawady**, M. (PI), National Science Foundation, “I-Corps: Meta-material Impact Protection Units”, \$50,000, 10/2019 – 4/2020, Award #: 1940870.
- **ElGawady**, M. (PI), Mid-America Transportation Center (MATC), “Behavior of Corroded Steel H-piles – Phase II”, \$37,500, 1/2019 – 12/2019, Contract #: 69A3551747107.
- Wu, C. and **ElGawady**, M. (Co-PI, 50%), Mid-America Transportation Center (MATC), “3D Printed FRP-Concrete-Steel Composite Hollow Core Bridge Column”, \$37,500, 1/2019 – 12/2019.
- **ElGawady**, M. (PI), Mid-Missouri Solid Waste, “Recycled paint for a more durable concrete structures”, \$9,762, 1/2019 – 12/2019.
- **ElGawady**, M. (50%), and Imqam, A. (50%), Advanced Materials for Sustainable Infrastructure (AMSI), “Fresh and Hardened Properties of Geopolymer Paste in Presence of Drilling Fluid”, \$9,641, 11/2018 – 7/2019.
- **ElGawady**, M. (PI), Mid-Missouri Solid Waste, “Field implementation of rubberized chip seal in Mid-Missouri”, \$10,000, 1/2018 – 12/2018.
- **ElGawady**, M. (PI), GAF Material LLC, “Retrofitting of metal roofs using single ply”, \$120,526, 5/2018 – 5/2019.
- **ElGawady**, M. (PI), Mid-America Transportation Center (MATC), “Behavior of Corroded Steel H-piles – Phase I”, \$95,756, 8/2017 – 12/2018, Contract #: 69A3551747107.
- **ElGawady**, M., Missouri Department of Natural Resources, “Using Scrap Tires as an Aggregate in Infrastructure – Phase II” \$226,820, 10/2017 – 9/2019.
- **ElGawady**, M. (PI), Skyline Corporation, Steel H-piles, \$8,000 (In-kind), 8/2017 – 7/2020
- **ElGawady**, M., Missouri Department of Transportation, “Assessment and Repair of Corroded Steel H-piles”, \$227,498, 12/2017 – 7/2020.
- **ElGawady**, M. (PI), National Concrete Masonry Association, “Evaluating and relaxing the limits on flexural reinforcement ratio of masonry shear walls”, \$149,532, 1/2018 – 1/2020.
- **ElGawady**, M. (PI), Midwest Brick and Block, Material and Construction of 33 full-scale walls, \$31,000 (In-kind), 1/2018 – 1/2020.

- **ElGawady**, M. (PI), Missouri Department of Transportation, “Field implementation of rubberized chip seal”, \$54,167, 9/2017 – 12/2018.
- **ElGawady**, M. (PI), Ameren Corporation, “Off-spec and bottom ash for infrastructure applications”, \$20,000, 8/2017 – 7/2018.
- **ElGawady**, M. (PI), Ameren Corporation, “Fly ash activated structural concrete”, \$22,000, 2/2017 – 2/2019.
- **ElGawady**, M. (PI), Missouri Department of Natural Resources, “Performance of 100% fly ash concrete for infrastructure construction” \$219,291, 7/2017 – 6/2019.
- **ElGawady**, M., Missouri Department of Natural Resources, “Physico-Mechanical Assessment of Using Scrap Tires as an Aggregate in Concrete Masonry Buildings” \$210,604, 7/2017 – 6/2019.
- Chen, G., Long, S., Qin, R., Ma, H., Myers, J., **ELGawady**, M., Sneed, L., Zoughi, R., Yin, Z., “Inspection and preservation of infrastructure with robotic exploration (INSPIRE)” Department of Transportation, \$7.4M Total funding, 11/2016 – 11/2021.
- Myers, J., **ElGawady**, M., Chen, G., Sneed, L., Yan, G., Department of Education, “GAANN program for doctoral training in civil infrastructure condition assessment, sustainability and resiliency”, \$922,744 (federal funding \$738,195, Missouri S&T matching \$184,549), 10/2016 – 9/2019.
- **ElGawady**, M. (PI), Missouri Department of Transportation, “Geopolymer concrete for sustainable and durable infrastructure”, \$100,000, 10/2016 – 4/2018.
- **ElGawady**, M. (PI, 50%), Wang, J. (Co-PI, 50%), Missouri Department of Natural Resources, “Mechanical and environmental evaluation of recycled tires as aggregates for infrastructure”, \$205,388, 8/2015 – 1/2017.
- **ElGawady**, M. (PI), Missouri Department of Transportation, “Accelerated bridge column construction – Phase II”, \$6,300, 10/2015 - 5/2016.
- **ElGawady**, M. (PI), Missouri Department of Transportation, “Accelerated bridge column construction”, \$51,405, 2013 - 2015.
- **ElGawady**, M. (PI), Mid-America Transportation Center (MATC), “Behavior of double-skin columns”, \$56,454, 2013 - 2015.
- **ElGawady**, M. (PI), National Concrete Masonry Association Foundation, “Development of advanced masonry educational program”, \$10,500, 2014 - 2015.
- **ElGawady**, M. (PI), Atlas Tube and Pittsburgh Pipe, “Behavior of hollow-core HC-FCS columns”, \$4,200 (In-kind contribution), 2014 - 2015.



- **ElGawady**, M. (PI, 50%), Chandrashekhara, K. (Co-PI, 50%), Department of Transportation/National University Transportation Center (NUTC), “Mechanical characteristics of low-cost hybrid fiber reinforced polymer”, \$16,052, 2012-2013, Contract #: DTRT06-G-0014, 00042525.
- **ElGawady**, M. (PI), Department of Transportation/National University Transportation Center (NUTC), “Acquisition of a Uniaxial Shaking Table for Dynamic Testing of Structural Elements”, \$105,000, 2012-2013
- **ElGawady**, M. (PI), Department of Transportation/National University Transportation Center (NUTC), “Behavior of Double-Skin Bridge Columns”, \$49,660, 2012 - 2013
- **ElGawady**, M. (PI, 50%), Bate, B. (Co-PI, 50%), Department of Transportation/National University Transportation Center (NUTC), “Dilation Characteristics of Rubberized Concrete”, \$16,052, 2012 – 2013, Contract #: DTRT06-G-0014, 00042523.
- **ElGawady**, M. (PI), Midwest Block and Brick, “Strength of unbonded post-tensioned masonry walls”, \$5,505 (In – kind), 2012 – 2013.
- **ElGawady**, M. (PI), Department of Transportation/National University Transportation Center (NUTC), “Strength of unbonded post-tensioned walls”, \$12,539, 2012 – 2013, Contract #: DTRT06-G-0014, 00042597.
- **ElGawady**, M. (PI, 80%), Khayat, K. (Co-PI, 20%), Department of Transportation/National University Transportation Center (NUTC), “Life cycle maintenance cost analysis of RC columns rehabilitation techniques under various durability exposures”, \$117,263, 2012 - 2014, DTRT 06-G-0014, 00072499.
- **ElGawady**, M. (PI, 80%), Khayat, K. (Co-PI, 20%), Department of Transportation/National University Transportation Center (NUTC), “Cyclic behavior of self-consolidated concrete”, \$107,937, 2012 – 2014, Project # DTRT 06-G-0014, 00037267.
- **ElGawady**, M. (PI), National Concrete Masonry Association Foundation, “Behavior of partially grouted masonry walls”, \$35,511, 2009 – 2010.
- **ElGawady**, M. (PI), Northwest Masonry Association Foundation, “Behavior of partially grouted masonry walls”, \$10,000, 2009 - 2010.
- **ElGawady**, M. (PI), Northwest Masonry Association Foundation and National Concrete Masonry Association, “Behavior of squat partially grouted masonry walls”, \$15,000, 2009-2010.

- **ElGawady**, M. (PI, 90%), Cofer, W. (Co-PI, 10%), Transportation Northwest (TransNow), “Rapid construction of bridge columns using concrete-filled FRP tubes”, \$38,000, 2009-2010.
- **ElGawady**, M. (PI), Transportation Northwest (TransNow), “Structural health monitoring of reinforced concrete columns confined with FRP”, \$30,342, 2008 – 2009.
- Cofer, W. (Co-PI, 50%), **ElGawady**, M. (PI, 50%), Washington State Department of Transportation, “Seismic assessment and retrofit of WSDOT bridges”, \$150,000, 2007-2008.
- **ElGawady**, M. (PI, 100%), Washington State University Seed Grant, “Structural system resisting damage induced by strong earthquakes”, \$17,503, 2007 – 2008.
- McLean, D. (40%), Sack, R. (30%), **ElGawady**, M. (30%), Federal Highway Administration (FHWA), “Seismic retrofit of rectangular and flared bridge columns”, \$274,785, 2006 – 2007.

### *Travel awards*

- **ElGawady**, M. (PI), NSF, Travel support to attend “Toward resilient and sustainable infrastructure development at the new Suez Canal region in Egypt” US-Egypt workshop, \$2,000, 2015 (Travel was canceled due to health issue)
- **ElGawady**, M. (PI), NSF/DOE, Travel Award to attend “Additive Manufacturing” workshop, \$1,317, 2015
- **ElGawady**, M. (PI), Midwest Block and Brick and other local contractors, “Travel support to attend TMS meeting”, \$1,500, 2014-2015
- **ElGawady**, M. (PI), Midwest Block and Brick, “Travel support to attend TMS meeting”, \$800, 2014-2015

## **PROFESSIONAL REGISTRATION**

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EIT, WA State (# 31699), 2011

## **RESEARCH INTERESTS**

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Behavior of masonry and concrete structures, steel design, sustainable construction materials, seismic behavior of concrete bridges, self-centering of masonry and concrete elements, concrete filled fiber reinforced polymer tubes, retrofitting of unreinforced masonry and concrete structures.

