

Alok A. Deshpande, Ph.D., P.E.

Email: alokabha@buffalo.edu

Website: <https://alokdeshpande.info/>
[Google Scholar](#), [ResearchGate](#)

PROFESSIONAL REGISTRATION

Civil Engineer, California, No. 93399
Professional Engineer, Michigan, No. 6201068570
NCEES Record

EDUCATION

- 2015 – 2019 Doctor of Philosophy (Ph.D.) in Civil Engineering
University at Buffalo, The State University of New York, Buffalo, NY, USA
Dissertation: A Multiscale Study of Concrete Subjected to Elevated Temperatures
- 2010 – 2011 Master of Science (M.S.) in Civil Engineering (Structures)
University of Illinois at Urbana-Champaign, Urbana, IL, USA
- 2006 – 2010 Bachelor of Technology (B.Tech.) in Civil Engineering
College of Engineering, Pune, Maharashtra, India

PROFESSIONAL EXPERIENCE

- Aug 2019 – present Consulting Engineer
Simpson Gumpertz and Heger (SGH), Waltham, MA, USA
- Soil Structure Interaction (SSI) Finite Element analyses of buried bridges, pipes, and tunnels
 - Analysis and design of thermoplastic pipes for subsurface applications
 - Evaluation and retrofit design of a Seismic Category I reinforced concrete structure affected by Alkali-Silica Reaction (ASR)
 - Fire engineering – Fire capacities of structural members, egress calculations, and smoke studies
 - Failure investigations
 - Non-destructive evaluations, inspections, and repairs of concrete
- May 2018 – May 2019 Research Engineer
Structural Engineering and Earthquake Simulation Laboratory (SEESL)
University at Buffalo, The State University of New York, Buffalo, NY, USA
- Seismic qualification testing of ceiling systems and electrical equipment
 - Design and execution of experimental tests

Alok A. Deshpande

- Jan 2018 – May 2018 Teaching Assistant
University at Buffalo, The State University of New York, Buffalo, NY, USA
 - CIE525 (Reinforced Concrete), graduate class of 50
- Jan 2016 – Dec 2017 Research Assistant
University at Buffalo, The State University of New York, Buffalo, NY, USA
 - Seismic behavior of RC walls subjected to elevated temperature
 - High-performance concretes subjected to high temperatures
 - Development of strain-hardening cementitious composites
 - Large-scale structural testing and materials testing
- Aug 2015 – Dec 2015 Teaching Assistant
University at Buffalo, The State University of New York, Buffalo, NY, USA
 - EAS207 (Statics), undergraduate class of 450
- Apr 2014 – Jun 2015 Project Officer
Indian Institute of Technology Madras, Chennai, TN, India
 - Development of consistent strain-based design of RC components
 - Nonlinear static analysis of RC buildings
- Jan 2013 – Mar 2014 Design Engineer
LERA Consulting Engineers, Mumbai, MH, India
 - Construction administration for high-rise concrete buildings in India
 - Site visits and coordination with contractor and client
- Jan 2012 – Dec 2012 Design Engineer
Leslie E Robertson Associates, New York, NY, USA
 - Construction drawings for high-rise concrete buildings in India
 - Schematic design for structural systems
- Aug 2011 – Dec 2011 Teaching Assistant
University of Illinois at Urbana-Champaign, Urbana, IL, USA
 - CEE470 (Structural Analysis), graduate class of 80
- May 2011 – Aug 2011 Design Intern
Leslie E Robertson Associates, New York, NY, USA
 - Construction drawings and schematic design
 - Site visits

AWARDS AND HONORS

- Apr 2018 Finalist at the 2018 University at Buffalo 3-Minute Thesis Competition
Dec 2016 \$2,500 Structural Engineers Foundation Research Grant for 2016-2017
Dec 2010 Gold Medal from *Alumni Association of College of Engineering, Pune*
Jun 2010 Gold Medal from *Dept. of Civil Engineering, College of Engineering, Pune*

PUBLICATIONS

Refereed Journal Articles

- J1. **Deshpande, A. A.**, Kumar, D., and Ranade, R. “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. 283-395, May 2019, <https://doi.org/10.1016/j.conbuildmat.2019.02.129>.
- J2. **Deshpande, A. A.**, and Whittaker, A. S. “Seismic behavior of reinforced concrete walls at elevated temperature,” *ACI Structural Journal*, Vol. 116 (5), pp. 113-124, September 2019.
- J3. Kumar, D., **Deshpande, A. A.**, and Ranade, R., “Influence of Fibre Length on the Mechanical Behavior of Steel-PVA Hybrid Fibre-Reinforced Strain-Hardening Cementitious Composites at High Temperatures,” *Indian Concrete Journal*, Vol. 93 (12), pp. 30-38, December 2019.
- J4. **Deshpande, A. A.**, Kumar, D. and Ranade, R. “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, pp. 117337, February 2020, <https://doi.org/10.1016/j.conbuildmat.2019.117337>.
- J5. Mehrabi, R., Atefi-Monfared K., Kumar D., **Deshpande A.A.** and Ranade R. “Thermo-mechanical assessment of heated bridge deck under internal cyclic thermal loading from various heating elements: pipe, cable, rebar,” *Cold Regions Science and Technology*, pp. 103466, December 2021, <https://doi.org/10.1016/j.coldregions.2021.103466>.

