

# Ravi Ranade, PhD, PE

Associate Professor of Civil, Structural and Environmental Engineering  
University at Buffalo, State University of New York (SUNY)

135 Ketter Hall, University at Buffalo, Buffalo, NY 14260-4300

Ph: (716) 645-5150; Email: [ranade@buffalo.edu](mailto:ranade@buffalo.edu), Google Scholar Profile: <https://goo.gl/dolxO8>

---

## RESEARCH INTERESTS

- Performance-based design and investigation of advanced concrete materials
- Reinforcement corrosion and rehabilitation of reinforced concrete structures
- Impact, blast, and thermal effects on material and structural performance
- Integrated resilience-sustainability assessments of infrastructure
- 3D printing of concrete and application of machine learning to accelerate materials innovation

## RESEARCH IMPACTS

Dr. Ravi Ranade conducts fundamental and applied research in the area of advanced concrete materials. His research on the micromechanics of fiber/matrix interactions in ductile concretes has contributed to the development of concretes that possess extremely high compressive strength as well as tensile ductility. Ranade's students at UB have developed a systematic method for designing such materials with given ingredients to achieve target mechanical and rheological properties. This work has been utilized (and funded) by the US Army Corps of Engineers to develop high-performance concretes for building protective structures.

Ranade's students have developed an innovative system to address corrosion-related deterioration of reinforced-concrete infrastructure. The New York State DOT has initiated a demonstration project to use a ductile concrete developed by Ranade's group for bridge repair and rehabilitation in Western New York. This material has also been utilized for the development of an innovative flood protection system by a local startup company (Smart Walls LLC). Ranade's fundamental research on piezo-resistive behavior of ductile fiber-reinforced concrete has been cited by several researchers for developing self-sensing materials. At the same time, he has developed low-cost, ultra-durable, and green concrete materials for promoting the economic and environmental sustainability of our civil infrastructure. Ranade's research has provided new insights into the behavior of cement-based materials and their bond with reinforcement at high temperatures, which will be vital for improving the structural resilience against fire and other high temperature hazards. Thus, Ranade's research at UB in the last five years has had significant impacts in both academia and industry.

## EDUCATION

*University of Michigan, Ann Arbor, MI*

**PhD, Civil Engineering (Structural Materials)** 2014

Thesis Title: Advanced Cementitious Composite Development for  
Resilient and Sustainable Infrastructure

Doctoral advisor: Victor C. Li

Graduate Certificate, Industrial Ecology 2012

Master of Science, Structures and Materials Engineering 2009

*Indian Institute of Technology, Mumbai, India*

Bachelor of Technology, Civil Engineering 2007

## APPOINTMENTS

### *University at Buffalo, State University of New York*

Associate Professor, Civil, Structural and Environmental Eng. Dept. Sep 2020 onward  
Assistant Professor, Civil, Structural and Environmental Eng. Dept. Aug 2014-Aug 2020

### *University of Michigan Ann Arbor*

Post-doctoral Research Fellow, Civil and Environmental Engineering Dept. Jan-July 2014  
Graduate Research Assistant, Civil and Environmental Engineering Dept. 2009-2013

## BRIEF RESEARCH EXPERIENCES

### *US Army Engineer Research and Development Center (ERDC), Vicksburg, MS*

Survivability Division, Geotechnical and Structures Laboratory 2011, 2012

### *Delft University of Technology (TU Delft), Delft, Netherlands*

Microlab, Department of Civil Engineering and Geosciences May 2010

### *Pacific Disaster Center, Kihei, HI*

Megacities Project: Profiling Mumbai, India May-July 2006

## AWARDS AND HONORS

- University at Buffalo CSTEP Distinguished Research Mentor Award 2017
- Society for Experimental Mechanics – Best Paper Award in the area of Dynamic Behavior of Materials 2016

### *University of Michigan, Ann Arbor, MI*

- “Richard and Eleanor Towner Prize” for the most *Outstanding PhD Research* in the College of Engineering 2012
- Pre-Doctoral Fellowship, Rackham Graduate School 2012-13
- Outstanding Student Instructor Award, American Society of Engineering 2009
- International Student Fellowship, Rackham Graduate School 2009
- Member of Tau-Beta-Pi Honor Society 2009-present
- Distinguished Achievement Graduate Fellowship, Civil and Environmental Engineering 2007-08

### *Indian Institute of Technology, Mumbai, India*

- Vidyasagar Nehra Gold Medal for the most outstanding graduating Civil Engineering Undergraduate Student 2007
- Institute Merit Scholarship covering 50% of tuition costs for three years 2005-2007

## RESEARCH GRANTS

All the funding listed below was acquired after joining UB (no carryover)

Total funding acquired through external grants: \$1,649,792

Funding credited to Ranade (weighted by credit %): **\$1,268,226**

- Title: Damage classification of reinforced concrete structures for fire: rebar temperature  
Funding Agency: *American Concrete Institute Foundation*  
Role: Co-PI  
Other investigators: Dr. Negar Elhami-Khorasani (PI), Dr. Anthony Tessari (Co-PI)  
Funding: \$49,993 Credit 33%  
Duration: January 2023-December 2023 (**Current**)
- Title: Mitigating cracks in concrete members for durable bridge construction  
Funding Agency: *Rutgers University funded by Region 2 University Transportation Center Consortium (Funded by US DOT)*  
Role: PI  
Other investigators: Dr. Pinar Okumus (Co-PI)  
Funding: \$150,000 Credit 50% RF Project #1160629 Award #83896  
Duration: October 2022-September 2023 (**Current**)
- Title: Economical, high flexural strength concrete for crack-free precast concrete products  
Funding Agency: *Precast/Prestressed Concrete Institute Jenney Fellowship*  
Role: Co-PI  
Other investigators: Dr. Pinar Okumus (Co-PI), Mi Jin Jung/Furkan Turan (Fellowship recipient)  
Funding: \$40,000 Credit 50% RF Award #94062  
Duration: September 2022-June 2023 (**Current**)
- Title: Crack-free concrete members for durable bridge construction  
Funding Agency: *Association of Bridge Construction and Design (ABCD)-WNY*  
Role: PI  
Other investigators: Dr. Pinar Okumus (Co-PI)  
Funding: \$10,000 Credit 50% UB Foundation  
Duration: September 2022-February 2023 (**Current**)
- Title: Motivating Use of Scrap Tire-Derived Asphalt in New York State Roadways  
Funding Agency: *Steven Still Institute of Sustainable Transportation and Logistics*  
Role: Co-PI  
Other investigators: Dr. John Atkinson (PI), Dr. Michael Shelly (PI), and Dr. Aditya Vedantam (PI)  
Funding: \$55,250 Credit 25%  
Duration: January 2022-December 2022
- Title: Constitutive Material Model Prototype for High-Velocity Kinetic Impact  
Funding Agency: *IS4S (DoD contractor)*  
Role: Sole PI  
Funding: \$113,458 Credit 100% RF Project #1166713 Award #90592  
Duration: March 2021-January 2023