## **PATENTS**

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1. Meta-material structure for energy dissipation (Pending), Darwish, Y. and **ElGawady**, M.

## PUBLICATIONS

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### **Quantitative performance measures**

Google Scholar Citations = 6200, h-Index = 42, i10-Index = 113;

Scopus Citations = 3752, h-Index = 35;

(\* Graduate student advised by ElGawady, \*\* Graduate student co-advised by ElGawady, \*\*\*Graduate student advised by other faculty members, \*\*\*\* Undergraduate student, <sup>a</sup> Research associate advised by ElGawady)

### *Journals*

Published/Accepted (116 Journal Papers - Underline denotes corresponding author)

#### *Papers Linked to Repair, Resiliency, and Large-scale Testing of Infrastructure Members (84 papers)*

1. Shrestha\*, B., Ghenni<sup>a</sup>, A., Abdulazeez<sup>a</sup>, M., and **ElGawady**, M. A., 2023 (Accepted). "Behavior of ultra-high performance concrete plate encasing steel H-piles" Transportation Research Record.
2. Nain\*, M., Abdulazeez\*, M., and **ElGawady**, M. A., 2023 (Accepted). "Cyclic behavior of High Strength Concrete - Filled Hybrid Large - Small Rupture Strains FRP Tubes" ACI SP.
3. Al-Masoodi, A., Abass, Y.M., Alkhatib, F., Iqbal Khan, M., Shafiq, N., and **ElGawady**, M. A., 2023. "Aerodynamic optimization for corner modification of octagonal-shape tall buildings using computational approach" J. of Building Engineering, 107017.
4. Darwish\*, Y., and **ElGawady**, M. A., 2023. "Finite element analysis of TPO membrane-retrofitted metal roof system subjected to wind loads" Structures J., 50, 330 – 346.
5. Sheta\*\*, A., Ma, X., Zhuge, Y., **ElGawady**, M., Mills, J., and Abd-Elaal\*\*\*, E., 2023. "Shear behavior of thin-walled composite cold-formed steel/PE-ECC beams" Steel and Composite Structures, 46(1), 75 – 92.
6. Sheta\*\*, A., Ma, X., Zhuge, Y., **ElGawady**, M., Mills, J., and Abd-Elaal\*\*\*, E., 2023. "Axial compressive behaviour of thin-walled composite columns comprise high-strength cold-formed steel and PE-ECC" Thin-Walled Structures, 184, 110471
7. Elsayed, M., Badawy, S., Tayeh, B.A., Elymanya, M., Salem, M., and ElGawady, M., 2022. "Shear behaviour of ultra-high performance concrete beams with openings" Structures, 43, 546–558.
8. Sheta\*\*, A., Ma, X., Zhuge, Y., **ElGawady**, M., Mills, J., and Abd-Elaal\*\*\*, E., 2022. "Flexural strength of innovative thin-walled composite cold-formed steel/PE-ECC beams" Engineering Structures, 267, 114675

9. Smith, CJ, Abdulazeez<sup>a</sup>, MM , **ElGawady**, M., and Mesfin, F, 2021. "The effect of thoracolumbar injury classification in the clinical outcome of operative and non-operative treatments" *Cureus* 13 (1), e12428, doi: 10.7759/cureus.12428.
10. Sheta<sup>\*\*</sup>, A., Ma, X., Zhuge, Y., **ElGawady**, M., Mills, J., Singh, A., and Abd-Elaal<sup>\*\*\*</sup>, E., 2021. "Structural performance of novel thin-walled composite cold-formed steel/PE-ECC beams" *Thin-Walled Structures*, 162, 107586
11. Shrestha<sup>\*</sup>, B., Ghenni<sup>a</sup>, A., Abdulazeez<sup>a</sup>, M., and **ElGawady**, M. A., 2020. "Innovative approach to repair corroded steel piles using ultra-high performance concrete" *Transportation Research Record*, <https://doi.org/10.1177/0361198120929329>.
12. Moustafa<sup>\*</sup>, A. and **ElGawady**, M. A., 2020. "Performance of double skin FRP-concrete-steel self-centered segmental bridge piers subjected to forward-directivity near-fault ground motion" *Engineering Structures*, 221, 111065
13. Abdulazeez<sup>\*</sup>, M., and **ElGawady**, M. A., 2020. "Seismic behavior of hollow-core composite bridge columns having slender inner steel tubes" *American Concrete Institute Structural J.*, ACI, 117(3), 1:16.
14. Elmapruk<sup>\*</sup>, J., **ElGawady**, M. A., Hassanli<sup>\*</sup>, R., 2020. "Experimental and analytical study on the shear strength of partially grouted masonry walls" *Journal of Structural Engineering*, ASCE, 146 (8), 04020147-1:17.
15. Carter<sup>\*</sup>, J. D., Abdulazeez<sup>\*</sup>, M., **ElGawady**, M. A., and Khayat, K. H., 2020. "FRP confinement of SCC incorporating expansive agent and saturated lightweight sand" *Construction and Building Material*, 252, 118924.
16. Abdulazeez<sup>\*</sup>, M., Brown<sup>\*\*\*\*</sup>, K., and **ElGawady**, M. A., 2020. "Shear bond strength of steel H-piles repaired using polymer concrete jacket encasement" *Transportation Research Record*, 1 – 11.
17. Nain<sup>\*</sup>, M., Abdulazeez<sup>\*</sup>, M., and **ElGawady**, M. A., 2020. "Behavior of High Strength Concrete - Filled Hybrid Large - Small Rupture Strains FRP Tubes" *Engineering Structures*, 209, Article Number 110264.
18. Gomaa<sup>\*</sup>, E., Ghenni<sup>\*</sup>, A., **ElGawady**, M. A., 2020. "Repair of ordinary Portland cement concrete using ambient-cured alkali-activated concrete: Interfacial behavior" *Cement and Concrete Research*, 129, Article Number 105968.
19. Darwish<sup>\*</sup>, Y., **ElGawady**, M. A., 2019. "Analysis of metamaterial bi-stable elements as energy dissipation systems" *Bridge Structures* 15 (4), 151-159.

20. Yacob\*, N., **ElGawady**, M. A., Sneed, L., and Said, A., 2019 "Shear strength of fly ash-based geopolymers reinforced concrete beams" *Engineering Structures*, 196, Article Number 109298.
21. Abdulazeez\*, M., **ElGawady**, M. A., and Abdelkarim\*, O., 2019. "Bending and buckling behavior of hollow-core FRP-concrete-steel columns" *J. Bridge Engineering*, ASCE, 24(8).
22. Al-Jaberi\*\*\*, Z., Myers, J., and **ElGawady**, M. A., 2019. "Experimental and analytical approach for prediction of out-of-plane capacity of reinforced masonry walls strengthened with externally-bonded FRP laminate" *J. Composites for Construction*, ASCE, 23(4).
23. Rai\*, M., **ElGawady**, M. A., Rodriguez-Marek, A. 2019. "Probabilistic seismic demand analysis of a bridge with unbonded, post-tensioned, concrete-filled, fiber-reinforced polymer tube columns" *Fibers*, 7(3), 1- 23.
24. Gomaa\*, E., Ghenni\*, A., Kashosi\*, C., **ElGawady**, M. A., 2019. "Bond strength of eco-friendly class C fly ash-based thermally cured alkali-activated concrete to Portland cement concrete" *Journal of Cleaner Production*, 235, 404 – 416.
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*Papers Linked to Sustainability and Durability of Infrastructure Materials (30 papers)*

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### *Conference Proceedings (140 papers)*

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2. Mahmood\*, T., Gheni<sup>a</sup>, A., **ElGawady**, M. A., 2021. "In-plane seismic behavior of special reinforced fully grouted masonry shear walls subjected to high axial loads" 14<sup>th</sup> Canadian Masonry Symposium, Montreal, Canada, May 17<sup>th</sup> -19<sup>th</sup>.
3. Gheni<sup>a</sup>, A., **ElGawady**, M. A., 2021, "Out-of-plane seismic behavior of reinforced fully grouted masonry walls subjected to high axial loads" 14<sup>th</sup> Canadian Masonry Symposium, Montreal, Canada, May 17<sup>th</sup> -19<sup>th</sup>.