Refereed Conference Proceedings and Manuscripts

- C1. **Deshpande, A. A.**, Kumar, D., Mourougassamy, A. and Ranade, R. “Development of a Steel-PVA Hybrid Fiber SHCC,” *Proceedings of 4th International RILEM Conference on SHCC*, Dresden, Germany, 18-20 September 2017.
- C2. Kumar, D., **Deshpande, A. A.**, and Ranade, R. “Effects of elevated temperatures on residual bond strength of steel rebar with strain hardening cementitious composite,” *3rd R N Raikar Memorial International Conference and Gettu-Kodur International Symposium on Advances in Science and Technology of Concrete*, Mumbai, India, 14-15 December 2018.
- C3. **Deshpande, A. A.**, and Whittaker, A. S. “Effects of elevated temperatures on the seismic behavior of reinforced concrete walls,” *25th International Conference on Structural Mechanics in Reactor Technology (SMiRT25)*, Raleigh, North Carolina, 4-9 August 2019.
- C4. **Deshpande, A. A.**, Kumar, D., Ranade, R. and Whittaker, A. S. “Advanced concretes for high temperature applications,” *International Association for Bridge and Structural Engineering (IABSE) Congress*, New York City, New York, 4-6 September 2019.

- C5. Kumar, D., **Deshpande, A. A.**, Soliman, A. A., Ranade, R. “High-temperature residual bond behavior of strain hardening cementitious composites,” *5th International Conference for Bond in Concrete*, Stuttgart, Germany, 25-27 July 2022.

Technical Reports

- R1. **Deshpande, A. A.**, and Whittaker, A. S. “An experimental study of the response of squat reinforced concrete shear walls subjected to combined thermal and seismic loading,” https://www.researchgate.net/publication/322919290_An_experimental_study_of_the_response_of_squat_reinforced_concrete_shear_walls_subjected_to_combined_thermal_and_seismic_loadings, January 2018.
- R2. **Deshpande, A. A.**, Terranova, B. R., and Whittaker, A. S. “Seismic qualification test of ceiling systems, a study for Armstrong Building Products Operations,” Part XXXII, Report No. UB CSEE/SEESL-2018-31, State University of New York at Buffalo, Buffalo, New York, 2018.
- R3. **Deshpande, A. A.**, and Whittaker, A. S. “Seismic qualification test of ceiling systems, a study for Armstrong Building Products Operations,” Part XXXIII, Report No. UB CSEE/SEESL-2018-32, State University of New York at Buffalo, Buffalo, New York, 2018.
- R4. **Deshpande, A. A.**, and Wu, T. “An experimental study of the in-plane response of a reinforced masonry wall built using 8-inch NRG continuously insulated concrete masonry units (CICMU),” Report No. UB CSEE/SEESL-2019-01, State University of New York at Buffalo, Buffalo, New York, 2019.
- R5. **Deshpande, A. A.**, and Whittaker, A. S. “Seismic qualification test of ceiling systems, a study for Armstrong Building Products Operations,” Part XXXIV, Report No. UB CSEE/SEESL-2019-02, State University of New York at Buffalo, Buffalo, New York, 2019.
- R6. **Deshpande, A. A.**, and Whittaker, A. S. “Multiscale Study of Reinforced Concrete Shear Walls Subjected to Elevated Temperatures,” Technical Report MCEER-20-0001, University at Buffalo, State University of New York, Buffalo, New York, 2020.

Posters and Presentations

- P1. **Deshpande, A. A.**, Kumar, D., and Ranade, R. “Concrete solutions for high temperatures,” *97th U.S. Transportation Research Board Annual Meeting*, Washington, D.C., January 2018.
- P2. Kumar, D., **Deshpande, A. A.**, and Ranade, R. “Crack-free ductile concrete for resilient and sustainable infrastructure,” *97th U.S. Transportation Research Board Annual Meeting*, Washington, D.C., January 2018.
- P3. **Deshpande, A. A.**, Kumar, D., Ranade, R., and Whittaker, A. S. “Concrete solutions for high temperatures,” *ASCE Structures Congress*, Orlando, Florida, April 2019.

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P4. **Deshpande, A. A.** “Seismic Behavior of reinforced concrete walls at elevated temperature,” 2019 *ACI Spring Convention*, Quebec City, Canada, March 2019.

Invited Talks

T1. **Deshpande, A. A.**, “Joy of being an engineer,” *Department of Civil Engineering, College of Engineering*, Pune, India, 27 January 2015.

T2. **Deshpande, A. A.**, “The joy of being a structural engineer,” *Department of Civil Engineering, Indian Institute of Information Technology*, Hyderabad, India, 21 October 2015.

PEER REVIEWS

- PR1. Construction and Building Materials, since 2019, 7 reviews
- PR2. European Journal of Environmental and Civil Engineering, since 2020, 2 reviews
- PR3. Nuclear Engineering Design, since 2020, 1 review
- PR4. Journal of Materials in Civil Engineering, since 2020, 3 reviews
- PR5. Journal of Building Engineering, since 2021, 4 reviews
- PR6. Korean Society of Civil Engineers Journal of Civil Engineering, since 2021, 3 reviews
- PR7. Structures, since 2021, 2 reviews
- PR8. Fire Technology, since 2022, 1 review

SOFTWARE SKILLS

Proficient in Abaqus, Ansys, AutoCAD, ETABS, Femap, LS-DYNA, Mathcad, MATLAB, Plaxis-2D, Plaxis-3D, SAFE, SAP2000, and XTRACT.

PROFESSIONAL SERVICE

ASCE/SEI Fire Protection Committee, Member

AFFILIATIONS

American Concrete Institute (ACI),
American Institute of Steel Construction (AISC),
American Society of Civil Engineers (ASCE), and
Earthquake Engineering Research Institute (EERI).