7. Title: Linking Physics-Based Deterioration Model to Field-Based Condition Assessments for Improving Asset Management  
Funding Agency: Rutgers University funded by Region 2 University Transportation Center Consortium (Funded by US DOT)  
Role: PI  
Other investigators: Dr. Pinar Okumus (Co-PI)  
Funding: \$139,615 Credit 50% RF Project #1160629 Award #83896  
Duration: February 2021-January 2022
8. Title: Structural Hardening Utilizing Advanced Materials  
Funding Agency: US Army Engineer Research and Development Center  
Role: Sole PI  
Funding received: \$337,545\* Credit 100% RF Project #1153782 Award #84647  
\*Original Funding: \$511,718 for 3 years, but 3rd year amount of \$174,173 not given due to COVID-related budget cuts  
Duration: April 2019-March 2021 Original duration was until March 2022
9. Title: Seismic Vulnerability Assessment of Deteriorated Bridges  
Funding Agency: Rutgers University funded by Region 2 University Transportation Center Consortium (Funded by US DOT)  
Role: PI  
Other investigators: Dr. Pinar Okumus (Co-PI)  
Funding: \$141,476 Credit: 50% RF Project #1160629 Award #83896  
Duration: January 2020-December 2020
10. Title: Sustainable, Rapid Repair Utilizing Advanced Cementitious Materials  
Funding Agency: Rutgers University funded by Region 2 University Transportation Center Consortium (Funded by US DOT)  
Role: PI  
Other investigators: Dr. Pinar Okumus (Co-PI)  
Funding: \$128,416 Credit: 50% RF Project #1152137 Award #83896  
Duration: October 2018-September 2019
11. Title: Parametric Design Code for Concrete  
Funding Agency: IS4S (DoD contractor)  
Role: Sole PI  
Funding: \$253,000 Credit: 100% RF Project #1143102 Award #79682  
Duration: October 2017-March 2019
12. Title: Application of Ductile Concretes in Thin-Walled Concrete Filled Steel Tubes  
Funding Agency: SEA/OI Structural Engineers Foundation  
Role: Co-PI  
Other investigators: Ketan Ragalwar (my PhD student) (PI) and Dr. Michel Bruneau (Co-PI)  
Funding: \$2,500 Credit: 25%  
Duration: One time lump sum award in December 2017

13. Title: Systematic Optimization Method for Penetration-resistant Quasi-brittle Composite Materials  
Funding Agency: *US Army Engineer Research and Development Center*  
Role: Sole PI  
Funding: \$146,827 Credit: 100% RF Project #1136342 Award #76614  
Duration: September 2016-August 2017
  
14. Title: Development of Penetration-Resistant Ultra-high Performance Concrete (PR-UHPC) with low-cost, local materials  
Funding Agency: *Sandia National Laboratories*  
Role: Sole PI  
Funding: \$111,705 Credit: 100% RF Project #1130805 Award #74243  
Duration: November 2015-September 2016

### **CONSULTING PROJECTS**

1. Title: World Trade Center Salt Damage (from Hurricane Sandy) Remediation  
Funding Agency: *Port Authority of NY and NJ*  
Role: Member of the External Advisory Board for WSP, USA  
Duration: July 2020-May 2021
  
2. Title: Telescopic Structural Flood Walls – Phase II  
Funding Agency: *National Science Foundation: SBIR Phase II Award No. 1758544*  
Role: Consultant  
Other investigators: Jorge Baiz (PI); Other consultants: Dr. Amjad Aref, Dr. Andre Filiatrault, Dr. Anthony Tessari, and Mr. William Coulbourne  
Funding: \$749,057 Credit: 5%  
Duration: February 2018-January 2020
  
3. Title: Telescopic Structural Flood Walls – Phase I  
Funding Agency: *National Science Foundation: SBIR Phase I Award No. 1621727*  
Role: Consultant  
Other investigators: Jorge Baiz (PI); Other Consultants: Dr. Amjad Aref, Dr. Andre Filiatrault, Dr. Joseph Mollendorf, and Mr. William Coulbourne  
Funding: \$225,000 Credit: 5%  
Duration: June 2016-May 2017

## PUBLICATIONS

Google Scholar: <https://goo.gl/dolxO8> #Citations: 3,025; h-index: 24; i10-index: 36

ORCID: [0000-0001-6030-8371](https://orcid.org/0000-0001-6030-8371)

# Journal Articles: 37 published/accepted  
# Peer-reviewed Conference Papers: 22 published/accepted  
# Workshop/Symposium Papers/Posters: 7 published/accepted  
# Presentations, reports, and book chapters: 22

*Journal Articles* (**Students** supervised at UB as Major Advisor shown in bold)

1. **Soliman, A.A.**, Heard, W.F., Williams, B.A., and Ranade, R. (2023). “Effects of the tensile properties of UHPC on the bond behavior.” *Construction and Building Materials*, Vol. 392, Art. 131990. DOI: 10.1016/j.conbuildmat.2023.131990
2. **Wang, H.**, Ranade, R., and Okumus, P. (2023). “Calibrating a Physics-Based Corrosion Model with Field-Based Bridge Condition Data.” *ASCE Journal of Bridge Engineering*, Vol. 28, No. 5, Art. 04023020. DOI: 10.1061/JBENF2.BEENG-5796
3. **Wang, H.**, Ranade, R., and Okumus, P. (2023). “Seismic fragility of reinforced concrete bridge columns utilizing ductile fiber-reinforced concrete covers.” *Structure and Infrastructure Engineering*. Vol. 19, No. 5, pp. 708-730. DOI: 10.1080/15732479.2021.1973040
4. Lee, H.W., **Fakhri, H.**, Ranade, R., Basaran, C., Egner, H., Lipski, A., Piotrowski, M., and Mrozinski, S. (2022). “Modeling Fatigue of Pre-Corroded Bcc Metals with Unified Mechanics Theory.” *Journal of Materials and Design*, Vol. 224, Art. 111383. DOI: 10.1016/j.matdes.2022.111383.
5. **Wang, H.**, Ranade, R., and Okumus, P. (2022). “Estimating Chloride Exposure of Reinforced-Concrete Bridges Using Vehicle Spray and Splash Mechanisms.” *Structure and Infrastructure Engineering*. Published online. DOI: 10.1080/15732479.2022.2052910.
6. Mehrabi, R., Atefi-Monfared, K., **Kumar, D.**, **Deshpande, A.A.**, and Ranade, R. (2022). “Thermo-mechanical assessment of heated bridge deck under internal cyclic thermal loading from various heating elements: pipe, cable, rebar.” *Cold Regions Science and Technology*, Vol. 194, Art. 103466. DOI: 10.1016/j.coldregions.2021.103466
7. Arunothayan, R., Nematollahi, B., Ranade, R., Bong S.H., Khayat, K., and Sanjayan, J. (2022). “Digital Fabrication of Eco-Friendly Ultra-High Performance Fiber-Reinforced Concrete.” *Cement and Concrete Composites*, Vol. 125, Art. 104281. DOI: 10.1016/j.cemconcomp.2021.104281
8. Hua, N., Elhami-Khorasani, N., Tessari, A., and Ranade, R. (2022). “Experimental Study of Fire Damage to Reinforced Concrete Tunnel Slabs.” *Fire Safety Journal*, Vol. 127, Art. 103504. DOI: 10.1016/j.firesaf.2021.103504
9. Choi, J-I., Nguyễn, H.H., Park, S., Ranade, R., Li, V.C. and Lee, B.Y. (2021). “Effects Of Fiber Hybridization on Mechanical Properties and Autogenous Healing of Alkali-Activated Slag-Based Composites.” *Construction and Building Materials*, Vol. 310, Art. 125280. DOI: 10.1016/j.conbuildmat.2021.125280
10. **Kumar, D.** and Ranade, R. (2021). “Influence of Matrix-modification and Fiber-hybridization on High-Temperature Residual Mechanical Performance of Strain-Hardening Cementitious Composites.” *Construction and Building Materials*, Vol. 302, Art. 124157. DOI: 10.1016/j.conbuildmat.2021.124157