4. Kirby, JR., Keegan, J., **ElGawady**, m., Darwish\*, Y, 2020. "Physical testing for wind resistance of retrofit single-ply roofs over structural metal panel roofs" IIBEC International Convention (Virtual), June 12<sup>th</sup> – June 15<sup>th</sup>.
5. Colbet\*, N., Abdulazeez\*, M., **ElGawady**, M. A., 2019. "Perturbation-based analysis of thin-walled steel tubes buckling under compression: numerical and experimental study" 1<sup>st</sup> Joint International Conference on Design and Construction of Smart City Components, Cairo, Egypt, December 17<sup>th</sup> – 19<sup>th</sup>.
6. Gomaa\*, E., Ghenni\*, A., **ElGawady**, M. A., 2019. "Effect of calcium content of class C fly ashes on the mechanical properties of alkali activated concrete" 1<sup>st</sup> Joint International Conference on Design and Construction of Smart City Components, Cairo, Egypt, December 17<sup>th</sup> – 19<sup>th</sup>.
7. Ramadan\*, A., **ElGawady**, M. A., 2019. "Axial Behavior of Concrete Filled Pultruded FRP Box" 1<sup>st</sup> Joint International Conference on Design and Construction of Smart City Components, Cairo, Egypt, December 17<sup>th</sup> – 19<sup>th</sup>.
8. Islam\*, M., Ghenni\*, A., **ElGawady**, M. A., 2019. "Fresh and mechanical properties of zero-cement one-part geopolymer mortar and concrete" IABSE Congress, New York City, NY, USA, Sept. 4<sup>th</sup> – 6<sup>th</sup>.
9. Pourhassan\*, A., Ghenni\*, A., **ElGawady**, M. A., 2019. "Effect of aggregate size on the retention of conventional and rubberized chip seal" IABSE Congress, New York City, NY, USA, Sept. 4<sup>th</sup> – 6<sup>th</sup>.
10. Ramadan\*, A., **ElGawady**, M. A., 2019. "Axial behavior of corroded H-Piles" IABSE Congress, New York City, NY, USA, Sept. 4<sup>th</sup> – 6<sup>th</sup>.
11. Gomaa\*, E., Sargon\*, S., Ghenni\*, A., Kashosi\*, C., **ElGawady**, M. A., 2019. "Influence of water, alkali activators, and curing regime on the workability and compressive strength of the alkali activated mortar" IABSE Congress, New York City, NY, USA, Sept. 4<sup>th</sup> – 6<sup>th</sup>.
12. Darwish\*, Y., **ElGawady**, M. A., 2019. "Impact protection of bridges using negative stiffness metamaterial systems" 10<sup>th</sup> New York City Bridge Conference, New York City, NY, USA, Aug. 26<sup>th</sup> -27<sup>th</sup>.
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105. **EIGawady**, M. A., and Dawood<sup>\*</sup> H., 2010. "Finite element modeling of segmented columns under lateral loading" 9<sup>th</sup> US National and 10<sup>th</sup> Canadian Conference on Earthquake Engineering, Toronto, Canada, 25-29 July.
106. **EIGawady**, M. A. and Shafiei<sup>\*</sup>, R., 2009. "Nonlinear static and dynamic analysis of Ravenna bridge", 89<sup>th</sup> Transportation Research Board Annual Meeting, Washington D.C., Jan. 10-14.
107. **EIGawady**, M. A., Elmapruk<sup>\*</sup> J., 2009. "In-plane shear strength of partially grouted masonry walls", 11<sup>th</sup> Canadian Masonry Symposium, Toronto, Canada, May 31 - Jun 3.
108. **EIGawady**, M. A., and Dawood<sup>\*</sup> H., 2009. "Lateral displacement of rectangular reinforced concrete columns retrofitted using FRP", 9<sup>th</sup> International Symposium on Fiber Reinforced Polymer Reinforcement for Concrete Structures. Sydney, Australia, July 13-15.
109. **EIGawady**, M. A., and Booker<sup>\*</sup>, A. J., 2009. "Static cyclic response of concrete filled FRP tubes", 9<sup>th</sup> International Symposium on Fiber Reinforced Polymer Reinforcement for Concrete Structures. Sydney, Australia, July 13-15.
110. **EIGawady**, M. A., Omervic<sup>\*\*\*\*</sup>, B., Lestuzzi P., and Badoux, M., 2009. "In-plane static cyclic response of strengthened masonry walls with an opening and a rigid diaphragm", International Symposium on Fiber Reinforced Polymer Reinforcement for Concrete Structures. Sydney, Australia, July 13-15.
111. Greenwood<sup>\*\*\*</sup>, S., **EIGawady**, M., Cofer, W., McLean, D., 2009. "Performance of hollow core prestressed concrete piles under lateral loading" 88<sup>th</sup> TRB Annual Meeting, Washington D. C., Jan. 11-15.
112. Greenwood<sup>\*\*\*</sup>, S., Cofer, W., **EIGawady**, M., McLean, D., 2008. "Finite element modeling of hollow precast prestressed reinforced concrete piles" PCI-FHWA National Bridge Conference, Orland, FL, October 5-8.
113. Endeshaw<sup>\*</sup>, M., **EIGawady**, M., Sack R., McLean, D., 2008. "Retrofitting OF rectangular columns using CFRP" the 5<sup>th</sup> Middle East Symposium on Structural Composites for Infrastructure Application MESC-5, Hurghada, Egypt, May 20-23.
114. **EIGawady**, M., Endeshaw<sup>\*</sup>, M., 2008. "Codes and provisions for retrofitting of concrete columns using FRP" the 5<sup>th</sup> Middle East Symposium on Structural Composites for Infrastructure Application MESC-5, Hurghada, Egypt, May 20-23.



115. **EIGawady**, M. A., 2006. "Verifications of shear strength of masonry walls retrofitted with FRP", 19<sup>th</sup> Biennial Conference on the Mechanics of Structures and Materials, Christchurch, New Zealand, November 29- December 1.
116. **EIGawady**, M. A., Ma<sup>\*\*\*</sup>, Q., Ingham, J., and Butterworth, J., 2006. "Rocking response of post-tensioned rigid blocks", 19<sup>th</sup> Biennial Conference on the Mechanics of Structures and Materials, Christchurch, New Zealand, November 29- December 1.
117. **EIGawady**, M. A., Ma<sup>\*\*\*</sup>, Q., Butterworth, J. and Ingham, J., 2006. "Rocking response of solid blocks on rigid and flexible foundations" 7<sup>th</sup> International Masonry Conference, London, UK, October 30/November 1.
118. **EIGawady**, M. A., Ma<sup>\*\*\*</sup>, Q., Butterworth, J., and Ingham, J., 2006. "Probabilistic approach to the rigid body rocking problem", 1<sup>st</sup> International Conference on Restoring of Heritage Masonry Structures, Cairo, Egypt, April 24-27.
119. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2006. "Retrofitting of masonry walls using shotcrete", New Zealand Society of Earthquake Engineering Annual Conference, Napier, New Zealand, March 10-12.
120. **EIGawady**, M. A., Ma<sup>\*\*\*</sup>, Q., Ingham, J., and Butterworth, J., 2006. "Probabilistic analysis of rocking blocks", New Zealand Society of Earthquake Engineering Annual Conference, Napier, New Zealand, March 10-12.
121. **EIGawady**, M. A., Ma<sup>\*\*\*</sup>, Q., Ingham, J., and Butterworth J., 2006. "The effect of interface material on the dynamic behavior of free rocking blocks", 8<sup>th</sup> U.S. National Conference of Earthquake Engineering, San Francisco, California, USA, April 18-22.
122. **EIGawady**, M. A., Ma<sup>\*\*\*</sup>, Q., Ingham, J., Butterworth, J., 2005. "Experimental investigation of rigid body rocking", The New Zealand Concrete Industry Conference, Auckland, New Zealand, Sept. 22<sup>nd</sup> – 24<sup>th</sup>.
123. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2005. "Experimental investigation of retrofitted URM walls", 10<sup>th</sup> Canadian Masonry Symposium, Banff, Canada, June 8-12.
124. **EIGawady**, M. A., 2005. "Influence of material properties on shear strength of URM walls retrofitted with FRP", 10<sup>th</sup> Canadian Masonry Symposium, Banff, Canada, June 8-12.
125. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2005. "Static cyclic tests on URM walls after retrofitting with hardwires and GFRP", 5<sup>th</sup> International Conference on Earthquake Resistant Engineering Structures, Skiathos, Greece, 30 May -1 June.

126. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2005. "Static cyclic in-plane tests of upgraded URM walls", 4th Middle East Symposium on Structural Composites for Infrastructure Applications, Alexandria, Egypt, May 20-23.
127. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2005. "Seismic performance of URM walls retrofitted using FRP", New Zealand Society of Earthquake Engineering Annual Conference, Wairakei, New Zealand, March 11-13.
128. **EIGawady**, M. A., 2005. "Shear model for URM walls retrofitted with FRP", New Zealand Society of Earthquake Engineering Annual Conference, Wairakei, New Zealand, March 11-13.
129. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2004. "Retrofitting of URM wall using post-tensioning and GFRP", Mechanics of Masonry Structures Strengthened with FRP-Materials: Modeling, Testing, Design, Control, Venice, Italy, Dec. 6<sup>th</sup> – 8<sup>th</sup>.
130. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2004. "A review of retrofitting of unreinforced masonry walls using composites", 4<sup>th</sup> International Conference on Advanced Composite Material in Bridges and Structures (ACMBS), Calgary, Canada, July 20-23.
131. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2004. "A review of conventional seismic retrofitting techniques for URM", 13th Brick/Block Masonry Conference, Amsterdam, Holland, July 4<sup>th</sup> -7<sup>th</sup>.
132. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2004. "Static cyclic tests on URM walls before and after retrofitting with composites", 13th Brick/Block Masonry Conference, Amsterdam, Holland, July 4-7.
133. **EIGawady**, M. A., Hegner J., Lestuzzi, P., and Badoux, M., 2004. "Dynamic versus static cyclic tests of masonry walls before and after retrofitting with GFRP", 13th World Conference on Earthquake Engineering, Vancouver, Canada, August 1 – 6.
134. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2003. "Rehabilitation of unreinforced brick masonry walls using composites", Retrofitting of Masonry Structures and Earthquake Resistant Design, Short Course, Dresden, Germany, December 7-18 (**Invited**).
135. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2003. "In-plane lateral behavior of URM walls upgraded with composites", Response of Structures to Extreme Loadings XL2003, Toronto, Canada, August 3-6.
136. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2003. "Dynamic in-plane tests on URM", Response of Structures to Extreme Loadings XL2003, Toronto, Canada, Aug. 3<sup>rd</sup> - 6<sup>th</sup>.

137. Badoux, M., **EIGawady**, M. A., and Lestuzzi, P., 2002. "Earthquake simulator tests on unreinforced masonry walls before and after upgrading with composites", The 12th European Conference on Earthquake Engineering, London, UK, Paper reference 862, Sept. 9<sup>th</sup> -13<sup>th</sup>.
138. **EIGawady**, M. A., Rabie, M., and Talat M., 2002. "Strengthening of corbels using CFRP an experimental program", 3<sup>rd</sup> International Conference for Composite in Infrastructure ICCI'02, San Francisco, USA, Paper No. 013.
139. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2002 "Dynamic in-plane behavior of URM walls upgraded with composites", 3<sup>rd</sup> International Conference for Composite in Infrastructure ICCI'02, San Francisco, USA, Paper No. 009.
140. **EIGawady**, M. A., Lestuzzi, P., and Badoux, M., 2001. "Seismic upgrading of URM walls using composite fiber laminates", 20<sup>th</sup> EAEE Seminar, Sion, Switzerland, Sept. 1<sup>st</sup> - 7<sup>th</sup>.

### *Book chapters and editing*

1. **EIGawady**, M. A. (Ed.), 2020. "Structural performance of concrete columns incorporating advanced materials and structural systems" American Concrete Institute Special Publication, SP 341.
2. Ma, X., Chouw, N., **EIGawady**, M. A., and Zhu, S. (Ed.), 2018. "Resilient Civil Infrastructure under Dynamic Loadings.", Special Issue, Shock and Vibration J.
3. Moustafa\*, A., **EIGawady**, M. A., 2016. "Damage-resistant segmental double-skin bridge column with replaceable energy dissipaters" in Insights and Innovations in Structural Engineering, Mechanics and Computation, Ed. Alphose Zingoni, Taylor & Francis Group, Pages 370–375, Print ISBN: 978-1-138-02927-9.
4. Ghani\*, A., **EIGawady**, M. A., Myers, J., 2016. "Energy efficient masonry units using sustainable techniques" in Insights and Innovations in Structural Engineering, Mechanics and Computation, Ed. Alphose Zingoni, Taylor & Francis Group, Pages 1702 - 1707, Print ISBN: 978-1-138-02927-9.
5. Al-Jaberi\*\*\*, Z., Myers, J., and **EIGawady**, M. 2016. "A comparative study of flexural behavior of reinforced masonry walls strengthened with near-surface mounted FRP bars or externally bonded FRP sheets" in Insights and Innovations in Structural Engineering, Mechanics and Computation, Ed. Alphose Zingoni, Taylor & Francis Group, Pages 1459 - 1464, Print ISBN: 978-1-138-02927-9.

6. Barnett<sup>§</sup> R., **EIGawady**<sup>§</sup>, and Peterson<sup>§</sup>, R. 2015. "TMS Shopping Center" (Chapter 16), Masonry Designers' Guide 2013, The Masonry Society
7. Barnett<sup>§</sup> R., **EIGawady**<sup>§</sup>, M., Harris<sup>§</sup>, B., Klingner<sup>§</sup>, R., and Peterson<sup>§</sup>, R. 2012. "TMS Shopping Center" (Chapter 16), Masonry Designers' Guide, The Masonry Society, 7<sup>th</sup> Edition
8. Barnett<sup>§</sup> R., **EIGawady**<sup>§</sup>, M., Harris<sup>§</sup>, B., Klingner<sup>§</sup>, R., and Peterson<sup>§</sup>, R. 2010. "TMS Shopping Center" (Chapter 16), Masonry designers' guide, The Masonry Society, 6<sup>th</sup> Edition
9. **EIGawady**, M. A., and Endeshaw<sup>\*</sup>, M. 2008. "FRP retrofit of rectangular RC columns", (Chapter 4), Research Progress in Materials Science, Olsson, W. and Lindberg, F. (Ed.), Nova Science Publishers.

<sup>§</sup> Alphanumeric order of the authors

### *Technical Reports*

1. Pourhassan<sup>\*</sup>, A., Ghenni<sup>\*</sup>, A., **EIGawady**, M. A., 2020. "Using scrap tires as an aggregate in chip seal - Phase II" Final report, Missouri Department of Natural Resources.
2. Pourhassan<sup>\*</sup>, A., Ghenni<sup>\*</sup>, A., **EIGawady**, M. A., 2019. "Rubberized chip seal implementation in Mid-Missouri" Final report, Region H – Missouri Department of Natural Resources.
3. **EIGawady**, M. A., Abdulazeez<sup>\*</sup>, M., Ramadan<sup>\*</sup>, A., Sherstha<sup>\*</sup>, B., Ghenni<sup>\*</sup>, A., Gomaa<sup>\*</sup>, E., Darwish<sup>\*</sup>, Y., 2019. "Behavior and Repair of Corroded Steel H-Piles Phase I (Axial Behavior)", Mid-America Transportation Center, Final Report 25-1121-0005-133-1.
4. Islam<sup>\*</sup>, M., Kashosi<sup>\*</sup>, C., Gomaa<sup>\*</sup>, E., Ghenni<sup>\*</sup>, A., **EIGawady**, M. A., 2019. "Performance of 100% fly ash concrete for infrastructure repair" Missouri Department of Natural Resources, July.
5. Ghenni<sup>\*</sup>, A., Pourhassan<sup>\*</sup>, A., **EIGawady**, M. A., Darwish<sup>\*</sup>, Y., Schonberg, W., 2018. "Field implementation of rubberized chip seal" Missouri Department of Transportation, Report No. CMR 18-012, December.
6. Gomaa<sup>\*</sup>, E., Sargon<sup>\*</sup>, S., Kashosi<sup>\*</sup>, C., Ghenni<sup>\*</sup>, A., **EIGawady**, M. A., Schonberg, W., 2018. "Characterization and performance of zero-cement concrete" Missouri Department of Transportation, Report No. CMR 18-011, December.
7. Ghenni<sup>\*</sup>, A., Abdelkarim<sup>\*</sup>, O. I., Liu, X. <sup>\*\*\*</sup>, Abdulazeez<sup>\*</sup>, M., Lusher, M., Liu, K. <sup>\*\*\*</sup>, **EIGawady**, M. A., Shi, H., Wang, J., 2017. "Mechanical and Environmental Performance of Eco-Friendly Chip Seal with Recycled Crumb Rubber", Missouri Department of Natural Resources, February.

8. **EIGawady**, M. A., Abdelkarim\*, O. I., Anumolu\*, S., Gheni\*, A., 2015. "Precast Columns for Accelerating Bridge Construction" Mid-America Transportation Center, Research Report No. 25-1121-0003-297, May.
9. Abdelkarim\*, O. I., Anumolu\*, S., Gheni\*, A., Wang\*, S., **EIGawady**, M. A., 2015. "Hollow-core FRP-concrete-steel bridge columns under extreme loading" Missouri Department of Transportation, Report No. CMR 15-008, April.
10. **EIGawady**, M., 2014. "Acquisition of uniaxial shaking table for dynamic testing of structural elements" Department of Transportation, Report No. RE 368, August.
11. **EIGawady**, M., and Gheni, A., 2014. "Strength of Unbonded Post-Tensioned Walls" Department of Transportation, Report No. R 349, August.
12. **EIGawady**, M., 2014. "Mechanical Characteristics of Low-cost Hybrid Fiber Reinforced Polymer" Department of Transportation, Report No. R 343, July.
13. Wang, S., **EIGawady**, M. A., Shrestha, P. P., Said, A., Dhakal, D., 2015 "Environmental, mechanical, and life-cycle cost analysis of bridge columns" Department of Transportation, Report No. R 337, August.
14. **EIGawady**, M. A., 2014. "Dilation characteristics of rubberized concrete" Department of Transportation, Report No. R 342, August.
15. **EIGawady**, M. A., and Abdelkarim, O., 2014. "Behavior of hollow-Core FRP-concrete-steel columns subjected to cyclic axial compression" Department of Transportation, Report No. R 357, August.
16. Kuper, A., **EIGawady**, M., 2009. "Detection of delaminations of FRP retrofitted reinforced concrete columns" Report No. TNW2009-08, TransNow.
17. Cofer, W., **EIGawady**, M., Greenwood, S., 2009. "Seismic assessment of WSDOT bridges with prestressed hollow core piles, part I" Washington State Department of Transportation, Report No. WA-RD 732.1.
18. **EIGawady**, M., Cofer, W., Shafiei-Tehrany, R., 2009. "Seismic assessment of WSDOT bridges with prestressed hollow core piles, part II" Washington State Department of Transportation, Report No. WA-RD 732.1.
19. Endeshaw, M., **EIGawady**, M., Sack, R., and McLean, D., 2007. "Retrofit of rectangular bridge columns using CFRP wrapping" FHWA Technical report, Contract DTFH61-03-C-00104.