11. Nguyễn, H.H., Luong, Q-H., Choi, J-I., Ranade, R., Li, V.C. and Lee, B.Y. (2021). “Ultra-Ductile Behavior of Fly Ash-Based Engineered Geopolymer Composites with a Tensile Strain Capacity up to 13.7%.” *Cement and Concrete Composites*, Vol. 122, Art. 104133.  
DOI: 10.1016/j.cemconcomp.2021.104133
12. Arunothayan, R., Nematollahi, B., Ranade, R., Bong S.H., Sanjayan, J., and Khayat, K. (2021). “Fiber Orientation Effects on Ultra-High Performance Concrete Formed by 3D Printing.” *Cement and Concrete Research*, Vol. 143, Art. 106384. DOI: 10.1016/j.cemconres.2021.106384
13. **Kumar, D.** and Ranade, R. (2021). “Development of Strain Hardening Cementitious Composites Utilizing Slag and Calcium Carbonate Powder.” *Construction and Building Materials*, Vol. 273, Art. 122028. DOI: 10.1016/j.conbuildmat.2020.122028
14. **Fakhri, H.**, Fishman, K., and Ranade, R. (2021). “Rapid Determination of Critical Chloride Content in Cement-Based Composites.” *Construction and Building Materials*, Vol. 268, Art. 121148.  
DOI: 10.1016/j.conbuildmat.2020.121148
15. **Fakhri, H.**, Fishman, K., and Ranade, R. (2020). “A Novel Experimental Method to Determine the Critical Chloride Content in Cement-based Composites.” *Construction and Building Materials*, Vol. 263, Art. 120101. DOI: 10.1016/j.conbuildmat.2020.120101.
16. Arunothayan, R., Nematollahi, B., Ranade, R., Bong S.H. and Sanjayan, J. (2020). “Development of 3D-Printable Ultra-High Performance Fiber-Reinforced Concrete for Digital Construction.” *Construction and Building Materials*, Vol. 257, Art. 119546.  
DOI: 10.1016/j.conbuildmat.2020.119546
17. **Ragalwar, K.A.**, Heard, W.F., Williams, B.A. and Ranade, R. (2020). “Significance of the Particle Size Distribution Modulus for Strain-Hardening-Ultra-High Performance Concrete (SH-UHPC) Matrix Design.” *Construction and Building Materials*, Vol. 234, Art. 117423.  
DOI: 10.1016/j.conbuildmat.2019.117423
18. **Deshpande, A.A.**, **Kumar, D.** and Ranade, R. (2020). “Temperature effects on the Bond Behavior between Deformed Steel Reinforcing Bars and Hybrid Fiber-Reinforced Strain-Hardening Cementitious Composite.” *Construction and Building Materials*, Vol. 233, Art. 117337.  
DOI: 10.1016/j.conbuildmat.2019.117337
19. **Ragalwar, K.A.**, Heard, W.F., Williams, B.A., **Kumar, D.** and Ranade, R. (2020). “On Enhancing the Mechanical Behavior of Ultra-High Performance Concrete through Multi-scale Fiber Reinforcement.” *Cement and Concrete Composites*, Vol. 105, Art. 103422.  
DOI: 10.1016/j.cemconcomp.2019.103422
20. **Kumar, D.**, **Deshpande, A.A.**, and Ranade, R. (2019). “Influence of fiber length on the mechanical behavior of steel-PVA hybrid fiber-reinforced strain-hardening cementitious composites at high temperatures.” Special Edition of *Indian Concrete Journal* on SHCC, Vol. 93, pp. 30-38.
21. **Fakhri, H.** and Ranade, R. (2019). “On the Use of Strain-Hardening Cementitious Composite Covers to Mitigate Corrosion in Reinforced Concrete Structures.” *Construction and Building Materials*, Vol. 224, pp. 850-862. DOI: 10.1016/j.conbuildmat.2019.07.052
22. **Deshpande, A.A.**, **Kumar, D.** and Ranade, R. (2019). “Influence of High Temperatures on the Residual Mechanical Properties of a Hybrid Fiber-Reinforced Strain-Hardening Cementitious Composite.” *Construction and Building Materials*, Vol. 208, pp. 283-295.  
DOI: 10.1016/j.conbuildmat.2019.02.129
23. Nematollahi, B., Ranade, R., Sanjayan, J. and Ramakrishnan, S. (2017). “Thermal and Mechanical Properties of Sustainable Lightweight Strain Hardening Geopolymer Composites.” *Archives of Civil and Mechanical Engineering*, Vol. 17, No. 1, pp. 55-64. DOI: 10.1016/j.acme.2016.08.002