20. **ElGawady**, M., Lestuzzi, P., and Badoux, M., 2003. “Dynamic tests of URM walls before and after upgrading with composites” Report No. 1, Applied Computing and Mechanics Laboratory, Ecole Polytechnique Federal du Lausanne (EPFL), Switzerland

### *Keynote, Plenary, Distinguish Presentations*

- 2<sup>nd</sup> International Conference on Advances in Civil Infrastructure and Construction Materials, CICM-2021, Dhaka, Bangladesh, Dec. 13 – 15, 2021
- “Resilient and accelerated bridge construction”, 1<sup>st</sup> International Conference on Disaster Management (ICDM 2020), Padang, Indonesia, Sep. 30 – Oct. 1, 2020 (converted to online form due to COVID-19)
- “Hybrid fiber-concrete-steel columns for accelerated bridge construction under extreme loads” Invited Speaker, 2<sup>nd</sup> International Conference on Seismic Design and Analysis of Structures and Foundations, London, UK, June 24 – 25, 2019
- “Mechanical and Environmental behavior of FRP-concrete-steel columns used to accelerate bridge construction” Plenary Speaker, 1<sup>st</sup> International Congress on Urban and Civil Engineering, Prague, Czech Republic, October 22 - 23, 2018.
- “New structural systems for sustainable and accelerated construction” Keynote Lecture, 7<sup>th</sup> Jordanian Civil Engineering Conference, May 9 – 11, 2017

### *Presentations and Seminars*

#### *Presentations without paper*

1. “Rapid Repair of Hollow-Core FRP-Concrete-Steel Columns” ACI Spring Convention, Salt Lake, March 25 - 29, 2018.
2. “Shaking Table Testing of Self-Centering Hollow- Core FRP-Concrete-Steel Bridges Columns Subjected to Near-Fault Ground Motion” ACI Spring Convention, Salt Lake, March 25 - 29, 2018.
3. “Strength Degradation of CFFT Cylinders Subjected to Accelerated Seawater Corrosion and Sustained Axial Load” ACI Spring Convention, Salt Lake, March 25 - 29, 2018.
4. “Experimental Evaluation of the Seismic Performance of Hollow-Core Composite Bridge Columns Subject to Cyclic Loading” ACI Spring Convention, Salt Lake, March 25 - 29, 2018.
5. “Evaluation of FRP and FRCM composites for the strengthening of reinforced masonry walls” ACI Fall Convention, Anaheim, Oct. 15 – 19, 2017.

6. "Column-footing connection evaluation of hollow- core composite bridge columns" ACI Fall Convention, Anaheim, Oct. 15 – 19, 2017.
7. "Effects of column footing connections of hollow-core composite bridge columns" ACI Spring Convention, Detroit, March 26 – 30, 2017.
8. "Experimental study on flexural behavior of reinforced masonry walls strengthened with FRCM composite or NSM with cementitious adhesive" ACI Fall Convention, Philadelphia, Oct. 23 – 27, 2016.
9. "Confinement of masonry using an innovative steel ring" Seismic Committee of TMS, annual meeting, 2017
10. "Innovative column design for extreme loads" Transportation Engineers Association of Missouri, St Louis, Mo, March 9 – 11, 2016
11. "Improving the seismic performance of bridge columns using more sustainable material" the Seismic Design and Performance of Bridges Committee AFF50, TRB, Washington DC, Jan. 8 – 12, 2016
12. "Seismic behavior of precast hollow-core columns for accelerated bridge construction". National Accelerated Bridge Construction Conference, December 7-8, 2015.
13. "Segmental hollow-core columns for accelerating bridge construction" Toward resilient and sustainable infrastructure development at the new Suez Canal region in Egypt, US-Egypt workshop, December 7 -9, 2015
14. "Seismic behavior of FRP-concrete-steel columns" The Earthquake-Resistant Concrete Bridges Committee 341, ACI Fall Convention, Denver, November 7 – 11, 2015.
15. "Static cyclic and dynamic behavior of hollow-core bridge columns", ACI Fall Convention, Denver, November 7 – 11, 2015.
16. "Mechanical characterization of concrete masonry units manufactured using crumb rubber aggregate" The Masonry Society Annual Meeting, Indianapolis, Indiana, October 15 -20, 2015.
17. "Testing and Evaluation of GFRP Sandwich Bridge Deck Panels with Polyurethane Foam Core" American Society of Mechanical Engineering, International Mechanical Engineering Congress and Exposition, Houston, Texas, November 13 – 19, 2015
18. "Thermal characterization of concrete masonry units manufactured using recycled tires as an aggregate" NSF/DOE workshop, Oak Ridge, Tennessee, June 3, 2015

19. "Behavior of FRP-Concrete-Steel Double-Skin Tubular Columns under Lateral Loads" Mohamed A. ElGawady, and Omar I. Abdelkarim, American Concrete Institute Spring Convention, Kansas City, Missouri, April 12 – 16, 2015
20. "Seismic behavior of innovative bridge columns for ABC construction" the Seismic Design and Performance of Bridges Committee AFF50, TRB, Washington DC, Jan. 11 – 15, 2015
21. "Behavior of innovative hollow-core FRP-concrete-steel columns" ACI Committee 341, Washington DC, 2014.
22. "Hollow-core columns for ABC" Washington State DOT, Olympia, WA, April 24, 2014.
23. "Proposed shear strength design equations for partially grouted masonry walls" The Flexural, Axial, and Shear Committee, The Masonry Society Annual Meeting, October 10 -14, Scottsdale, Arizona, 2014.
24. "Experimental investigation of unbonded post-tensioned masonry walls" The Prestressed Committee, The Masonry Society Annual Meeting, October 10 -14, Scottsdale, Arizona, 2014.
25. "Behavior of hollow-core FRP-concrete-steel columns under extreme loading", Transportation Infrastructure Conference, October 3, Rolla, MO, 2014.
26. "Shear strength of partially grouted masonry walls" The Flexural, Axial, and Shear Committee, The Masonry Society Spring Meeting, April 22- 26, Kansas City, Kansas, 2014.
27. "Seismic design parameters for unbonded post-tensioned masonry walls" The Prestressed Committee, The Masonry Society Spring Meeting, April 22- 26, Kansas City, Kansas, 2014.
28. "Disaster-resilient bridges using concrete filled FRP tubes" Centre for Infrastructure Engineering Studies Seminar Series, Rolla, MO, 2013.
29. "Strength reduction factor of post-tensioned masonry shear walls" The Prestressed Committee, The Masonry Society Annual Meeting, October 12, Herndon, Virginia, 2013.
30. "In-plane seismic response of partially grouted masonry shear walls" The Masonry Society Annual Meeting, October 12, Herndon, Virginia, 2013.
31. "Behavior of sustainable concrete made with scrap rubber" International Concrete Sustainability Conference, May 7-8, San Francisco, 2013.
32. "Self-centering infrastructure" German University in Cairo, Egypt, 2013.
33. "Seismic performance of precast post-tensioned bridge piers and bents" Committee 341, ACI Spring Convention, Chicago, 2010.



34. "Accelerated bridge construction system" Committee AFF 50, Transportation Research Board (TRB), 2010.
35. "Seismic behaviour of post-tensioned bridge piers", New Orleans, ACI Fall Convention, Special Session (How Do You Spice Up a Concrete Bridge to Be Earthquake Resistant), New Orleans, 2009.
36. "Strengthening of low cost housing" 10<sup>th</sup> NAMC, St Louis, Missouri, 2007.
37. "Rehabilitation of unreinforced brick masonry walls using composites", Retrofitting of Masonry Structures and Earthquake Resistant Design, Short Course, Dresden, Germany, 2003.

#### *Seminars*

1. "Hollow core precast columns for accelerating bridge construction" Missouri Society of Professional Engineers, Jefferson City Chapter lunch, Jefferson City, Missouri, May 26<sup>th</sup>, 2015
2. "Behavior of hollow core FRP-concrete-steel columns under extreme loads" St Louis University, St Louis, Missouri, Nov. 25, 2014.
3. "Unbonded post-tension masonry shear walls" Architectural Engineering Institute Student Chapter, Missouri University of Science and Technology, 2013

#### *Media Exposure and Visibility*

- "Less could mean more for stronger building materials" ASCE Civil Engineering Magazine, May Issue, 2015.
- "Ready to fill in" Roads & Bridges Magazine, November, 2015.
- "Scrap tires finding a new home" News Tribune, Jefferson City, MO, Sunday March 9, 2014.
- "Pettis County Commission tests new road material", Sedalia Democrat, October 21, 2016.