24. Ranade, R., Li, V.C., Heard, W.F. and Williams, B.A. (2017). “Impact Resistance of High Strength-High Ductility Concrete.” *Cement and Concrete Research*, Vol. 98, pp. 24-35.  
DOI: 10.1016/j.cemconres.2017.03.013
25. Choi, J-I., Lee, B.Y., Ranade, R., Li, V.C. and Lee, Y. (2016). “Ultra-high-ductile Behavior of a Polyethylene Fiber-Reinforced Alkali-Activated Slag-Based Composite.” *Cement and Concrete Composites*, Vol. 70, pp. 153-158. DOI: 10.1016/j.cemconcomp.2016.04.002
26. Ranade, R., Li, V.C. and Heard, W.F. (2015). “Tensile Rate Effects in High Strength-High Ductility Concrete.” *Cement and Concrete Research*, Vol. 68, pp. 94-104.  
DOI: 10.1016/j.cemconres.2014.11.005
27. Zhang, Q., Ranade, R. and Li, V.C. (2014). “Feasibility Study on Fire-Resistive Engineered Cementitious Composites.” *ACI Materials Journal*, Vol. 111, No. 6, pp. 651-660.  
DOI: 10.14359/51686830
28. Ranade, R., Zhang, J., Lynch, J.P. and Li, V.C. (2014). “Influence of Micro-Cracking on the Composite Resistivity of ECC.” *Cement and Concrete Research*, Vol. 58, pp. 1-12.  
DOI: 10.1016/j.cemconres.2014.01.002
29. Felekoglu, B., Tosun-Felekoglu, K., Ranade, R., Huang, X. and Li V.C. (2014). “Influence of Matrix Flowability, Fiber Mixing Procedure, and Curing Conditions on the Mechanical Performance of HTPP-ECC.” *Composites Part B: Engineering*, Vol. 60, pp. 359-70.  
DOI: 10.1016/j.compositesb.2013.12.076
30. Tosun-Felekoglu, K., Felekoglu, B., Ranade, R., Lee, B.Y. and Li, V.C. (2014). “The Role of Flaw Size and Fiber Distribution on Tensile Ductility of PVA-ECC.” *Composites Part B: Engineering*, Vol. 56, pp. 536-45. DOI: 10.1016/j.compositesb.2013.08.089
31. Huang, X., Ranade, R., Zhang, Q., Ni, W. and Li, V.C. (2013). “Mechanical and Thermal Properties of Green Lightweight Engineered Cementitious Composites.” *Construction and Building Materials*, Vol. 48, pp. 954-60. DOI: 10.1016/j.conbuildmat.2013.07.104
32. Ranade, R., Li, V.C., Stults, M.D., Heard, W.F. and Rushing, T.S. (2013). “Composite Properties of High Strength-High Ductility Concrete.” *ACI Materials Journal*, Vol. 110, No. 4, pp. 413-22.  
DOI: 10.14359/51685788
33. Ranade, R., Li, V.C., Stults, M.D., Rushing, T.S., Roth, J. and Heard, W.F. (2013). “Micromechanics of High Strength-High Ductility Concrete.” *ACI Materials Journal*, Vol. 110, No. 4, pp. 375-84.  
DOI: 10.14359/51685784
34. Huang, X., Ranade, R., Ni, W. and Li, V.C. (2013). “Development of Green Engineered Cementitious Composites Using Iron Ore Tailings as Aggregates.” *Construction and Building Materials*, Vol. 44, pp. 757-64. DOI: 10.1016/j.conbuildmat.2013.03.088
35. Huang, X., Ranade, R., Ni, W. and Li, V.C. (2013). “On the Use of Recycled Tire Rubber to Develop Low Modulus ECC for Durable Concrete Repairs.” *Construction and Building Materials*, Vol. 46, pp. 134-41. DOI: 10.1016/j.conbuildmat.2013.04.027
36. Huang, X., Ranade, R. and Li, V.C. (2012). “Feasibility Study of Developing Green ECC Using Iron Ore Tailings (IOTs) Powder as Cement Replacement.” *Journal of Materials in Civil Engineering*, Vol. 25, No. 7, pp. 923-31. DOI: 10.1061/(ASCE)MT.1943-5533.0000674
37. Sahmaran, M., Lachemi, M., Hossain, K., Ranade, R. and Li, V.C. (2009). “Influence of Aggregate Type and Size on the Ductility and Mechanical Properties of ECC.” *ACI Materials Journal*, Vol. 106, No. 3, pp. 308-16. DOI: 10.14359/56556



*Peer-reviewed Conference Papers*

1. **Ragalwar, K., Soliman, A.A. and Ranade, R.** (2023). “Cycling behavior of concrete filled steel tubes utilizing advanced FRC.” In Proceedings of International Workshop on Fiber Reinforced Concrete: from Design to Structural Applications (FRC 2023), 18-20 September 2023, Tempe, AZ.
2. **Soliman, A.A. and Ranade, R.** (2023). “Rebar Development Length of Reinforced UHPC.” In Proceedings of 3<sup>rd</sup> International Interactive Symposium on UHPC, 4-7 June 2023, Wilmington, DE, Article No. 27. DOI: 10.21838/uhpc.16655
3. **Kumar, D., Deshpande, A.A., Soliman, A. and Ranade, R.** (2022). “High-Temperature Residual Bond Behavior of Strain-Hardening Cementitious Composites.” Editors: Jan Hoffman and Giovanni Plizzari. In Proceedings of 5<sup>th</sup> International Conference on Bond in Concrete (BIC-2022), 25-27 July 2022, Stuttgart, Germany, pp. 452-463.
4. **Soliman, A., Kumar, D., Heard, W.F., Williams, B.A. and Ranade, R.** (2022). “Effect of material properties on the bond failure mode of fiber-reinforced cementitious composites.” Editors: Jan Hoffman and Giovanni Plizzari. In Proceedings of 5<sup>th</sup> International Conference on Bond in Concrete (BIC-2022), 25-27 July 2022, Stuttgart, Germany, pp. 315-326.
5. **Kumar, D., Soliman, A. and Ranade, R.** (2022). “Effects of fly ash content and curing age on high temperature residual compressive strength of strain-hardening cementitious composites.” In Proc. of 10<sup>th</sup> RILEM International Conference on Fiber Reinforced Concrete (BEFIB-2021), Improvements and Innovations II 20-22 September 2021, Valencia, Spain, RILEM Book series, Vol. 36., pp. 3-12. DOI: 10.1007/978-3-030-83719-8\_1
6. **Wang, H., Ranade, R. and Okumus, P.** (2021). “Incorporating Vehicle Spray of Deicing Salts in the Estimation of Corrosion Initiation Time of Highway Bridges.” Paper No. TRBAM-21-01533. In Proc. of the 100<sup>th</sup> Transportation Research Board Annual Meeting, 23-27 January, 2021, Washington D.C.
7. Arunothayan, R., Nematollahi, B., Sanjayan, J., **Ranade, R.**, Bong, S.H., and Khayat, K. (2020). “Quantitative Evaluation of Orientation of Steel Fibers in 3D-printed Ultra-high Performance Concrete.” In Proc. of 2nd RILEM International Conference on Concrete and Digital Fabrication (DC2020), 6-9 July, Eindhoven, Netherlands, pp. 389-397. DOI: 10.1007/978-3-030-49916-7\_40.
8. **Kumar, D., Ragalwar, K.A. and Ranade, R.** (2020). “Influence of Maximum Aggregate Size on the Optimum Distribution Modulus for Achieving Dense Particle Packing in UHPC.” In Proc. of HiPerMat-5 Conference, 11-13 March 2020, Kassel, Germany.
9. Arunothayan, R., Nematollahi, B., Bong, S.H., Sanjayan, J., and **Ranade, R.** (2019). “Hardened Properties of 3D Printable Ultra-High Performance Fiber-Reinforced Concrete for Digital Construction Applications.” In Proc. of 2nd RILEM International Conference on Rheology and Processing of Construction Materials (RheoCon2), 8-11 September, Dresden, Germany, pp. 355-362. DOI: 10.1007/978-3-030-22566-7\_41
10. **Kumar, D., Deshpande, A.A., Ranade, R. and Khorasani, N.E.** (2018). “Effects of Elevated Temperatures on Residual Bond Strength of Steel Rebar with Strain Hardening Cementitious Composites.” In Proc. of 3<sup>rd</sup> R.N. Raikar Memorial Int’l Conference, 14-15 December 2018, Mumbai, India, Vol. 2, pp. 36-45.
11. **Deshpande, A.A., Kumar, D., Mourougassamy, A. and Ranade, R.** (2017). “Development of a Steel-PVA Hybrid Fiber SHCC.” In Proc. of 4<sup>th</sup> RILEM Conference on SHCC, 18-20 September 2017, Dresden, Germany, pp. 195-202. DOI: 10.1007/978-94-024-1194-2\_23
12. **Fakhri, H., Han, Y. and Ranade, R.** (2017). “Influence of Damage on the Effectiveness of SHCC Covers for Reducing Corrosion Rates in Reinforced-Concrete Structural Elements” In Proc. of 4<sup>th</sup>

RILEM Conference on SHCC, 18-20 September 2017, Dresden, Germany, pp. 608-615. DOI: 10.1007/978-94-024-1194-2\_70

13. **Ragalwar, K.A., Nguyen, H., Ranade, R.**, Heard, W.F. and Williams, B.A. (2017). “Influence of Distribution Modulus of Particle Size Distribution on Rheological and Hardened Properties of an Ultra-High-Strength SHCC.” In Proc. of 4<sup>th</sup> RILEM Conference on SHCC, 18-20 September 2017, Dresden, Germany, pp. 221-229. DOI: 10.1007/978-94-024-1194-2\_26
14. **Ranade, R., Fakhri, H. and Ragalwar, K.A.** (2016). “Feasibility of Utilizing Ductile Concrete Cover to Mitigate Rebar Corrosion in Reinforced-Concrete Bridge Piers.” In Proc. of 9<sup>th</sup> RILEM International Conference on Fiber Reinforced Concrete (BEFIB-9), 19-21 September 2016, Vancouver, Canada, pp. 521-531.
15. **Ragalwar, K.A., Prieto, V., Fakhri, H.**, Heard, W.F., Williams, B.A. and **Ranade, R.** (2016). “Development of Environmentally Sustainable Ultra High Performance Concrete.” In Proc. of *HiPerMat-4 Conference*, 9-11 March 2016, Kassel, Germany.
16. **Ranade, R.**, Heard, W.F. and Williams, B.A. (2016). “Multi-scale Mechanical Performance of High Strength-High Ductility Concrete.” In Proc. of *SEM-2015 Conference*, 8-11 June 2015, Costa Mesa, CA, pp. 93-101. DOI: 10.1007/978-3-319-22452-7\_15 (\*Received the **Best Paper Award** in the area of Dynamic Behavior of Materials at SEM-2015 Conference\*)
17. **Ranade, R.** and Li, V.C. (2015). “Interfacial Bond Tailoring for Crack Width Reduction in High Strength-High Ductility Concrete (HSHDC).” In Proc. of *RILEM HPRCC-7*, 1-3 June 2015, Stuttgart, Germany, pp. 359-366.
18. **Ranade, R.** and Li, V.C. (2014). “Material Model for simulating SHCC in LS-Dyna.” In Proc. of *RILEM SHCC-3*, 3-5 November 2014, Dordrecht, Netherlands, pp. 235-242.
19. **Ranade, R.**, Stults, M.D., Li, V.C., Rushing, T.S., Roth, J. and Heard, W.F. (2011). “Development of High Strength-High Ductility Concrete.” In Proc. of *RILEM SHCC-2*, 12-14 December 2011, Rio de Janeiro, Brazil, pp. 1-8.
20. **Ranade, R.**, Stults, M.D., Lee, B.Y. and Li, V.C. (2011). “Effects of Fiber Dispersion and Flaw Size Distribution on the Composite Properties of PVA-ECC.” In Proc. of *RILEM HPRCC-6*, 19-22 June 2011, Ann Arbor, MI. pp. 106-113.
21. Li, M., **Ranade, R.**, Kan, L. and Li, V.C. (2010). “On Improving the Infrastructure Service Life Using ECC to Mitigate Rebar Corrosion.” In Proc. of *RILEM 2<sup>nd</sup> International Symposium on Service Life Design for Infrastructure*, 4-6 October 2010, Delft, Netherlands. pp. 773-781.
22. Stults, M.D., **Ranade, R.**, Li, V.C. and Rushing, T.S. (2010). “Mechanical Effects of Rice Husk Ash in Ultra-High Performance Concretes: A Matrix Study.” In Proc. of *Advances in Cement-Based Materials*, 17-19 November 2009, Stellenbosch, South Africa. Leiden, Netherlands: CRC Press/Balkema, pp. 307-312.

#### *Workshop/Symposium Papers/Posters*

1. Lee, H.W., Fakhri, H., **Ranade, R.**; Basaran, C., Egnér, H., Lipski, A., Piotrowski, M., Mroziński, S., Bin Jamal, M.N., Rao, C.L. (2022). “Application of unified mechanics theory to constitutive modeling of gigacycle fatigue.” Poster presentation at the 24th International Conference on Computer Methods in Mechanics and 42nd Solid Mechanics Conference, 5-8 September, 2022, Świnoujście, Poland.
2. **Fakhri, H.**, Fishman, K.L. and **Ranade, R.** (2021). “Durability Assessment of Reinforced-SHCC Structures During Initiation and Propagation Phases of Corrosion.” In Proc. of Corrosion 2021 Virtual Conference, Paper No. 16491, April 19-30, 2021.