## **TEACHING**

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### *Missouri University of Science and Technology*

Steel Design, Advanced Steel Design, Advanced Structural Masonry Design, Plastic Analysis and Design of Metal Structures

### *University of South Australia*

Steel Design, Advanced Concrete Design

*Tokyo Institute of Technology*

Sustainable Structures, Structural Dynamics (Co-taught with Prof. K. Kawashima), Civil Engineering I (Co-taught with Prof. A. Wijeyewickrema, this class is similar to seminar class in the US), Civil Engineering II (Co-taught with Prof. A. Wijeyewickrema, this class is similar to seminar class in the US)

*Washington State University*

Structural Dynamics, Earthquake Engineering, Prestressed Concrete and Reinforced Masonry, Reinforced Concrete Design

*University of Auckland*

Reinforced Concrete Design (Co-taught with Prof. J. Ingham)

*Swiss Federal Institute of Technology (ETH) Lausanne (Teaching Assistant)*

Earthquake Engineering

*High Institute of Engineering and Management, Egypt (Tutor)*

Design of Steel Structures, Soil Mechanics and Foundation design, Principles of Mechanics, Structural Analysis, Strength of Material

*Short Courses Taught*

Introduction to reinforced masonry structural design, May 16 – 18, 2017, Seoul National University, South Korea

Hollow-core fiber reinforced polymer concrete steel columns under extreme loads, May 16 – 18, 2017, Seoul National University, South Korea

Introduction to reinforced masonry structural design, May 7, 2017, The 7<sup>th</sup> International Jordanian Civil Engineering Conference Workshop, Jordan

Introduction to earthquake engineering, January 5-8, 2008, Cairo University, Egypt

**RESEARCH SUPERVISION**

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I have advised a total of 39 graduate students. Graduated 12 Ph.D. students and 18 M.S. students. I have also directed the work of 27 undergraduate students on undergraduate research projects. I currently have 5 doctoral student advisees in progress and 4 master's student advisees in progress.

*Postdoctoral / Research Fellow – Missouri S&T*

- M. Abdulazeez, 9/1/20 - Now
- M. Cullu, 9/1/19 – 9/1/20
- A. Gheni, 1/1/19 – 8/1/19
- M. Fakharifar, 1/1/16 – 5/30/16
- O. Abdelkarim, 1/1/16 – 9/15/16

*Ph. D. Students (Committee Chair; 18 students) – Missouri S&T*

- B. Neal, FS 2023<sup>§</sup>, Recycled tires for bridge applications
- F. Aboutaha, FS 2023<sup>§</sup>, 3D printing of structural concrete
- A. Ramadan, FS 2023<sup>§</sup>, Assessment and repair of corroded steel H-piles using FRP, passed comprehensive exam.
- T. Mahmoud, FS 2023<sup>§</sup>, In-plane and out-of-plane seismic performance of masonry shear walls, passed comprehensive exam.
- B. Shrestha, FS 2022<sup>§</sup>, Structural behavior of UHPC for the repair of infrastructure, passed comprehensive exam.
- A. Sheta<sup>§§§§</sup>, FS 2022, Performance of a composite light gauge steel shear walls
- A. Pourhassan, FS 2022, Structural behavior of rubberized concrete under dynamic loads
- E. Gomaa, FS 2021, Behavior of high-calcium fly ash geopolymer concrete for infrastructure repair, passed comprehensive exam.
- Y. Darwish, SS 2020, Vehicle-impact protection panels for bridge resiliency, passed qualifying exam
- M. Abdulazeez, SP 2020, Seismic behavior of composite bridge columns.
- A. Gheni, SP 2019, Feasibility and assessment of using recycled rubber for infrastructure applications.
- S. Wang, SP 2018, Long-term behavior of fiber reinforced polymer (FRP) confined concrete cylinders subjected to severe weather and seawater solution conditions.
- A. Moustafa, FS 2016, Innovative techniques for seismic-resistant bridge columns under ground motion excitations.
- O. Abdelkarim, FS 2015, Behavior of hybrid hollow-core FRP-concrete-steel columns under extreme loads.
- H. Tuwair<sup>§§</sup>, FS 2015, Behavior of polyurethane based GFRP sandwich bridge deck panels filled with polyurethane foam.

- O. Youssf<sup>§§§</sup>, FS 2015, Cyclic behavior of rubberized concrete columns.
- R. Hassani<sup>§§§</sup>, FS 2015, In-plane behavior of unbonded post-tensioned masonry walls.

§ Anticipated date

§§ Co-advisor with Dr. J. Volz

§§§ Co-advisor with Drs. J. Mills and X. Ma at University of South Australia

***Ph. D. Students (Committee Member; 20 students) – Missouri S&T***

- L. Fan, SP 19, Chemically-bounded enamel-coated steel pipelines for corrosion protection and flow efficiency
- Z. Li, SP 18, Critical buckling and post-buckling behavior of thin-walled liners encased by underground pipelines in saturated soil
- Q. Hongya, SS 18, Adaptive data analysis for damage detection and system identification in civil infrastructure
- Z. Al-Jaberi, SS 18, Strengthening of reinforced masonry walls subjected to out-of-plane load using advanced composite
- B. Gliha, SP 18, Shear performance and behavior of long carbon fiber reinforced concrete
- H. Alghazali, SP 18, Behavior and temporal-based effects of sustainable self-consolidating concrete in bridge structures
- E. Hernandez, FS 17, Serviceability response and strength evaluation of prestressed SCC bridges through load testing
- M. Valipour, FS 17, Design and performance of cost-effective ultra-high performance concrete for bridge deck overlays
- Z. Li, SS 17, Buckling analysis of thin-walled polymer liners confined in existing underground pipes in saturated soils
- S. Sadati, SS 17, High-Volume Recycled Materials for Sustainable Transportation Infrastructure
- Y. Bao, SS 17, Novel applications of pulse pre-pump Brillouin optical time domain analysis for behavior evaluation of structures under thermal and mechanical loading
- M. Alabdulhady, SP 17, Torsional behavior of RC beams strengthened with PBO-FRCM composite
- Y. Chen, FS 16, Long-period fiber grating corrosion sensors for life-cycle monitoring and assessment of reinforced concrete structures
- M. Fakharifar FS 15, Seismic Behavior Of Retrofitted Concrete Bridges
- A. Ibrahim, FS 15, Detecting and Mapping Subsurface Karst Cave At Meramec State Park Using 3D Electrical Resistivity Tomography (ERT) Arrays

- M. A. Asareh, SP 15, Dynamic Behavior Of Operational Wind Turbines Considering Aerodynamic And Seismic Load Interaction
- I. Algraiw, FS 14, The Engagement Of Expert Opinions In The Modeling Of Multi-Attribute Decision Making For The Selection Of Projects Delivery Methods In Building Construction
- M. Aboel Seoud, FS 14, An Integrated Study For Hybrid Composite Beam (HCB) Structures
- Y. Yang, SS 14, Repair Of Earthquake Damaged Bridge Columns With Interlocking Spirals And Fractured Bars
- C. Wu, SP 14, A Unified Bond Theory, Probabilistic Meso-Scale Modeling, And Experimental Validation Of Deformed Steel Rebar In Normal Strength Concrete
- M. Arezoumandi, SP 13, Shear And Fracture Behavior Of High Performance Concretes

*Ph. D. Students (Committee Member; 1 student) – Washington State University*

- R. Sehhati, FS 08, Probabilistic Seismic Demand Analysis For The Near-Fault Zone

*D.E. Students (Committee Member; 1 student) – Missouri S&T*

- J. Finke, FS 16, A static and dynamic characterization of tied arch bridges

*M. S. and M.Eng. Students (Committee Chair; 12 students) – Missouri S&T*

- J. Carter, SP 21, Cyclic behavior of self-consolidated concrete
- A. Lee (Greenberg Scholar BS/M.S.), SP 19, Feasibility study for sustainable controlled low-strength material (CLSM) incorporating off-specification fly ash and bottom ash
- C. Kashosi, SP 19, Performance of one-part and two-part fly ash-based alkali activated mortar
- M. Ahdaya<sup>SS</sup>, FS 18, The development of a new formulation of fly ash class C based geopolymer and assessing its performance in presence of drilling fluid contamination
- S. Sargon, SP 18, Optimization of thermal curing of class c fly ash-based geopolymer mortars
- M. Nain, SP 18, Cyclic axial compression behavior of concrete-filled hybrid large rupture strain FRP tubes
- N. Colbert, SP 18, Local buckling of axially loaded steel tubes externally constrained using concrete and FRP
- U. Toluganti, FS 16, Non-thesis
- N. Yacob, FS 16, Shear behavior of reinforced fly ash-based geopolymer concrete

- S. Anumolu, FS 15, Behavior of hollow-core composite columns under torsion loading

§ Anticipated date

§§ Co-advisor with Dr. A. Imqam

*M. S. Students (Committee Chair; 9 students) – Washington State University*

- J. Elmaprouk, FS 10, Seismic Behavior Of Squat Masonry Shear Walls
- H. Dawood, FS 10, Seismic Behavior And Design Of Segmental Precast Post-Tensioned Concrete Piers
- M. Rai, FS 10, Time Domain Probabilistic Seismic Demand Analysis Of Self-Centering Bridges Under Near Fault Ground Motions
- S. Nolph, SP10, In-Plane Shear Performance Of Partially Grouted Masonry Shear Walls
- A. Kuper, FS 09, Detection Of Delaminations Of FRP Retrofitted Reinforced Concrete Columns
- A. Sha'lan, FS 09, Seismic Performance Of Self-Centering Frames Composed Of Precast Post-Tensioned Concrete Encased In FRP Tubes
- AJ Booker, FS 08, Performance Of Continuous And Segmented Post-Tensioned Concrete Filled Fiber Tubes
- R. Shafiei, FS 08, Nonlinear Dynamic And Static Analysis Of I-5 Ravenna Bridge
- M. Abebaw, SP 08, Seismic Retrofit Of Rectangular Bridge Columns Using CFRP Wrapping