3. **Wang, H., Ranade, R.** and Okumus, P. (2020). “Influence of Improved Durability with a Ductile Fiber-reinforced Concrete on the Resilience of a Reinforced-concrete Bridge.” Presentation at the 99<sup>th</sup> *Transportation Research Board Annual Meeting*, 12-16 January, 2020, Washington D.C.
4. **Wang, H.,** Okumus, P. and **Ranade, R.** (2019). “Seismic Fragility of Bridges Subjected to Corrosion.” In Proc. of 10th New York City Bridge Conference, 26-27 August 2019, New York City, NY.
5. **Deshpande, A.A., Kumar, D., Ranade, R.** and Whittaker, A.S. (2019). “Advanced Concretes for High Temperature Applications.” In Proc. of IABSE Congress, 4-6 September 2019, New York City, NY, pp. 328-332.
6. **Ranade, R.,** Basaran, C. and **Fakhri, H.** (2017). “Ductile Fiber-reinforced Concrete for Corrosion Mitigation in Reinforced Concrete Structures: Experiments and Theory.” In Proc. of ASNE MEGARUST, 20-22 June 2017, Newport News, VA.
7. Soltan, D., **Ranade, R.** and Li, V.C. (2014). “A Bio-Inspired, Cementitious Composite for High Energy Absorption.” In Proc. of *13th International Symposium on Multiscale, Multifunctional and Functionally Graded Materials*, 19-22 October 2014, Sao Paulo, Brazil, pp. 1-4.
8. Rushing, T.S., Burroughs, J.F., Williams, B.A., Heard, W.F., **Ranade, R.** and Li, V.C. (2012). “Both High Strength and High Ductility Achieved with Concrete.” *56<sup>th</sup> Int’l SAMPE Symposium*, 21-24 May 2012, Baltimore, MD.

*Presentations, Reports, and Book Chapters*

1. **Ranade, R.,** Okumus, P., and Wang, H. (2023). “Assessment of Reinforced Concrete Bridge Columns for Seismic and Corrosion Induced Damage.” Presentation at NYSSPE 2023 E-week seminar series, Buffalo, NY, Feb 24, 2023.
2. Williams, B.A., Graham, S.S., Heard, W.F., Grotke, M.J., Burroughs, J.F., Songer, B.P., Ratliff, K.J., Scott, D.A., and **Ranade, R.** (2022). “Development and Characterization of 3MR Ultra-High-Performance Concrete.” Report No. ERDC/GSL TR-22-7, Defeat of Complex Attack, US Army Engineer Research and Development Center, Vicksburg, MS.
3. **Ranade, R.,** Okumus, P., and Wang, H. (2021). “Seismic Vulnerability Assessment of Deteriorated Bridges”. Report No. CAIT-UTC-REG 29, Region 2 University Transportation Center, Rutgers University, NJ.
4. **Ranade, R.,** Okumus, P., and Wang, H. (2019). “Sustainable, Rapid Repair Utilizing Advanced Cementitious Materials”. Report No. CAIT-UTC-REG 2B, Region 2 University Transportation Center, Rutgers University, NJ.
5. **Ranade, R.** (2019). “SHCC for Improving Infrastructure Resilience.” Invited talk at Summer School at TU Dresden sponsored by the German Research Foundation (DFG), July 14-19, 2019.
6. Ragalwar, K. and **Ranade, R.** (2018). “Systematic Optimization Method for Penetration-resistant Quasi-brittle Composite Materials”. Submitted to US Army Engineer Research and Development Center.
7. **Ranade, R.** (2018). “Advanced Concrete Materials Design and Testing.” Invited talk at GRK 2250 program at TU Dresden sponsored by the German Research Foundation (DFG), June 18-22, 2018.
8. **Ranade, R.** (2018). “Structural Applications of Advanced Concrete Materials.” Presentation at Erie-Niagara Chapter of NY State Society of Professional Engineers Symposium, Buffalo, NY (Feb 23, 2018).
9. **Ranade, R.** (2017). “Advanced Concrete Materials.” Presentation at the 77<sup>th</sup> NY State Association of Transportation Engineers (NYSATE), Buffalo, NY (Jun 1, 2017).

10. Ranade, R. (2017). “Advanced Concrete Materials.” Presentation at Erie-Niagara Chapter of NY State Society of Professional Engineers Symposium, Buffalo, NY (Feb 24, 2017).
11. Ranade, R. and Picard, J. (2016). “Patching I-86 Bridge Deck with Field-mixed ECC.” Presentation at IBE-NYSDOT Bridge Maintenance Office Meeting, Buffalo, NY (Oct 6, 2016).
12. Ranade, R. (2015). “Ductile Concrete for Durable Bridge Construction and Maintenance.” Presentation at IBE-NYSDOT Bridge Maintenance Office Meeting, Watkins Glen, NY (Sep 23, 2015).
13. Ranade, R. (2015). “Utilizing Ductile Concrete Cover to Improve the Durability and Speed-up Construction of Bridge Columns.” Presentation at IBE-FHWA Meeting, Turner Fairbank Highway Research Center, McLean, VA (Jun 22, 2015).
14. Johnson, N., Ranade, R., Mahgoub, M. and Lynch, J.P. (2014). “SHM Technologies.” Book chapter in Special Publication of ACI 444.1.
15. Martinez, M., Plata, I.R., Ranade, R., Zhang, Q. and Li, V.C. (2012). “Feasibility Study of Novel Lego-like Construction Method using ECC.” Poster Presentation at the *SROP Symposium*, UM Rackham Building, Ann Arbor, MI (Jul 25, 2012).
16. Ranade, R. and Li, V.C. (2012). “Advanced Cementitious Composite Development for Resilient and Sustainable Infrastructure.” Poster Presentation at the *Graduate Education Day*, State Capitol Building, Lansing, MI (Mar 29, 2012).
17. Yang, E.H., Garcez, E. O., Li, V.C. and Ranade, R. (2011). “Pigmentable Engineered Cementitious Composites.” Paper presentation at the *2<sup>nd</sup> International Conference on Strain Hardening Cementitious Composites (SHCC2)*, Rio de Janeiro, Brazil (Dec 12, 2011).
18. Ranade, R., Lin, V.W.J., Li, M., Li, V.C. and Lynch, J.P. (2011). “Mechanical and Electrical Characterization of Self-sensing Carbon Black ECC.” Paper Presentation at the *ACI Fall Convention*, Cincinnati, OH (Oct 18, 2011).
19. Ranade, R., Stults, M.D. and Li, V.C. (2010). “Micromechanics-Based Tailoring of Cement-Based Composites to Achieve High Performance and Environmental Sustainability through Multi-Scale Modeling.” Presentation at the *Microlab Colloquium*, TU Delft, Netherlands (May 27, 2010).
20. Li, V.C., Ranade, R. and Stults, M.D. (2009). “Development of High Strength High Ductility Concrete.” *UM/ERDC Annual Report* submitted to the US Army Corps of Engineers, Vicksburg, MS. Ann Arbor, MI: University of Michigan (Dec 31, 2009).
21. Li V.C. and Ranade, R. (2009). “Material Research for Sustainability, Structural Safety, and Infrastructure Durability at ACE-MRL.” Presentation at the *15<sup>th</sup> CNSF Annual Exhibition*, Rayburn House Office Building, Washington, DC (Mar 24, 2009).
22. Ranade, R. and Li, V.C. (2008). “Modeling Engineered Cementitious Composites.” Presentation at the *19<sup>th</sup> ACBM/NIST Workshop*, Gaithersburg, Maryland (Jun 17, 2008).
23. Ranade, R. and Hasan, A. (2006). “Increasing Storm Water Drainage Capacity of Mithi River and Mumbai City Drains.” *3<sup>rd</sup> Sound Practice*, Pacific Disaster Center, Hawaii (Jul 31, 2006).