*M. S. Students (Committee Member; 7 students) – Missouri S&T*

- A. Wehar, SS 19, Influence of pumping parameters on the freeze/thaw and scaling resistance of highly workable concrete
- S. L. Wermager, FS 15, Shear friction of lightweight concrete
- K. Krc, FS 15, An investigation of shear-friction of lightweight aggregate concretes
- K. Smith, SS 15, Advanced sustainable concrete materials for infrastructure applications
- A. Cain, SS 15, Nondestructive testing of masonry structures
- A. K. Theinat, SP 15, 3D numerical modelling of micropiles interaction with soil & rock
- A. Griffin, FS 14, Shear behavior of high strength self-consolidating concrete In NU bridge girders

*M. S. Students (Committee Member; 8 students) – Washington State University*

- B. Walkenhauer, SP 10, Seismic Retrofit Of Cruciform-Shaped Columns In The Aurora Avenue Bridge Using FRP Wrapping

- T. Vaughan, SP 10, Evaluation Of Masonry Wall Performance Under Cyclic Loading
- J. Mjelde, SP 08, Performance Of Lap Splices In Concrete Masonry Shear Walls
- Y. Tsui, SP 08, Non-Thesis
- S. Greenwood, FS 08, Seismic Behavior Of Hollow Core Piles
- S. Abu Lail, FS 08, Nondestructive Testing Of A307 Steel Bolts
- C. Davis, FS 08, Shear Strength Of Masonry Walls
- C. Lee, FS 08, Non-Thesis

### *International Visitors*

Visitor	University	Research Topic/ Degree*	Sponsor	Year
F. Lang	Stuttgart	Hollow-core columns / BS	DAAD, Germany	FS 15
I. Khan	King Saud University	Sustainable concrete material / Professor	King Saud University	SS 15
L. Guang-yan	Guilin University of Technology	Recycled scrape tires / Postdoc	China NSF	SS 15
L. Yassin	U. Technology, Baghdad	Short cantilever / Ph.D.	Iraq Government	SP 15
R. Hassanli	South Australia	Masonry walls / Ph.D.	UniSA, Australia	FS 13

\* The degree the candidate is currently pursuing

### *Research Experience for Undergraduate Students*

Student	University	Research Topic	Semester
R. Gosen	Missouri S&T	Corroded steel piles	SS 18/FS 18
M. Money	Missouri S&T	Corroded steel piles	SS 18/FS 18
B. Nicole	Missouri S&T	Corroded steel piles	FS 18
A. Fakher	Missouri S&T	Masonry shear walls	FS 18
A. Banyon	Missouri S&T	Masonry shear walls	SS 18/FS 18
B. Nicole	Missouri S&T	Masonry shear walls	FS 18
M. Leithy	Missouri S&T	Recycled paint for concrete	FS 18
A. Fakher	Missouri S&T	Geopolymer concrete	FS 18/SP 19/ FS 19
N. Modibo Keita	Missouri S&T	Masonry shear walls	SS 18/FS 18
C. Cattro	Missouri S&T	Masonry shear walls	SS 18
J. Eberle	Missouri S&T	Masonry shear walls	SS 18/FS 18
M. Borgmeyer	Missouri S&T	Masonry shear walls	FS 18
E. Borgmeyer	Missouri S&T	Masonry shear walls	FS 18
L. Perkins	Missouri S&T	Geopolymer concrete	FS 18
D. Olds	Missouri S&T	Geopolymer concrete	SP 18/FS 18
A. Vasilyev	Missouri S&T	Geopolymer concrete	SP 18/FS 18
K. Coday	Missouri S&T	Geopolymer concrete	SP 18
Z. Rechav	Missouri S&T	Geopolymer concrete	SP 18
R. Ingram	Missouri S&T	Geopolymer concrete	SP 18
L. Myrick	Missouri S&T	Geopolymer concrete	SP 18

B. Kennedy	Missouri S&T	Geopolymer concrete	SP 18
E. Eisenbacher	Missouri S&T	Geopolymer concrete	SP 18
J. Cureton	Missouri S&T	Geopolymer concrete	SP 18
A. Alsharmi	Missouri S&T	Rubberized concrete	SS 17/FS 17
E. Botchway	Missouri S&T	Rubberized chip seal	FS 17
A. Sawyer	Missouri S&T	Geopolymer concrete	SS 17
A. Graesser	Missouri S&T	Geopolymer concrete	SS 17
M. Short	Missouri S&T	Geopolymer concrete	SS 17
J. Williams	Missouri S&T	Rubberized chip-seal, recycled FRP	FS 15/SS 16/ SS 17
A. Crannick	Missouri S&T	Rubberized chip-seal	FS 15
A. Otto	Missouri S&T	Segmental columns	FS 15
A. Chapko	Missouri S&T	Segmental columns	SP 15/ FS 15/ SP 16
A. Walther	Missouri S&T	Concrete filled FRP tubes	FS 13
A. Hamad	Missouri S&T	Masonry shear walls	FS 13
M. Hoffman <sup>§</sup>	UniSA	Behavior of rubberized concrete	SP 12
T. Mai	UniSA	Behavior of rubberized concrete	SP 12
H. Rankine	UniSA	Behavior of rubberized concrete	SP 12
J. Tang	UniSA	Behavior of rubberized concrete	SP 12
C. Davis	WSU	Retrofitting of RC columns	SS 07
J. Nicolas	WSU	Masonry shear walls	FS 08 / SP 09
Z. Abdelalim	WSU	Modeling of segmental columns	FS 09
M. Voth	WSU	Behavior of foamed fly ash concrete	FS 09

Key:

WSU = Washington State University

UniSA = University of South Australia

### ***Research Experience for High School Students (Mentor)***

<b>Student</b>	<b>School</b>	<b>Research Topic</b>	<b>Year</b>
J. Rieth	Rolla High School	Concrete filled FRP tubes	SP 14

## **SERVICE**

### ***Missouri University of Science and Technology***

- Member, Conflict of Interest Committee, Missouri University of Science and Technology, 2019 - 2021
- Member, Faculty Award Committee, Missouri University of Science and Technology, 2019 - 2020
- Elected Member, College of Computing and Engineering Promotion and Tenure Committee, 2018 - 2020



- Elected Member, Campus Promotion and Tenure Committee, 2018 - present
- Chair, Promotion and Tenure Committee, Civil, Architectural, and Environmental Engineering Department, 2018 - present
- Member, Taskforce on GTA allocation, 2017
- Member, Taskforce on workload model, 2017
- Member, Mentoring Committee of Dr. H. Ma (assistant professor, CArE Department), 2016 - present
- Member, Civil Engineering Graduate Program Committee, 2015 - 2018
- Member, Civil Engineering Undergraduate Program Committee (CE-UPC), 2012- 2015, 2017
- Chair, CArEE, MAPA Pavement Faculty Search Committee, 2015 – 2017. The position was filled.
- Chair, CArEE Structures Faculty Search Committee, 2015. The position was filled.
- Member, CArEE Structures Faculty Search Committee, 2014. The position was filled.
- Department liaison representative, Cluster Hiring Search Committee, 2015
- Helping organize the Departmental Open House in the fall of 2013 and spring of 2015
- Organizing two Departmental open house events in the spring of 2014
- Proposal reviewer, University of Missouri Research Board, Fall 2013, Spring 2014, Fall 2014, and Spring 2016
- Advising 20 undergraduate students each semester
- Member of 12 Ph.D. committees and 4 M.S. committees
- Member, Civil Engineering Graduate Program Committee, 2015 - present
- Helping organizing the Phonathon event (fund raising activity) during the fall of 2013
- Faculty advisor of the Muslim Students Association (MSA), 2013 – Present
- Participating in multiple interviews for faculty searches
- Participating in several High Bay Structural Engineering Research Laboratory tours for state legislators and University of Missouri administrators

### *Washington State University*

- Technical Advisor, Engineers Without Borders (EWB) Students Chapter (for constructing a masonry school and hospital in Sudan).
- Member, Civil and Environmental Engineering Purchase Committee (2006-2010)

### *Leadership and Membership of Technical Committees*

- Organizer, Nuggets Presentations for the TRB Committee AFF50, Seismic Design and Performance of Bridges, 2019 - 2020
- Chair, ACI/ASCE Committee 441, Reinforced Concrete Columns, 2016 - present
- Chair, ACI Committee 341A, Earthquake-Resistant Concrete Columns, 2015- Present
- Chair, Award Committee, The Masonry Society, 2019- present
- Co-Chair / Member, Research Committee, The Masonry Society, 2017- present / 2008 - 2017
- Secretary/Member, Prestressed Committee, TMS 402/602 (MSJC) Building Code, 2010- Present
- Voting Member, Main Committee, TMS 402/602 (Formerly MSJC; Masonry Construction Building Code), 2016 - Present
- Member, ACI Committee 341 (Earthquake-Resistant Concrete Bridges), 2015- Present
- Associate Member, ACI Committee 440 (Fiber-Reinforced Polymer Reinforcement)
- Member, TRB Committee AFF50, Seismic Design and Performance of Bridges
- Associate Member, TRB Committee AFF80, Structural FRP
- Christchurch earthquake (2011) mission of reconnaissance sponsored by the Japan Society of Civil Engineering (JSCE)
- Member/Associate Member, Shear Committee, TMS 402/602 (MSJC) Building Code, 2008-2016
- Member/Associate Member, Seismic Committee, TMS 402/602 (MSJC) Building Code, 2010- Present

### *Editorship and Peer-review of Technical Manuscripts*

- Editor-in-Chief, Innovative Infrastructure Solutions, Springer, 2021 - present
- Associate Editor, Journal of Bridge Engineering, ASCE, 6/2016 – present
- Associate Editor, Frontiers in Built Environment, Frontiers, 6/2019 – present
- Editorial Board Member, Advances in Civil Engineering, 2018 - present
- Coauthor, Masonry Design Guide Manual, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, and 2013 editions
- Guest Editor, Sustainable Concrete Structures, Sustainability Journal, 2018
- Guest Editor, Resilient Civil Infrastructure under Dynamic Loadings, Shock and Vibration Journal, 2017

- Technical paper reviewer: Earthquake Engineering J., Earthquake Engineering and Structural Dynamics J., J. Engineering Structures, J. Advances in Structural Engineering, Composite Structures, Arabian J. Science and Engineering, J. Cleaner Production, Composites Part B: Engineering, ASCE Composites for Construction, ASCE J. of Bridge Engineering, ASCE J. Structural Engineering, ACI Material J., ACI Structural J., Construction and Building Materials, J. Material Engineering (ASCE), J. Performance of Constructed Facilities (ASCE)
- Evaluator, Nevada Medal for Distinguished Graduate Student Paper in Bridge Engineering, 2010, and 2017
- Evaluator for best thesis award, The Masonry Society (TMS), 2007-present
- Reviewer for the Council of University Transportation Centers (CUTC) National Student Award, 2013/2014

### *Organizing, Scientific, and Steering Committees of Technical Conferences*

- Member, Organizing Committee, International Conference on Civil Engineering and Architectural Design, Munich, Germany, July 01-03, 2021
- Member, Organizing Committee, International Conference on Building Materials and Construction Technologies (BMCT), Dubai, UAE, April 6 – 8, 2021
- Member, Organizing Committee, International Conference and Expo on Urban and Civil Engineering, Montreal, Canada, June 15 - 16, 2020
- Member, Organizing Committee, International Conference and Exhibition on Building Materials and Construction Technologies (BMCT), Dubai, UAE, April 20 - 22, 2020
- Member, Scientific Committee, Innovation for Sustainable Infrastructure, Ha Noi, Vietnam, Oct. 31 – Nov. 1, 2019
- Member, Scientific Committee, International Conference on Material Engineering and Materials Science (MEMS2019), Wuhan, Hubei, China, Dec. 13-14, 2019
- Member, Organizing Committee, 3<sup>rd</sup> Annual Conference on Steel and Structural Engineering, Dubai, UAE, Jan. 28-29, 2019
- Member, Steering Committee, Congress on Architecture and Civil Engineering, UAE, January 4-6, 2019
- Member, Organizing Committee, 5<sup>th</sup> International Conference on Steel and Concrete Structures, Tokyo, Japan, August 29 – 30, 2018

- Member, Organizing Committee, 1st International Conference on Civil Engineering Technologies, Jordan, September 2 – 6, 2018
- Member, Organizing Committee, 5th International Conference on Steel and Concrete Structures, Japan, August 29 -30, 2018
- Member, Scientific Committee, 4<sup>th</sup> International Conference on Civil Engineering Education (EUCEET 2018), Barcelona, Spain, September 5 – 8, 2018
- Member, Technical Committee, 13<sup>th</sup> North American Masonry Conference, Salt Lake, 2018
- Member, Technical Committee, 12<sup>th</sup> North American Masonry Conference, Denver, 2015
- Member, Technical Committee, 11<sup>th</sup> North American Masonry Conference, Minneapolis, 2011
- Member, Technical Committee, 11<sup>th</sup> Canadian Masonry Symposium, Ontario, Canada, 2009
- Member, International Scientific Advisory Committee, 5<sup>th</sup> Conference on Earthquake Resistant Engineering Structures, Bologna, Italy, 2007
- Member, International Scientific Advisory Committee, 10<sup>th</sup> International Conference Structural Repairs and Maintenance of Heritage Architecture, Prague, Czech Republic, 2007

### *Session Organizer and Moderator During Technical Conferences*

- Session organizer and chair, 11<sup>th</sup> National Earthquake Engineering Conference, 2018
- Session moderator, 16<sup>th</sup> International Congress on Polymers in Concrete (ICPIC 2018), 2018
- Session moderator, 9<sup>th</sup> International Conference on Bridge Maintenance, Safety, and Management, Melbourne, Australia, July 9<sup>th</sup> – 13<sup>th</sup>, 2018
- Session organizer and chair, Seismic Performance of Innovative Bridge Columns for Accelerating Bridge Construction, the 16<sup>th</sup> World Conference on Earthquake Engineering, Chile, January 9 – 13, 2017
- Session organizer and chair, Seismic Behavior of Masonry Shear Walls, the 16<sup>th</sup> World Conference on Earthquake Engineering, Chile, January 9 – 13, 2017
- Session Chair, 5<sup>th</sup> International Conference on Construction Materials (ConMat): Performance, Innovations and Structural Implications, Whistler, BC, Canada, August 19 – 21, 2015
- Session organizer and chair, Seismic Design of Segmental and Innovative Bridges, ACI Fall Convention, Denver, November 7 – 11, 2015.
- Session Chair, the 3<sup>rd</sup> Conference on Smart Monitoring, Assessment and Rehabilitation of Structures, Antalya, Turkey, September 7-9, 2015.

- Session Chair, 9<sup>th</sup> US National and 10<sup>th</sup> Canadian Conference on Earthquake Engineering, Toronto, Canada, 2010.
- Session Organizer and Chair, 5<sup>th</sup> Conference on Earthquake Resistant Engineering Structures, Bologna, Italy, 2007

### *Peer-review of Technical Proposals*

- Review Panel Member, NCHRP 51-14, "Repair and Maintenance of Post-Tensioned Concrete Bridges", 2019
- Proposal reviewer, Transportation Consortium of South-Central States "TranSET", 2017, 2018
- Ad-hoc panelist, National Science Foundation, Hazard Mitigation and Structural Engineering (HMSE) Program, 2016
- Panelist, National Science Foundation, SAEM Program, Spring 2016
- Ad-hoc panelist, National Science Foundation, Hazard Mitigation and Structural Engineering (HMSE) Program, 2014
- Proposal reviewer, Chilean National Science and Technology Commission, 2015
- Proposal reviewer, South Africa National Research Fund, 2015
- Proposal reviewer, Iceland Youth Fund, 2014
- Proposal reviewer, National Science, Technology and Innovation Plan, Saudi Arabia, 2014
- Proposal reviewer, Qatar National Science foundation proposal reviewer, 2011
- Panelist, National Science Foundation, NEES Program, 2010
- Proposals reviewer, Region 2 University Transportation Research Centers, 2008 and 2010
- Proposal reviewer, Czech Science Foundation, 2010

## **PROFESSIONAL DEVELOPMENT**

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### *Technical Membership*

- Member of the American Society of Civil Engineers (ASCE) (2002-present)
- Member of The Masonry Society (TMS) (2002-present)
- Member of the American Concrete Institute (ACI) (2010 – present)
- Member of the Transportation Research Board (TRB) (2014 – present)
- Member of the New Zealand Concrete Society (NZCS) (2005-2007)
- Member of the New Zealand Society for Earthquake Engineering (NZSEE) (2005-2008)
- Member of the International Institute of FRP in Construction (IIFC) (2005-2007)

- Member of the Egyptian Society of Earthquake Engineering (ESEE) (2005/06)
- Member of The British Masonry Society (2004-2006)
- Member of the Syndicate of Engineers, Egypt (1997-present)

### *Professional Development Workshops*

- Broader Impacts Intensive Training, Broader Impacts Network, University of Missouri, Columbia, Mo, October 2, 2014
- University of Missouri Faculty Scholars includes: Building an Academic Portfolio, Lake Ozark, MO, October 3-5, 2013; Integrating Teaching and Scholarship, Jefferson City, MO, February 20-21, 2014; Course Design, Columbia, MO, May 19-20, 2014
- 6<sup>th</sup> annual Missouri S&T Teaching and Learning Technology Conference (TLT 2013), Rolla, MO, March 14-15, 2013.
- 7<sup>th</sup> annual Missouri S&T Teaching and Learning Technology Conference (TLT 2014), Rolla, MO, March 13-14, 2014.
- Building Your Academic Portfolio, Lake of the Ozarks, MO, October 3-5, 2013
- Freshman Faculty Meeting, One hour weekly meeting Chaired by Prof. R. Bieniek, Fall 2012/Spring 2013
- New Software Options for Hybrid Masonry/Steel and Load Bearing Masonry Building, Arizona, January 29, 2009
- The Writing Professor Workshop, Washington State University, 2006/2007
- University Professors Masonry Workshop, University of Louisville, March 11-13, 2007
- ExCEED Workshop (ASCE), Northern Arizona University, July 15-20, 2007
- Effective Teaching for Engineering Professors, Washington State University, Profs. Felder and Brent, July 19, 2007
- Highlight Seed Grant, Washington State University, 2006