## TEACHING EXPERIENCE

*University at Buffalo, State University of New York, Buffalo, NY*

CIE 327 Civil Engineering Materials (Theory + Lab): 4 credits

Number of students each semester = **110-150**

Every Fall 2014 to 2017

Every Spring 2018 to 2021

Summer 2021

CIE 572 Advanced Concrete Materials: 3 credits  
Average number of students each semester = 20

Every Spring 2015 to 2017  
and Fall 2018 to 2021

CIE 500 (RAN) Industrial Ecology: 3 credits

Fall 2020, 2021

**Graduate course** offered under Engineering Sustainability MS program with rapidly increasing number of graduate students.

My teaching evaluation scores for all the courses were higher than the School and Department averages in almost all the semesters.

*University of Michigan, Ann Arbor, MI*

Graduate Student Instructor, Course: CEE 351 Civil Eng. Materials

Fall 2008\*, 2009, 2010

\*Received the “**Outstanding Student Instructor Award**” for this course from the American Society of Engineering Education

### PROFESSIONAL AFFILIATIONS AND CERTIFICATIONS

- [Licensed Professional Engineer \(PE\)](#) – Civil: Structural, State of Michigan 2017-present
- Associate member of ACI Committee 544: Fiber Reinforced Concrete 2014-present
- Associate member of ACI Committees 239 UHPC & 408 Rebar-concrete bond 2018-present
- Member of ACI, ASCE, PCI, and RILEM 2007-present
- University of Michigan Training Certificate for *Responsible Conduct of Research and Scholarship* 2013
- University of Michigan *Graduate Teacher Certificate* 2012

### STUDENT ADVISING

# PhD students advised: 13

Major Advisor for 7 PhD students (**6 graduated**) + Committee Member for 6 PhD students

# Masters thesis/project students advised: 6;

# Undergraduate research students advised: 16

*PhD Students (directly advised as Major or Co-Major Advisor)*

1. Dylan Scott (Major Advisor), PhD Candidate, Graduation expected in Spring 2024  
Research Topic: “Influence of multi-scale fiber-reinforcement on crack propagation”
2. [Amr Soliman \(Major Advisor\)](#), **Graduated** in Feb 2023  
Research Topic: “Optimizing the Design of UHPC Flexural Elements”
3. [Hanmin Wang \(Co-Major Advisor\)](#), **Graduated** in Feb 2022  
Research Topic: “Influence of Corrosion on the Resilience and Sustainability of Reinforced-concrete Bridges”
4. [Dhanendra Kumar \(Major Advisor\)](#), **Graduated** in Feb 2021  
Research Topic: “Stain-hardening Cementitious Composites for Fire Resilient Infrastructure”
5. [Ketan A. Ragalwar \(Major Advisor\)](#), **Graduated** in July 2019  
Research Topic: “Systematic Development of Strain-hardening Ultra-high Performance Concrete”

6. [Hamidreza Fakhri \(Major Advisor\)](#), **Graduated in June 2019**  
Research Topic: “Corrosion Mitigation in Reinforced Concrete Structures Using Engineered Cementitious Composites”
7. [Alok A. Deshpande \(Co-Major Advisor\)](#), **Graduated in June 2019**  
Research Topic: “A Multiscale Study of Concrete Subjected to Elevated Temperatures”

*PhD Students (advised as Committee Member)*

8. Mohammad Syed (Committee Member), PhD Candidate, Graduation expected in Spring 2022  
Research Topic: “Tessellated Structural-Architectural (TeSA) Shear Walls”
9. Nan Hua, PhD Candidate, Graduated in Fall 2021  
Research Topic: “Experimental and Numerical Assessment of Fire Damage to Reinforced Concrete Tunnel Liners”
10. Enrico Wölfel, **TU Dresden, Germany** (External Committee Member) Graduated in Nov 2020  
Research Topic: “Fibre-matrix interaction in mineral-bonded composites under dynamic loading”
11. Iurie Curosu, **TU Dresden, Germany** (External Committee Member) Graduated in July 2017  
Research Topic: “Influence of Fiber Type and Matrix Composition on the Tensile Behavior of Strain-Hardening Cement-Based Composites Under Impact Loading”
12. Jorge Mario Baiz (Committee Member) Graduated from UB in Dec 2016  
Research Topic: “Linear Elastic Behavior of Telescopic Structural Walls Subjected to Axial and Lateral Quasi-Static Loads”
13. Li Junxia, **Nanyang Tech. Univ., Singapore** (External Comm. Member) Graduated in Dec 2016  
Research Topic: “Probabilistic Micromechanics Model of ECC and Application for Mix Design of SHCC”

*MS Thesis/Project Students*

1. Xinrui Yi (Project Advisor) Spring 2021  
Research Topic: Bond Behavior of UHPC with Conventional Steel Reinforcement
2. Jun Zhang (Thesis Advisor) Summer 2017-Summer 2018 (Graduated)  
Research Topic: Influence of Air-entraining Admixtures on the Freeze-thaw Durability and Mechanical Properties of SHCC”
3. Akhilesh Allanki (Project Advisor) Fall 2017-Spring 2018 (Graduated)  
Research Topic: Mechanical Characterization of Ultra-high Performance Concrete
4. Spandana Tadvika (Project Advisor) Fall 2017-Spring 2018 (Graduated)  
Research Topic: Development of Strain-Hardening Cementitious Composites with Slag as the Secondary Cementitious Material”
5. Siddhant Mehta (Project Advisor) Spring 2017-Fall 2017 (Graduated)  
Research Topic: Application of Machine Learning to Accelerate the Development of Advanced Concrete Materials
6. Shravani Venkata (Thesis Advisor) Summer 2016-Spring 2017 (Graduated)  
Research Topic: Systematic Collection of Material-Properties Data of Ultra-high Performance Concretes for Materials Informatics

### *UG Research Students*

- Summer interns from abroad: Heet Patel (2017) and Dharmendra Kumar (2016) from Indian Institute of Technology, Gandhinagar, India and Kirill Kryzhanovskiy (2019) from Kazakhstan.
- UB students: Benjamin Pidel (Fall 2021), Qiao Lin (Sum-Fall 2019), Ming Chen (Sum 2019-Spr 2021), Ngima Sherpa (Sum 2018), Moshfaq Ahmed (Sum 2018), Cedric Wrobel (Spr-Fall 2018), Anthony Tintera (Spr 2018), Michael Durant (Spr 2018), Yunduo Lin (Fall 2017-Spr 2018), Yao Han (Fall 2016-Spr 2017), Hung Nguyen (Fall 2016-Spr 2017), Anandharam Mourougassamy (Fall 2016-Spr 2017), Trung Truong (Spr 2017), Adetunji Adesina (Spr 2016), Philip Gladwin (Spr 2016), Faris Karahasanovic (Spr 2016), and Valeria Prieto (Spr 2016)

These outstanding undergraduate students from my CIE 327 course are working/have worked in the lab with my graduate students on a variety of research tasks, which provides them valuable skills and knowledge related to design, mixing, casting, and mechanical testing of advanced concrete materials. This experience has been one of the main drivers for the majority of the above students to pursue graduate studies in Civil Engineering.

## **SERVICE ACTIVITIES**

### *Professional Service*

- Technical Committee Member for 1st Interdisciplinary Symposium on Smart & Sustainable Infrastructures (ISSSI 2023), Vancouver, Canada, September 4-8, 2023.
- International expert and invited speaker for the Summer School at TU Dresden sponsored by the German Research Foundation (DFG), June 26-29, 2023.
- Scientific Committee Member for the Third International Interactive Symposium on Ultra-High Performance Concrete, Wilmington, Delaware, June 4-7, 2023.
- National Science Foundation Panel Reviewer (3 times)
- Associate Editor, ASCE Journal of Materials in Civil Engineering, Since May 2020
- Scientific Committee Member for the Tenth International Symposium on Fiber Reinforced Concrete (BEFIB-2020), Universitat Politècnica, Valencia, Spain, September 20-22, 2021.
- International expert and invited speaker for the Summer School at TU Dresden sponsored by the German Research Foundation (DFG), July 14-19, 2019.
- Scientific Committee Member for the First International Conference on 3D Construction Printing (3DCP), Swinburne University of Technology, Melbourne, Australia, November 26-28, 2018.
- International expert and invited speaker for the GRK 2250 program at TU Dresden sponsored by the German Research Foundation (DFG), June 18-22, 2018.
- Scientific Committee Member for the 4<sup>th</sup> International Conference on Strain-hardening Cement-based Composites (SHCC-4), Dresden, Germany, September 18-20, 2017.
- Department of Energy – Consolidated Innovative Nuclear Research Panel Reviewer (3 times)
- Technical Committee Member for the 9<sup>th</sup> RILEM International Symposium on Fiber Reinforced Concrete (BEFIB – 9), Vancouver, Canada, September 19-21, 2016.
- Technical reviewer for the following publications (Google Scholar Civil Engineering Journal ranking by h5 index given in bracket)
  - Construction and Building Materials (#1)
  - Cement and Concrete Research (#3)
  - Cement and Concrete Composites (#4)
  - Materials and Structures (#6)

- ASCE Journal of Structural Engineering (#9)
- ASCE Journal of Materials in Civil Engineering (#11)
- Journal of Bridge Engineering
- Journal of Materials and Design
- International Journal of Concrete Structures and Materials
- Ceramics International
- Journal of Hazardous Materials
- ASTM Journal of Testing and Evaluation
- Composites Part B: Engineering Journal
- American Concrete Institute (ACI) Committee Report 232.2R
- ACI Special Publication: Joint ACI-FIB International Workshop
- ACI Committee 544: A review of impact resistance of fiber-reinforced concretes

*University at Buffalo, State University of New York*

- Search Committee for Faculty position in Clean Energy/Sustainability, Spring 2023-present
- Search Committee for Empire Innovation Program Faculty position in Geological Hazards, Fall 2021-present
- Representative of structural engineering, materials, and computational mechanics groups in the Department's Graduate Studies Committee, Summer 2019-Summer 2022
- Departmental Space Committee for allocation and management of spaces assigned to students and laboratories within the department, Spring 2019
- Departmental Lab Committee for allocation of funds and other items related to undergraduate laboratories within the department, Fall 2018-2022
- Department's representative in the Presidential Fellowship Selection Committee, Spring 2019
- Departmental Search Committee for the Director of the Institute of Bridge Engineering, Spring 2020-present
- Organizer for the departmental engineering seminar, Spring 2018 to Spring 2019.  
 During my tenure as the seminar organizer, we invited a diverse mix of renowned faculty from top universities, including members of the National Academy of Engineers, department heads, and industry professionals, which has enriched the learning experience of our graduate students and improved the visibility of our department.
- Departmental Faculty Search Committee for Structures Faculty Recruitment, Spring 2017
- Faculty Judge for the 10th Annual CSTEP Research Poster Symposium, 2016
- Departmental Faculty Search Committee for Materials Faculty Recruitment, Spring 2016
- Reorganization of CIE 327: Civil Engineering Materials Course to be consistent with General Education requirements and SUNY-wide seamless transfer, 2015-2016
- Institute of Bridge Engineering Faculty Panel: Master's degree and Advanced Certificate curriculum, 2015-2016
- Undergraduate student advising (both departmental and EAS 202: about 10-15 students every semester)

*NY State Department of Transportation*

In a demonstration project with the NY State DOT in September 2016, an advanced concrete material developed by my students at UB was applied for patching of the I-86 bridge over Chautauqua Lake near Bemus Point, NY. The new material is intended to enhance the durability of bridge repairs.



## COMMUNITY OUTREACH

*Research Associate, Buffalo Museum of Science*

Since June 2022

Research Associates help the Buffalo Museum of Science (BMS) in their effort to develop and promote science literacy in the community and help the public understand both the process and products of science. Research Associates engage in collaborative work with the Collections Department, community outreach, and public engagement.

*Science is Elementary Program at Westminster School, Buffalo*

Sep 2015-2019

Working with UB volunteers at a local K-8 school with majority of students from minority and underprivileged sections of our community. Through hands-on experiments, this program aims to facilitate self-learning of science among the school students.

*Community Resource Volunteers/ Bates Elementary Bridge Program*

2011-2014

Worked with the University of Michigan Civil and Environmental Engineering Faculty Members to generate enthusiasm and interest among school students for science and engineering through hands-on experiments and demonstrations.